



## The geographical, scientific and professional mobility of Greek doctorate holders





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# Preface

This publication, *'The geographical, scientific and professional mobility of Greek doctorate holders'* presents detailed data and findings of an extensive census survey involving 10,295 doctorate holders, conducted by the National Documentation Centre (EKT) in collaboration with the Regional Development and Policy Research Unit (RDPRU) University of Macedonia.

EKT conducts statistical surveys, processes data, produces indicators and publishes results for European and national statistics. At the same time it has developed mechanisms for monitoring public policies in the domains of its expertise. The RDPRU actively aims at developing interuniversity and interdisciplinary co-operations, at producing and diffusing knowledge, as well as making specific recommendations to the institutions and the stakeholders shaping regional development policies. Its research activity focuses mainly on issues of economic geography, regional development and regional policy, with particular emphasis on international comparative analysis.

The survey presented here was designed and implemented in order to gather a wealth of data on the total population of Greek doctorate holders from the period 1985-2018 in order to draw reliable conclusions regarding their scientific, professional and geographical mobility. It was designed as a point of reference, and for this purpose the experience of previous EKT studies on Greek doctorate holders was used, as well as the experience of the RDRUP in terms of geographical mobility and especially 'brain drain'.

The research community examining individual aspects of public policy needs integrated data that go beyond a limited sample and cover the entire population in question. This need is met by the present survey, which includes all doctorate holders registered in the National Archive of Doctoral Theses kept by EKT.

The individual survey questions were designed to make combined use of the statistical and research activity of the two institutions involved, their participation in OECD working groups and relevant literature on the importance of human resources today.

Skilled human resources, which includes doctorate holders, are an important factor in research, development and innovation policies, while they are directly linked to indicators of economic growth and social prosperity. In recent years there has been a growing interest in the issue, which is reflected in scientific articles and books as well as in an extended dialogue that influences public and European Commission policies.

This publication presents the data collected regarding the demographics of doctorate holders, their selection of specific institutions in Greece or abroad from which they receive their degrees, their professional choices and how these are related to their scientific orientation, their geographical mobility during and after their studies, the correlation of mobility with the labour market and factors, economic

and other, that influenced their decisions. The findings are presented in chapters based on the geographical mobility of Greek doctorate holders within and outside Greece.

Thus this publication provides important data on the highly skilled human resources of the country, which can be used not only by researchers to deepen their analysis on individual issues, but also those who plan public policies, i.e. public administrators, government and political parties wishing to formulate evidence informed policies in a variety of topics and fields (education, research, development, etc.).



Dr. Evi Sachini

EKT Director



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Professor, RDPRU Director

## Acknowledgements

The survey 'The geographical, scientific and professional mobility of Greek doctorate holders' was carried out under the design and scientific supervision of Dr. Evi Sachini, Director of EKT, and Professor Lois Labrianidis, Director of the Research Unit for Regional Development and Policy (RDPRU) of the University of Macedonia.

The results presented were written by Lois Labrianidis, Evi Sachini and Dr Nikos Karampekios.

The publication was critically edited by Dr Nena Malliou, who also checked the data presented.

Technical support for the survey was provided by Ms Agathi Belouli.

Helpdesk for the assistance of the doctorate holders was provided by Dr Nancy Megremi and Ms Polina Gioltzoglou.

Completeness and correctness of the collected data was checked by Dr Nancy Megremi and Ms Polina Gioltzoglou.

The processing of the data, the indicators and the configuration of the graphic representations was carried out by Galatios Siganos.

The publication was designed by Ms Dimitra Pelekanou and Ms Margarita Skandali.

The publication was edited Dr Giannis Balabanidis.

Translation by Trudy Missia

The whole project used the infrastructure of the Department of RDI Indicators & Actions, in terms of the implementation of the electronic questionnaire and the collection of the answered questionnaires, the established controls of statistical surveys and the tools of analysis and visualisation.

EKT's Department of Communication and Publicity was used to enhance the response rate of Greek doctorate holders and informed the public about the survey.

The 'Knowledge and Partnership Bridges' initiative, implemented by EKT, made a significant contribution to the survey by communicating with Greek doctorate holders living abroad calling them to complete the questionnaire.

The authors would like to thank the participating Greek doctorate holders who completed the survey questionnaire.

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# 1 Introduction and summary of findings

This publication presents the results of the primary statistical survey conducted by the National Documentation Centre (EKT), in collaboration with the Regional Development and Policy Research Unit (RDPRU) University of Macedonia, focusing on geographical, scientific and professional mobility of the Greek doctorate holders. The survey was conducted between May and July 2020, with a structured electronic questionnaire sent to 22,350 doctorate holders and completed by 10,295 of them.

The purpose of the survey was to gather the data necessary to capture in detail and in an appropriate manner the characteristics of the professional career of Greek doctorate holders in relation to their scientific field, their geographical mobility during and after the completion of their studies, the correlation of mobility with the labour market and factors, economic and other, that influenced their decisions. A particular goal was the in-depth understanding of geographical mobility, and especially migration abroad, which is characterised as 'brain drain'.

The contribution of human resources to economic development is important because it increases labour productivity, becomes a vehicle for the exploitation and dissemination of technology and innovation, and produces significant external economies, which are diffused into the economy and society as a whole. We chose to use the term human resources rather than human capital because the latter refers to the set of acquired skills of an individual, which can be incorporated into productive labour. The need for modern economists to evaluate the return on investment in human capital has required its assessment as the amount of education a person receives during his or her lifetime. This concept of human capital being quite restrictive<sup>1</sup> and since there are many more factors that cannot be understood through the constitutional knowledge of individuals, we preferred to use a more broadly understood term, that of human resources, which includes the concept of human capital.

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<sup>1</sup> For a detailed investigation see Labrianidis, L., Kalogeresis, A. and Kafkalas, G. (2016) «Spatial development and human capital: New theoretical perspectives and their application in Greece» (in Greek), in Labrianidis, L., Kalogeresis, A. and Kafkalas, G. (Eds) *Χωρική ανάπτυξη και ανθρώπινο δυναμικό*, Athens: Kritiki Publishing, pp. 35-52.

Recognising that specialised human resources is the most critical variable for promoting knowledge and generating new ideas,<sup>2</sup> this study targeted a given population with proven high degree of specialisation namely doctorate holders.

Internationally, a doctoral degree is associated with the acquisition of high qualifications relating to specialised and in-depth knowledge in specific fields, as well as advanced training in qualitative and quantitative analytical skills, which are necessary for the continuous expansion of knowledge.

In addition to its importance for the promotion of knowledge and science per se, human resources who are also doctorate holders, are of particular interest for a number of broader economic and growth reasons. Indeed, due to their research and teaching skills in general, doctorate holders play a central role both in the promotion of science and technology as individual activities, and in the 'challenge' and activation of innovative progress, through their involvement in a wider range of interrelated activities.<sup>3</sup> Because of the added value they produce, these very activities linked as they are to development, digital, industrial, employment and education policies, are in paramount demand in the 21st century. Now, the basic condition for the prosperity of modern society can be summarised with the phrase 'sustainable knowledge-based economic growth'.

The analysis and processing of the data we collected offers scholars, public administration, political parties and public policy makers a wealth of information on the country's highly specialised human resources: data on which the development of evidence policies could be based.

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<sup>2</sup> Grossman, G.M., & Helpman, E. (1994). 'Endogenous Innovation in the Theory of Growth', *Journal of Economic Perspectives*, 8(1), pp. 23-44.

<sup>3</sup> Auriol, L. (2010). 'Careers of doctorate holders: employment and mobility patterns', *OECD Science, Technology and Industry Working Papers*, No. 2010/04, OECD Publishing, Paris.

## 1.1 Statistical surveys on doctoral degree holders at international and national level

Given its importance, highly skilled human resources play a central role, with specific targeting and specialised interventions, in the design of public policies for labour and innovation. In order to facilitate the design of appropriate public policies based on factual evidence and documentation, key international bodies conduct regular statistical surveys of the characteristics and career development of doctoral degree holders.

In the European Union, the European Science Foundation periodically conducts a survey on the 'Career of Doctorate Holders' with the objective of analysing the practices that shape the development of their research career. The survey is conducted by different bodies at regular intervals and is organised by ESF-Science Connect. It highlights the issue of better understanding the conditions necessary for the mobility of doctorate holders in relation to the specified conditions of mobility in Europe (see European principles on freedom of movement, etc.) The survey is conducted through an open call for those organisations and institutions wishing to participate to provide the ESF with contact details of their doctorate holders. The most recent survey (2017) involved 2,299 people (out of an initial population of 8,404 people).

In the USA, a similar survey, entitled 'Survey of Doctorate Recipients', is conducted by the National Science Foundation every two years, from 1973 until today. It uses sampling, with a population of doctorate holders who have received their doctorates from American universities in the fields of natural, engineering and medical sciences. It aims to collect data in order to identify the characteristics of doctorate holders employed in education, private industry and the business world, as well as their respective positions at state and national level. The most recent survey (2017) included 92,537 respondents (out of an initial population of 124,580 doctorate holders).

In Greece, the first survey on the career of Greek doctorate holders was conducted by EKT in 2014, as part of the worldwide survey 'International Survey on Careers of Doctorate Holders - CDH', conducted by the Organisation for Economic Co-operation and Development (OECD). The survey concerned all doctorate holders residing in Greece in 2013 and the results were published in 2015 in the EKT publication, *'Doctorate holders in Greece: career and mobility'*. Data were collected from 4,500 doctorate holders on demographics, education (countries awarding doctorates, doctoral dissertations, sources of funding for doctoral studies), employment status and their professional and international mobility.

In addition, as a National Authority for the Hellenic Statistical System, EKT is responsible for annually compiling the official national 'statistics on doctoral degree holders' in the broader fields of Research, Development, Innovation and Digital Economy. The data are collected from the electronic questionnaire completed by the new doctorate holders upon receiving their PhD and their theses being included in the National Archive of Ph.D. Theses (NAPhD), which is kept by EKT. With the first reference year being 2015, data analysis is performed on an annual basis for those who are awarded doctorates in the specific reference year by Greek universities (new doctorate holders) and the results are published on the website <https://metrics.ekt.gr/phd-holders>.

Based on these statistics and recognising the importance and role of scientific personnel in the national system of research and innovation, EKT, in collaboration with the Research Unit for Regional Development and Policy (RDPRU) of the University of Macedonia, conducted a new survey, the results of which are presented in this publication.

## 1.2 Results and wider benefits of the survey

As mentioned above, the aim of the survey, conducted in the form of a census, was the systematic recording of the sector of the population, who are characterised as highly skilled human resources. The objective was to obtain a comprehensive picture of the scientific, professional and geographical mobility of the country's highly trained human resources, and ultimately of their growth potential. A particular goal, as noted above, was the in-depth understanding of their geographical mobility and especially their migration abroad (brain drain).

This publication contains abundant material harvested from the answers given by the doctorate holders to the questionnaires they completed and there are a number of important findings worth highlighting.

Firstly, doctorate holders have, as expected, several degrees: 10.4% have a second degree, 14.9% have a second master's degree, 0.8% have a second doctorate, while 11.2% have conducted postdoctoral research - postdoc (in fact, 4.9% more than one). Their degrees are mainly in Health Sciences, Natural Sciences, Mathematics and Statistics.

A significant percentage of doctorate holders obtained one or more degrees abroad. This percentage varies depending on the level of the degree: 8% received their basic degree abroad, 22.4% received abroad their master's degree, 2.8% their doctorate and 26.3% have conducted postdoctoral research abroad. In fact, often those who received their degree abroad, received it from one of the universities that are among the best 100 in the world.

Doctorate holders work mainly in the public sector (66%), while a much smaller percentage (33.8%) in the private sector, and only 0.2% in the social sector. A significant percentage of doctorate holders work at universities (32.4%) or research centres (7.4%), and only 21.4% for businesses.

Often, as international literature shows, those who emigrated for study stayed in the chosen country to work. This survey focuses in particular on an effort to better understand the geographical mobility of doctorate holders because human resources are extremely important for the growth dynamics of a society and therefore its exodus abroad (brain drain), when it concerns large numbers, means the loss of developmental, societal, cultural and national dynamics, undermining the country's transition to a knowledge-based economy.

One of the most serious difficulties in trying to understand the phenomenon of brain drain is the fact that it is practically impossible to map the trained human resources that migrate, resulting in a very wide range of estimates of its extent. Of course, what is essential for a more complete understanding of the phenomenon is not just the quantitative dimension, but also a number of qualitative elements -

and this study contributes in that direction, allowing us to understand the causes of geographical, scientific and professional mobility. Subsequently, having this data will make it possible to develop effective policies to encourage these human resources to remain in Greece, to return or to be made use of while abroad.

In the case of doctorate holders, brain drain has taken on very significant dimensions. Specifically, the survey showed that 31.3% of doctorate holders worked abroad for some time (in fact 14.8% are still living and working abroad today), though 68.7% never left Greece.

The departure of specialised human resources from their home country mainly occurs due to their search for work that corresponds to their qualifications, a fact that is supported by the relevant international literature. Specifically, from the answers of doctorate holders regarding not only the reasons for emigrating from Greece but also the reasons for settling in those specific countries and cities, it appears that the host countries and cities are characterised by intense activity in the production of products and services of high added value. 75.2% are concentrated in such locations, although these locations constitute only 35.1% of the total number of cities in which Greek doctorate holders are located abroad. They are also more attracted to innovative countries (mainly the United Kingdom, USA, Germany, France and Switzerland). 67.5% of Greek doctorate holders have worked/are working in one of the 10 most innovative countries in the world.<sup>4</sup>

Doctorate holders who live/lived and work/worked abroad maintain/maintained a close relationship with Greece (they regularly monitor the Greek media, they have very regular contact with friends and relatives, almost all of them come to Greece at least once a year). A large percentage of those (about one in two) who are currently abroad want to return to Greece, the basic prerequisite for which is related to work and the general conditions prevailing in the country, while financial incentives do not seem to play a significant role (as international literature also shows).

In terms of geographical distribution within the country, the largest percentage of doctorate holders are born in the largest urban centres. Indicatively, 64.6% of doctorate holders are born in Athens, Thessaloniki, Patras and Larissa, while 74% of those living today in Greece reside in these cities. This finding can be interpreted in two different ways. On the one hand, it confirms that the major urban centres attract highly skilled human resources. On the other hand, there is an outward 'flow' of this personnel (double brain drain) to the major urban centres while the periphery of the country is deprived of such personnel with all that that implies for balanced regional development.

The following chapters present data on the educational, professional and geographical mobility of Greek doctorate holders, which can help researchers to deepen their analyses in a number of areas (e.g. comparing the educational and professional performance of men and women, those who worked/are working abroad and those who stayed in Greece, performance depending on the scientific field, etc.). The data can also be of valuable use to the state when planning public policies (education, development, research, technology, brain drain, etc.) based on evidence.

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<sup>4</sup> As they are determined for 2020, according to the Global Innovation Index (Cornell University, INSEAD and WIPO, 2020).

In the context of public policy-making based on data, this publication provides the necessary evidence and data, ie the critical information input required not only to understand the issue but also to formulate appropriate public policies. At the core of these policies is the use of knowledge as a drive for growth in the 21st century, as an incentive for return, physical or virtual, as well as the reinforcement of the research and business ties of this highly competent population, living abroad, with Greece. Furthermore, the existence of an extensive database of this specialised population, including its contact details, now makes locating experts -technically competent and highly qualified people for public policy purposes- a tangible possibility.

The recording of highly skilled human resources can have significant benefits for both themselves and the national development strategy. In addition, the data published in this publication will facilitate the exercise of policies, not only economic, but also technological and educational.

Regarding the human resources themselves, the results of this survey can contribute to the facilitation of their own professional career and their mobility, supporting and promoting their work in the wider Greek research community.

In terms of creating and formulating a development strategy, the present survey contributes to the production of indicators in order to document and develop national strategies in the fields of growth and innovation, while promoting the public debate on the mobility of highly skilled human resources.

The survey can help to better understand the phenomena in relation to the geographical mobility of skilled human resources. This term covers both univocal mobility abroad (brain drain) -in relation to those who stay in the country and remain unemployed, mismatched or under-employed (brain waste)<sup>5</sup> – as well as mobility within the country, which leads to the concentration of a significant proportion of specialised personnel in the big cities, further weakening all other regions, which are deprived of this valuable personnel (double brain drain).<sup>6</sup>

The data presented in this study can also be used to answer a number of difficult questions including: How can the above problems be addressed in order to encourage the return of the human resources that left the country (brain return) or those who left the country's less developed areas for big urban centres? Additionally, how is the co-operation of those who live and work in another country with the Greek economy (virtual return)<sup>7</sup> ensured? Finally, how can knowing details about the profile of the highly skilled human resources including their scientific and professional path, contribute to the formulation of appropriate national policies regarding technology, digital transformation, industry and development in general?

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<sup>5</sup> Labrianidis.L. (2011) Investing in flight: The outflow of scientists from Greece in the era of globalisation, Athens: Kritiki Publishing, and Labrianidis, L. & Sykas, Th. (2021), Brain Drain in Greece: a case of the migration of the highly specialised, Athens: Hellenic Open University.

<sup>6</sup> Labrianidis, L., Panori, N., Kalogeresis, Th. (2016). 'Levels of education and development prospects' Labrianidis, L., Kalogeresis, Th., Kafkalas, Gr. (Ed.), 'Spatial development and human resources,' *ibid*, pp. 481-516.

<sup>7</sup> Labrianidis, L. & Sykas, Th. (2021). Brain Drain in Greece, *ibid*.



Given that the concept of the 4th industrial revolution focuses on knowledge and technology<sup>8</sup> the recording and exploitation of the cognitive, technological and innovative skills of Greek doctorate holders can significantly enhance the requisite digital transformation of the 21st century. Details about these skills are central to the intended digital transition of the domestic economy and contribute to the identification of clusters of excellence.

The emergence of the importance of doctorate holders as the pre-eminent modern growth capital, owing to their higher cognitive ability in matters of innovation and strengthening of the economy<sup>9</sup>, is another dimension of the requisite digital transformation. Therefore, the data included in this survey are at the heart of economic and development policy as they are indicators of economic growth, business vitality and investment attraction.

Last but not least, higher educational policies can benefit from the findings of this publication through the understanding of how the relationship between scientific subject and professional and geographical mobility operates in practice. This knowledge can facilitate the shaping of policies that are more in line with the country's growth goals.

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<sup>8</sup> Schwab, K. (2016). *The fourth industrial revolution*, Geneva: World Economic Forum

<sup>9</sup> Bosetti, V., Cattaneo, C., & Verdolini, E. (2015). 'Migration of skilled workers and innovation: A European Perspective', *Journal of International Economics*, 96(2), pp 311-322, see: <https://doi.org/10.1016/j.jinteco.2015.04.00>

## 1.3 Methodology and implementation of survey

The population of the survey was drawn from the registry of doctorate holders kept by EKT, which includes doctorate holders whose doctoral dissertations were awarded during the period 1985 to 2018 and have been submitted to the National Archive of Ph.D. Theses (NAPhD).

The survey was designed in the form of a census and therefore included all the doctorate holders registered in the NAPhD. It is important to emphasise this fact since, as mentioned above, so far respective international surveys are conducted on samples and not on the entire population concerned.

The following is an overview of the main actions carried out by EKT and the RDPRU in the implementation of the survey, while the methodology is presented in more detail in Chapter 7.

Implementation phases of the survey followed these steps (see Figure 1):

### 1. Locating the contact details of the doctorate holders in order to send them the questionnaire

The data available in the NAPhD were enriched, corrected and confirmed by locating e-mail addresses using the Web of Science database, advanced internet search, the LinkedIn social networking platform and through publicity actions on the “Knowledge and Partnership Bridges” platform (<https://www.knowledgebridges.gr>). The population of doctorate holders for which at least one valid email address could be identified was 22,350. A detailed description of the extensive clearing and verification of contact information is provided in Chapter 7.

### 2. Design of questionnaire

Variables, classification schemes, structure and type of questions were determined in accordance with the study objectives.

The questionnaire included an introductory section, which collected demographic data and data on scientific specialisation and employment. More specifically, the doctorate holders selected the category to which they belong according to their current place of residence (if they live in Greece or abroad) and their current working status (whether they work, are unemployed or retired).

Then, based on the category to which they belonged, the doctorate holders answered specific questions about their careers and mobility in the following individual sections of the questionnaire, now developed into respective chapters in this edition:

- **Section:** ‘I worked abroad for some time but now I live and work (or am unemployed/retired) in Greece’
- **Section:** ‘I live and work (or am unemployed/retired) abroad’
- **Section:** ‘I worked abroad, I returned to Greece, but now I again live and work (or am unemployed/retired) abroad’
- **Section:** ‘I never left Greece, I live and work (or am unemployed/retired) in Greece’

### 3. Preparation of data collection

The current electronic data collection system used by EKT for its statistical surveys was used. The questionnaires were checked both for the relevance of the questions to the information to be collected and for the degree of comprehension and coherence of the questions. At the same time, a trial completion of the questionnaire was carried out internally and logical checks were made of the answers.

### 4. Commencement of survey and data collection

The data collection was carried out by sending to the population of interest an electronic invitation to participate to the survey, while during its duration, reminders were sent out at regular intervals. A helpdesk was functioning for the duration of the data collection. A total of 10,295 fully completed questionnaires were collected, corresponding to a response rate of 46.1%.

### 5. Processing-analysis of data and production of relevant statistical results and indicators

Of the 10,295 doctorate holders that responded, there were 10,054 who selected Greek citizenship in one of the three available relevant fields. As the research aimed to record and process data on Greek doctorate holders, the statistical results were based on the data of the questionnaires completed by the said 10,054 doctors who selected Greek citizenship.

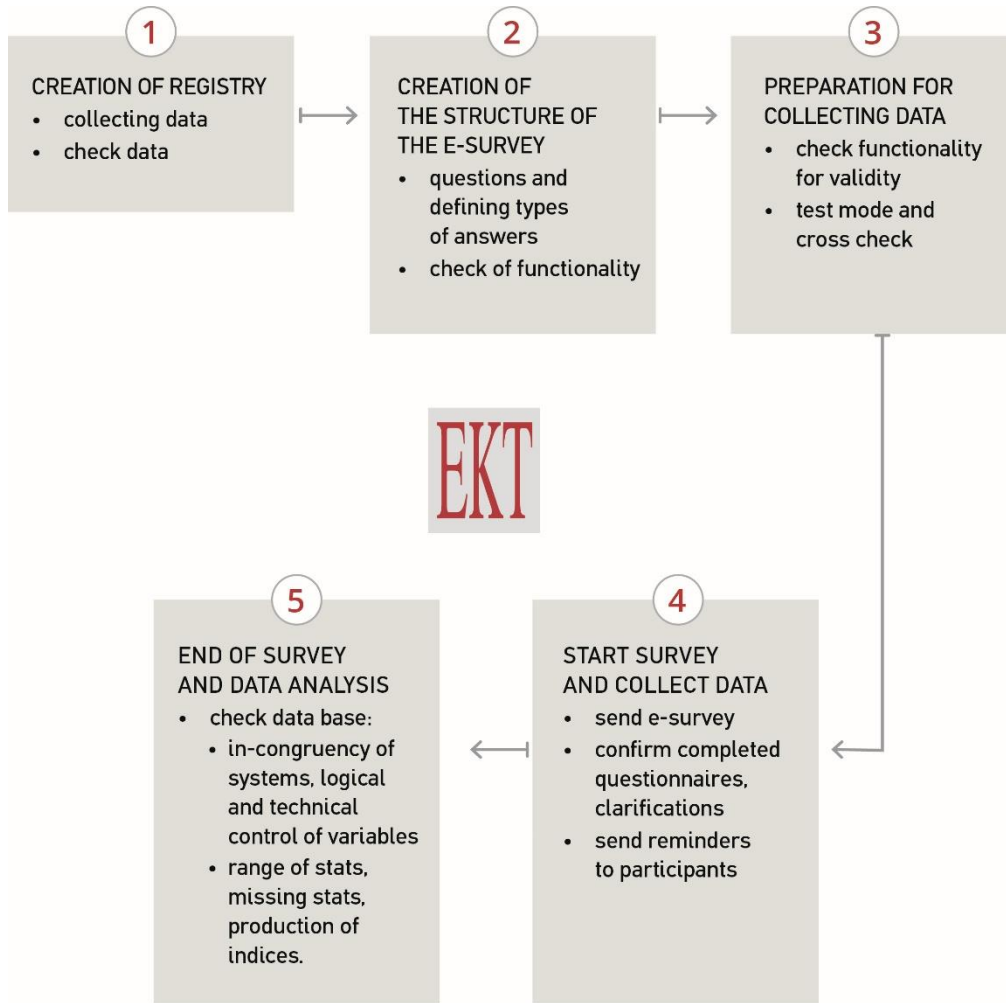


FIGURE 1. Schematic representation of the main activities undertaken by EKT in the implementation of the primary research.

## 1.4 Presentation of statistical results

In this publication, the statistical results and pragmatic findings relating to the geographical mobility of Greek doctorate holders are presented in 5 chapters, the content of which is given below.

### Chapter 2: Demographic characteristics and qualifications

Chapter 2 presents the variables relating to the demographic characteristics of the 10,295 doctorate holders who participated in the study. The doctorate holders were asked about their date of birth, their nationality, their gender, their marital status, their country of residence and their current employment status. In addition, the variables relating to their education, the number of degrees they have, the country from which they received them, the educational institution and their scientific specialisation are presented.

### Chapter 3: Those who have never worked outside Greece and have always resided in Greece

Chapter 3 presents the variables concerning the sections of the questionnaire “I have never left Greece, I live and work in Greece” and “I have never left Greece and now I am unemployed/retired”. Doctorate holders were asked questions about their employment status and income, finding their first job and their degree of satisfaction with their employment status and living conditions in Greece, as well as whether they have considered moving to another country or if they have professional relationships abroad.

### Chapter 4: Those who worked abroad for some time but now live in Greece

Chapter 4 presents the variables concerning the sections of the questionnaire “I worked abroad but now I live and work in Greece” and “I worked abroad but now I am unemployed/retired in Greece”. Doctorate holders in this section were asked questions about their employment status prior to moving abroad, when they moved and for what reasons. They were also asked about the specific reasons why they moved to the country where they chose to live abroad, as well as to which countries they moved, how many years they stayed there, and what their relationship with Greece was while living abroad. They were further asked about their degree of satisfaction with their working conditions in Greece and their working conditions abroad. Finally, they were asked if they have maintained professional relations abroad to date and what they are.

### Chapter 5: Those who live and work abroad

Chapter 5 presents the variables relating to the sections “I live and work abroad” and “I live abroad and I am unemployed/retired”. In this section, the doctorate holders were asked what their country of residence is as well as to which countries they have moved during their time abroad. They were asked about their employment status, their salary and the degree of satisfaction with their working conditions abroad. They also answered questions about the reasons they chose to leave Greece, under what conditions they would

return and what could the Greek state do to help them for a possible return. Finally, doctorate holders were asked if the pandemic had played a role in their decisions.

### **Chapter 6: Those who worked abroad, returned to Greece, but now again live and work abroad**

Chapter 6 presents the variables relating to the sections “I worked abroad for a while, I returned to Greece, but now I again live and work abroad” and “I worked abroad for some time, I returned to Greece, but now I live and work abroad again” and “I worked abroad, I returned to Greece, now I live abroad again and I am unemployed/retired”. The doctorate holders in this section were asked to state the time and reasons for their double relocation, as well as the countries in which they lived. They were also asked about their professional careers during their stay in Greece, specifying their employment and salary. As in the previous section, the doctorate holders were asked about the possible reasons and conditions for their return to Greece and what the Greek state can do to help them return, if they so wish. As in chapter 5, doctorate holders were asked if the pandemic had played a role in their decisions.



## 2 Demographic characteristics and qualifications

The doctorate holders participating in the survey are mainly men (54.7%) aged 40-49 years (43.6%). They were born and have lived in Greece for most of their lives (95%). They were mainly born in Attica (43.3%), where most of those who return settle. They categorise the financial situation of their parents as being above average (88.9%). 79.7% have a partner/spouse. 38.6% do not have children. 95.7% currently work, with 66% of them working in the public sector.

In terms of studies, 10.4% hold a second degree, 74.4% a postgraduate degree and 14.9% a second postgraduate degree. 0.8% have a second doctorate, while 11.2% have conducted postdoctoral research. Their degrees are mainly in Health Sciences, Natural Sciences, Mathematics and Statistics - by level of education: bachelor (44.5%), postgraduate (38.1%), doctoral degree (44.6%) and postdoctoral degree (28, 5%). They have mainly studied in Greece, as shown by percentages show in levels of education: 92% bachelor degree in Greece, 77.6% postgraduate degree and 97.2% doctorate title.<sup>10</sup>

In terms of their geographical mobility, 31.3% have work experience abroad, while 14.8% still live abroad. More specifically, 16.5% worked abroad for some time, but now live and work in Greece, 13.4% live and work abroad today, 1.4% worked abroad, returned to Greece, but now live and work abroad again, and finally 68.7% have never worked abroad.

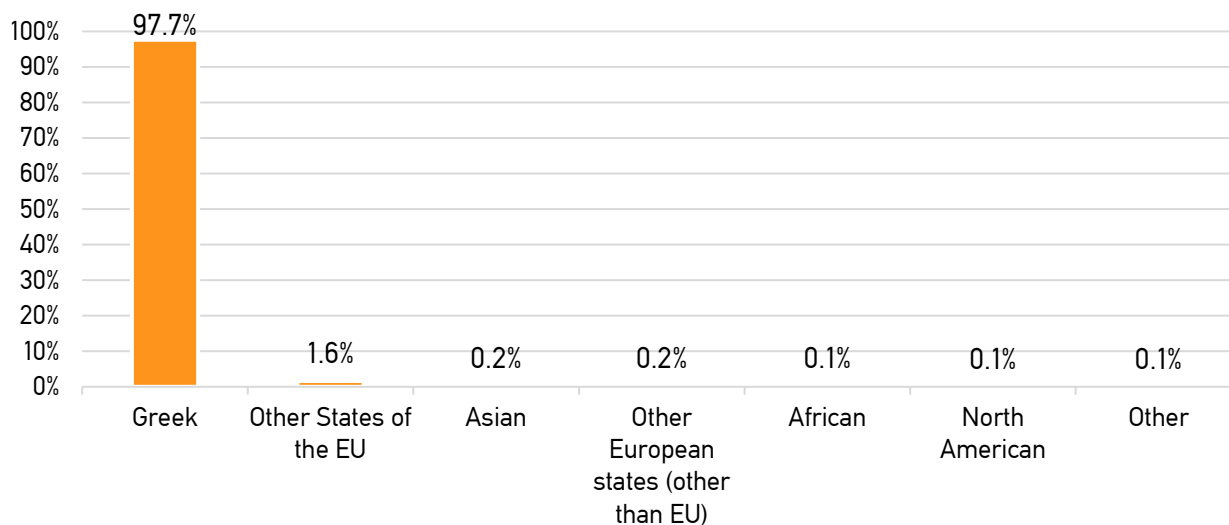
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<sup>10</sup> These percentages may be slightly lower than the real ones, especially for doctoral holders, in the sense that those who received their degree abroad and did not intend to return to Greece or work in the Public Sector would not submit their data to the NARIC (former DIKATSA) to recognise their degree, and therefore would not be counted in our data.

## 2.1 Nationality, country and place of birth

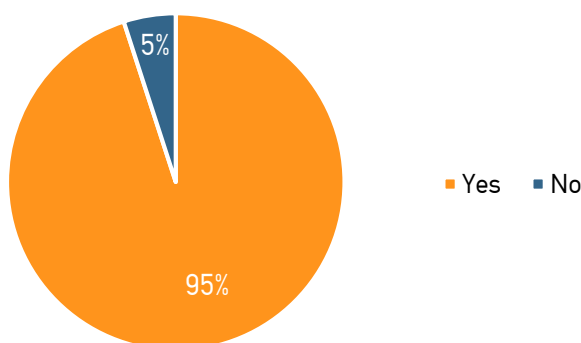
Of the 10,295 doctorate holders participating in the EKT survey, 97.7% hold Greek citizenship. 1.6% have citizenship from another EU member state, and 0.2%, hold citizenship from Asia and European countries outside the EU. Next are Africa, North America, etc. with 0.1% (Figure 2.1.1).

FIGURE 2.1.1: Citizenship



95% answered that they were born and have lived in Greece for most of their lives (Figure 2.1.2).

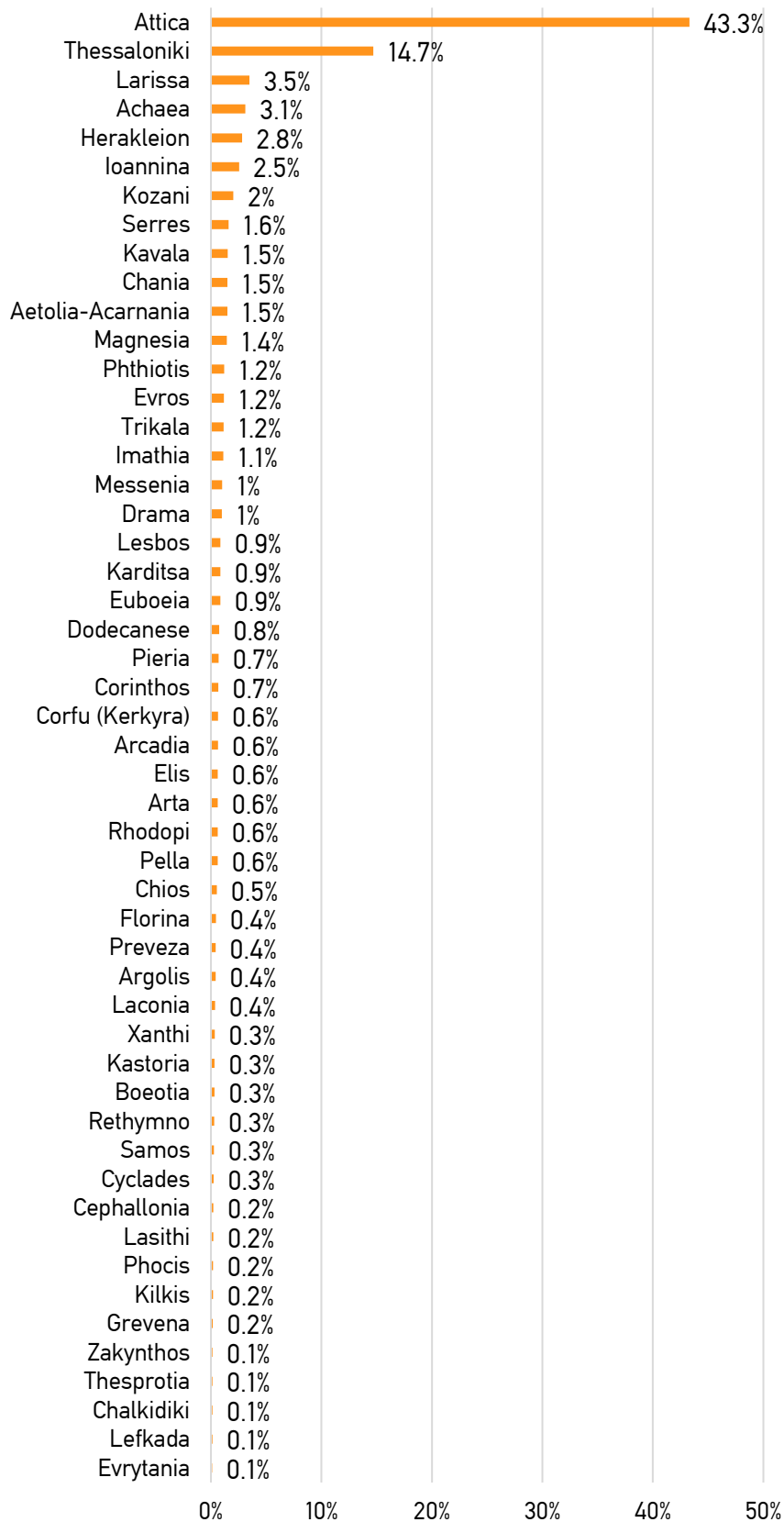
FIGURE 2.1.2: Greece as a country of residence for most of life



Focusing on those born in Greece, the following figure (Figure 2.1.3) lists the regional unit of birth. 43.3% of doctorate holders were born in Attica, followed by the Prefectures of Thessaloniki with 14.7%, Larissa with 3.5% and Achaea with 3.1%.



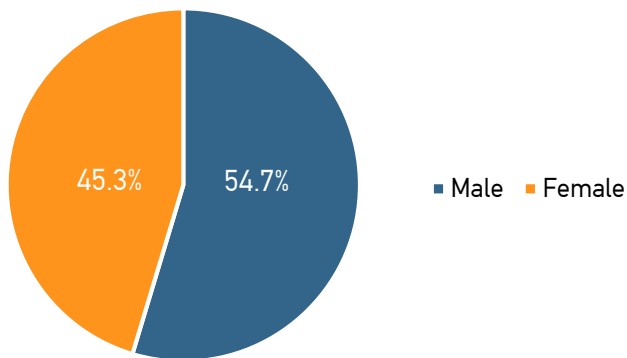
FIGURE 2.1.3: Prefectures of birth



## 2.2 Gender and age group

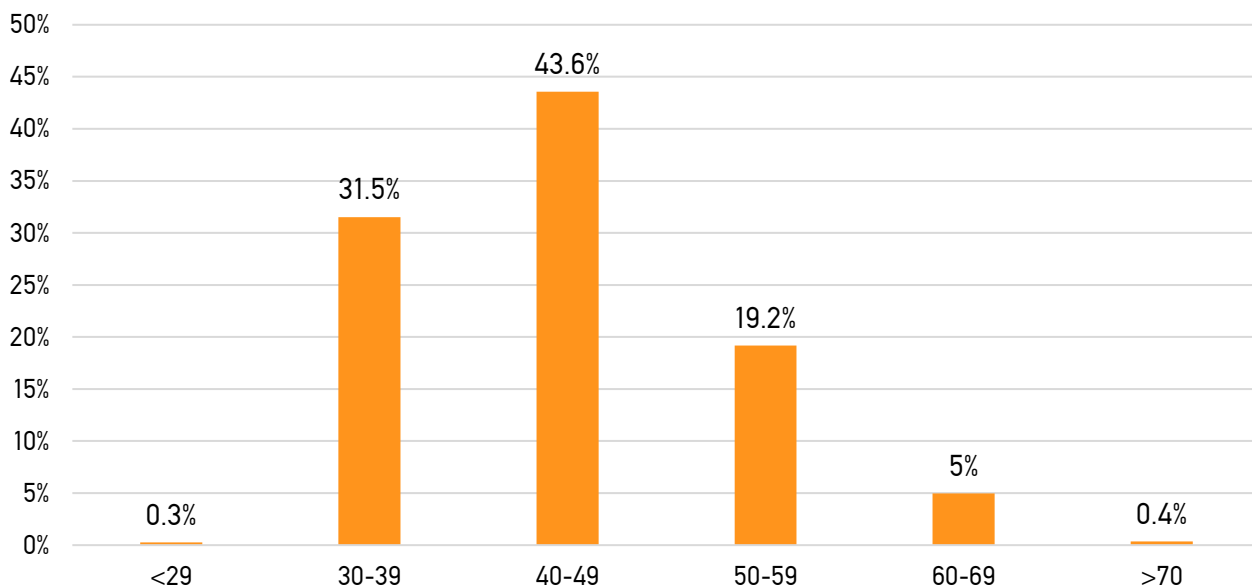
54.7% of the participating doctorate holders are men and 45.3% are women (Figure 2.2.1).

FIGURE 2.2.1: Gender



The most populous age group is the “40-49 years” group with 43.6%. It is followed by the “30-39 years” group with 31.5% and the “50-59 years” group with 19.2% (Figure 2.2.2).

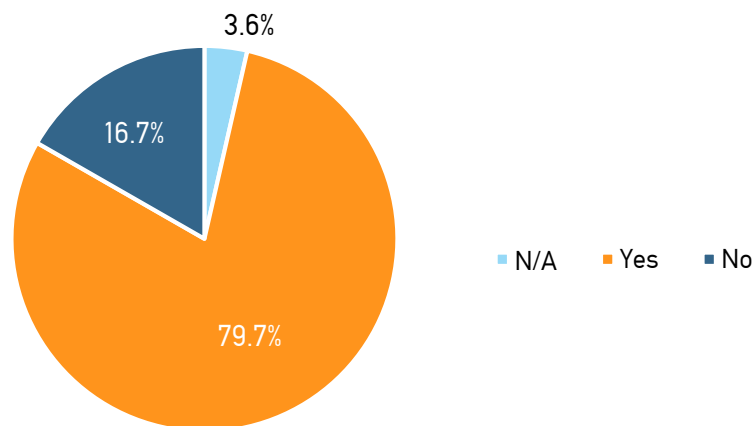
FIGURE 2.2.2: Age Group



## 2.3 Family environment

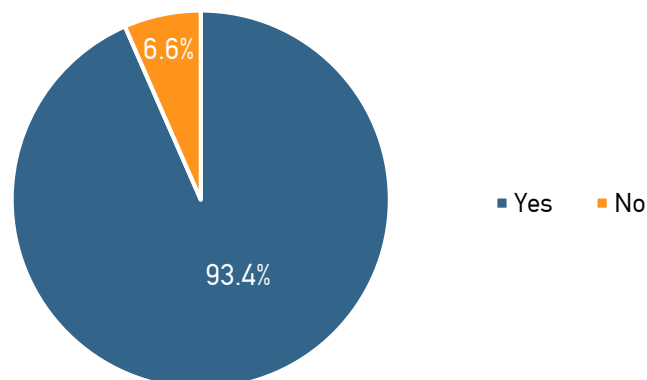
79.7% of doctorate holders stated that they have a partner/spouse, while 16.7% do not (Figure 2.3.1).

FIGURE 2.3.1: Partner/spouse



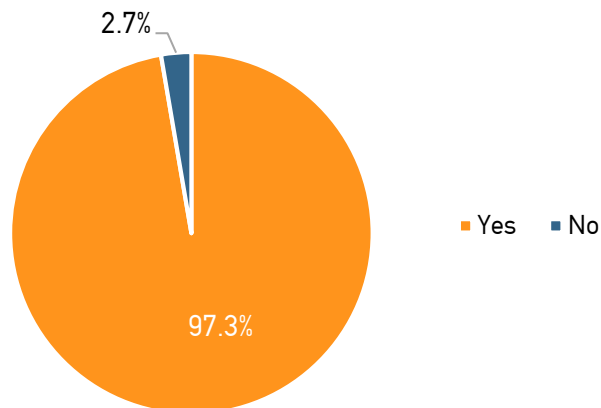
93.4% stated that their partner/spouse holds Greek citizenship (Figure 2.3.2).

FIGURE 2.3.2: Is your partner/spouse Greek?



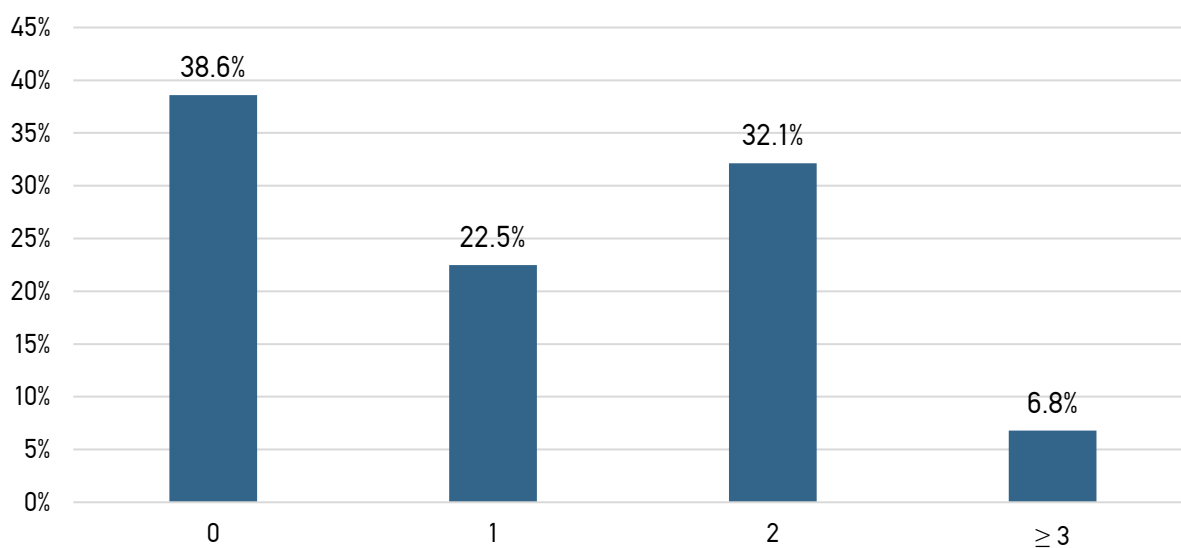
When asked if they live in the same country as their partner/spouse, 97.3% answered in the affirmative. (Figure 2.3.3).

FIGURE 2.3.3: Do you live in the same country as your partner/spouse?



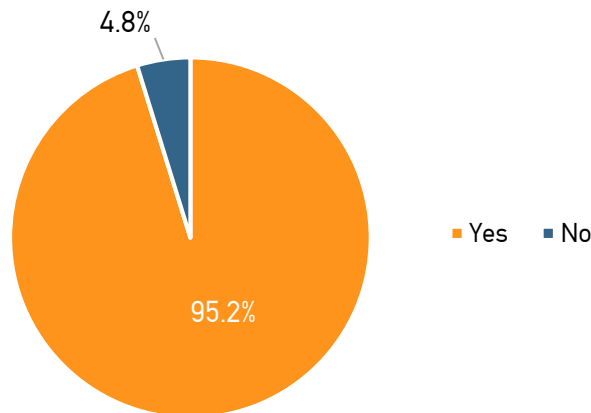
38.6% do not have children. 32.1% have two children and 22.5% have one child (Figure 2.3.4).

FIGURE 2.3.4: Children



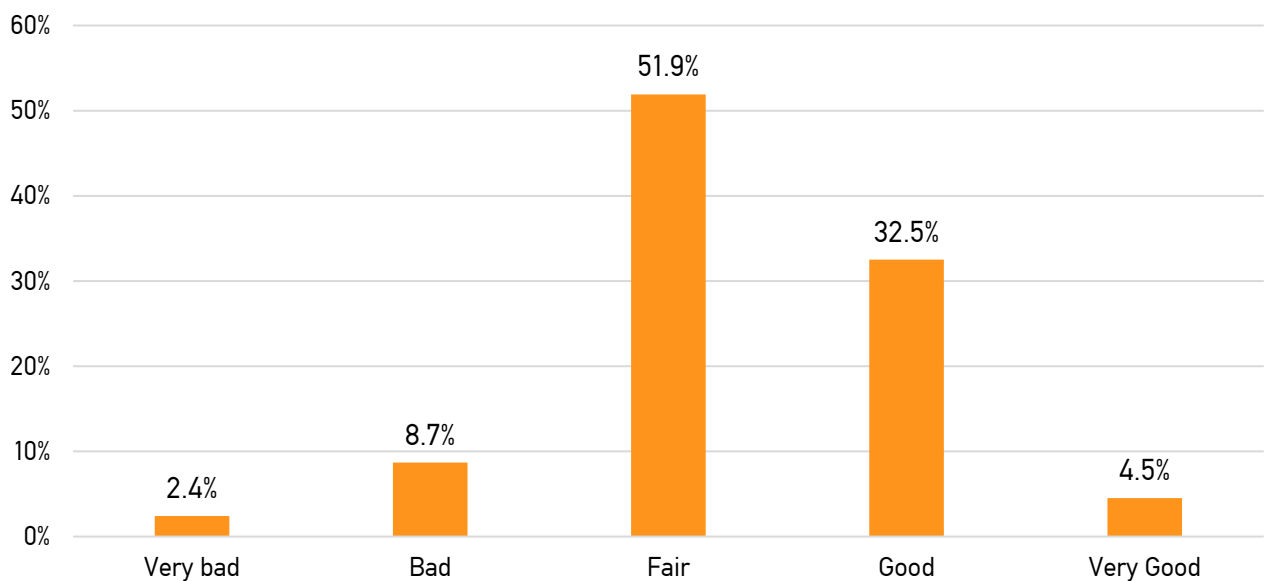
95.2% live in the same country as their children

FIGURE 2.3.5: Country of common residence as children



Of all the doctorate holders surveyed, 51.9% described their parents' financial situation as "moderate". Those categorising it as "good" had a share of 32.5% while the percentage for those categorising it as "bad" was much lower at 8.7% (Figure 2.3.6).

FIGURE 2.3.6: Financial status of parents



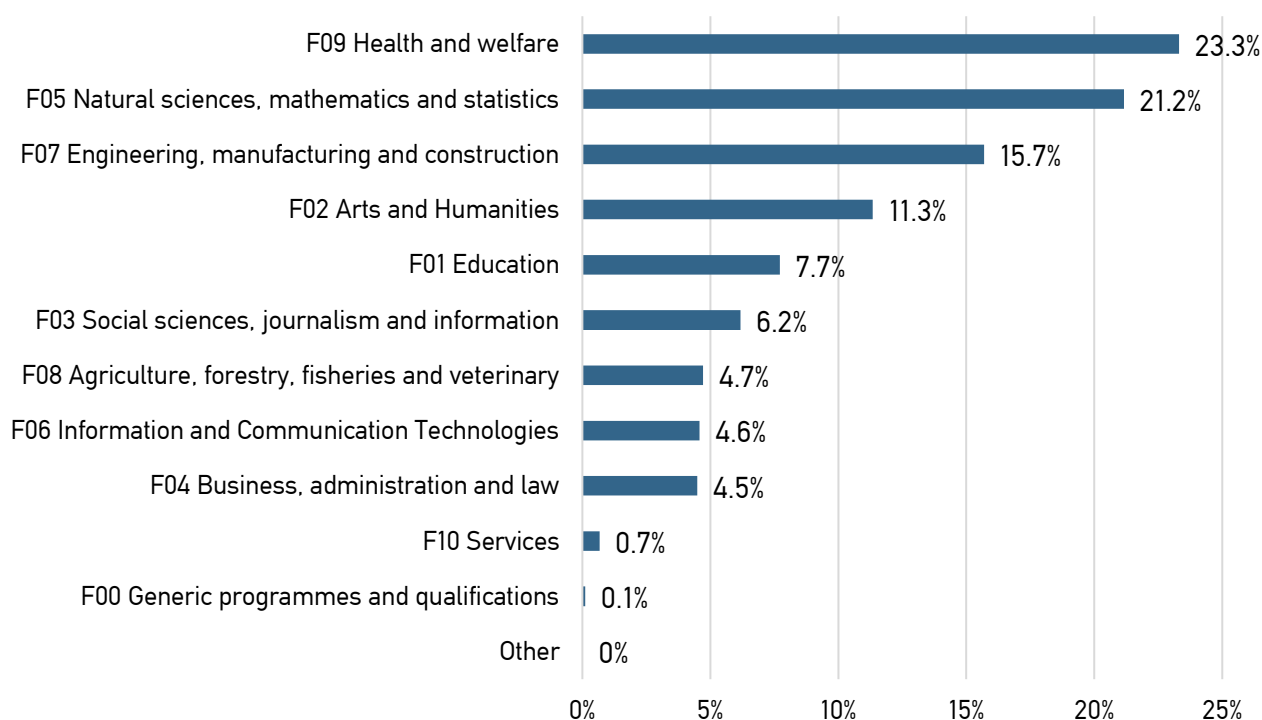
## 2.4 Education and qualifications

The following section presents data on all the higher education qualifications of the doctorate holders: first degree, second degree, first postgraduate degree, second postgraduate degree, first doctoral degree, second doctoral degree, postgraduate research (post doc). The data refer to the institution which awarded them, the country, the year of award, the scientific field, as well as relevant data concerning the recognition of diplomas by NARIC.

### 2.4.1 First degree

Regarding the scientific field of first degrees, the highest percentage (23.3%) is in “Health Sciences”, followed by “Natural Sciences, Mathematics and Statistics” with 21.2%, “Engineering and Technology” with 15.7% and “Arts and Humanities” with 11.3%. (Figure 2.4.1.1)

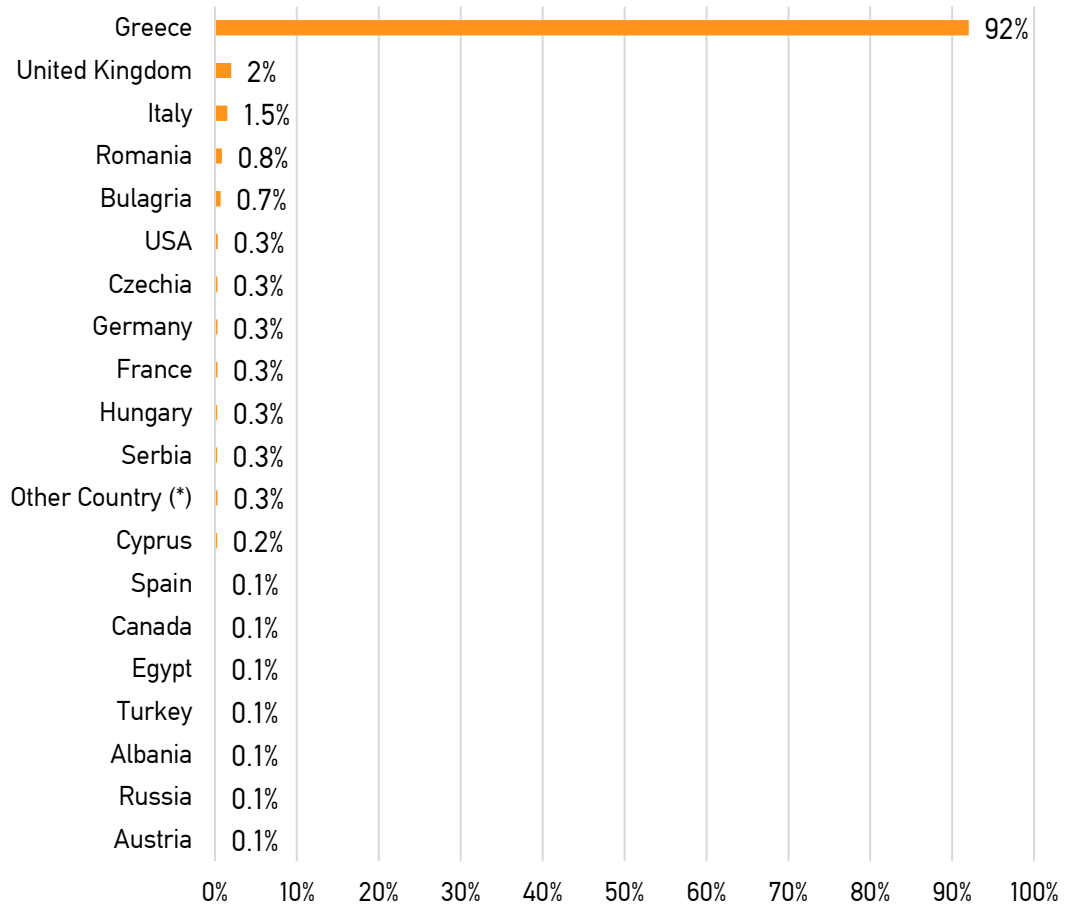
FIGURE 2.4.1.1: Scientific field of 1st degree



Note: Scientific fields are presented at the first level (Major Groups) of analysis

92% obtained their first degree in Greece, 2% obtained it in the United Kingdom, 1.5% in Italy, 0.8% in Romania and 0.7% in Bulgaria (Figure 2.4.1.2).

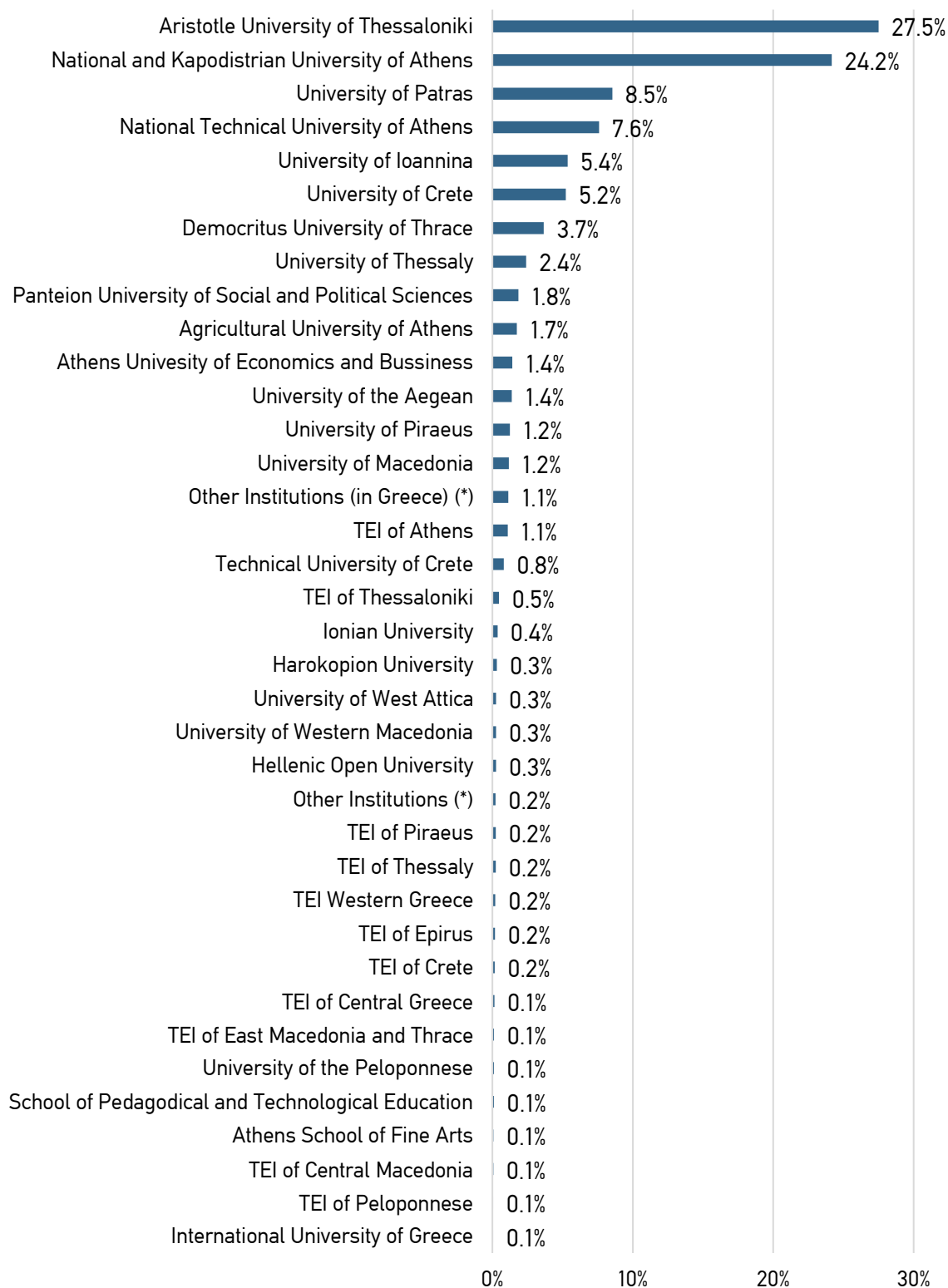
FIGURE 2.4.1.2: Country awarding 1st degree



(\*) Namely: Ethiopia, Vanuatu, Venezuela, Bosnia and Herzegovina, Brazil, Georgia, El Salvador, Colombia, Libya, Malta, Nigeria, Netherlands, Uzbekistan, Palestine, Sudan, Iran, Syria, China, South Korea, Poland, Armenia, Australia, India, Bangladesh, Ukraine, Montenegro, Slovakia, Sweden and Belgium.

Percentages show that the Aristotle University of Thessaloniki (AUTH), with 27.5%, was the leading Greek institution in the awarding of first degrees. The National Kapodistrian University of Athens (NKUA) is next with a percentage of 24.2%, followed by the University of Patras with 8.5%, the National Technical University of Athens (NTUA) with 7.6%, the University of Ioannina with 5.4%, the University of Crete with 5.2%, the Democritus University of Thrace (DUTH) with 3.7% and the University of Thessaly with 2.4%. The other institutions of the country are represented with percentages of less than 2% each (Figure 2.4.1.3).

FIGURE 2.4.1.3: Institution awarding 1st degree

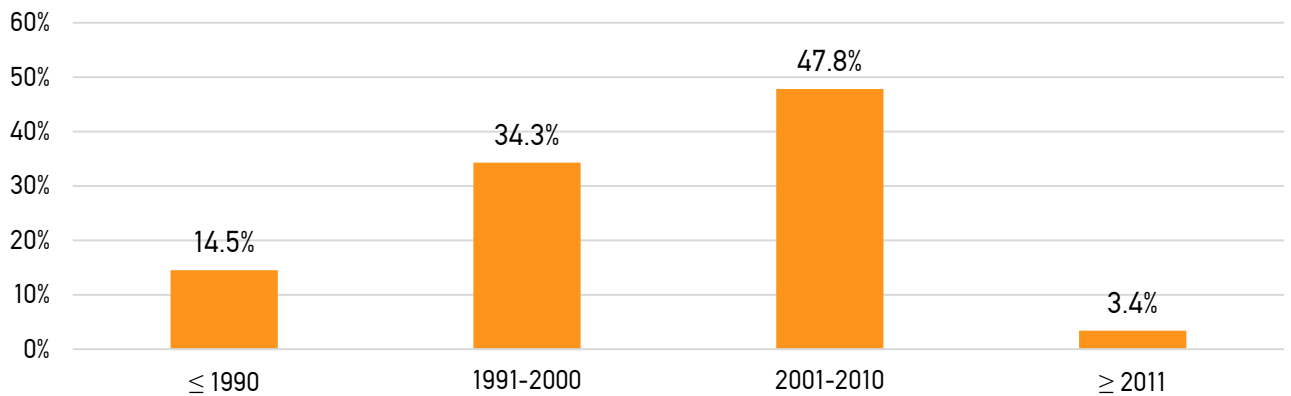


(\*) Namely: Hellenic Mediterranean University, TEI of the Ionian Islands and TEI of Western Macedonia



Most doctorate holders received their first degree between the years 2001-2010 (47.8%), followed by those of the period 1991-2000 (34.3%) (Figure 2.4.1.4).

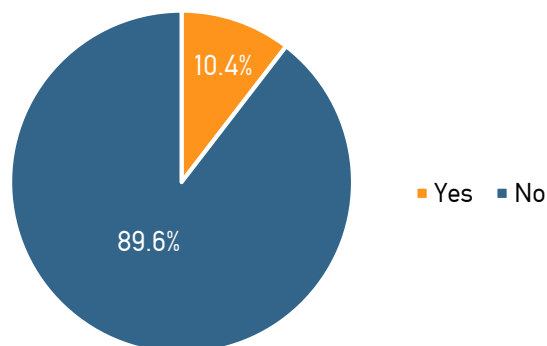
FIGURE 2.4.1.4: Year 1st degree was awarded



## 2.4.2 Second degree

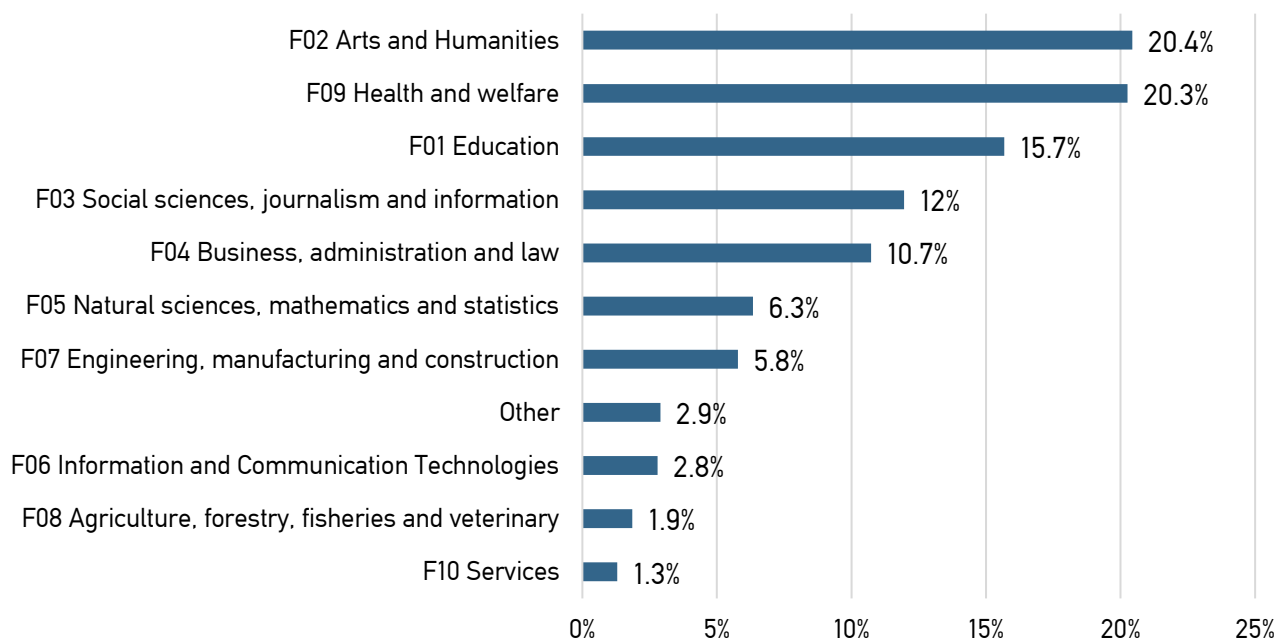
10.4% of doctorate holders have a second degree (Figure 2.4.2.1).

FIGURE 2.4.2.1: 2nd degree



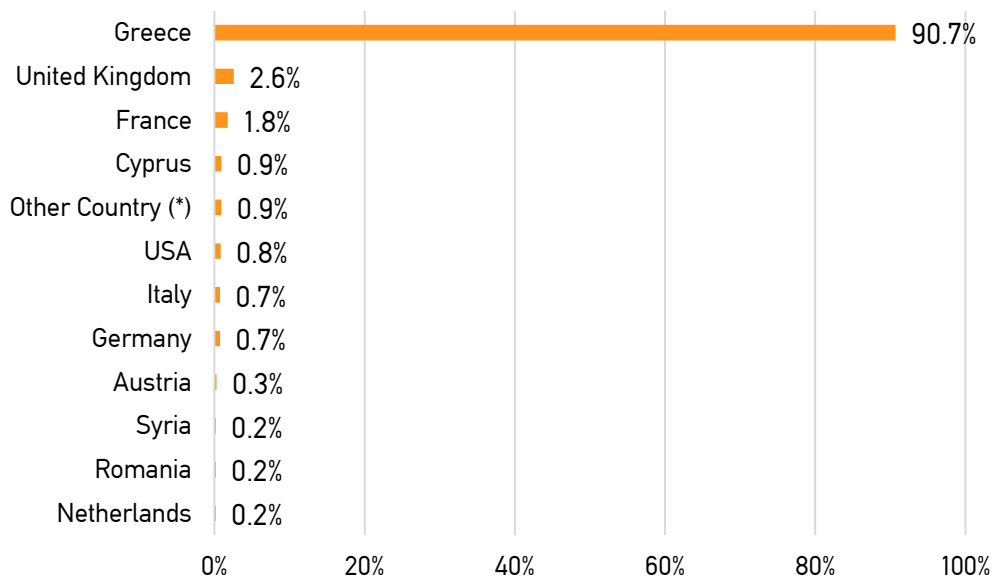
Most earned it in the “Arts and Humanities” with (20.4%) and in the “Health Sciences” with (20.3%) (Figure 2.4.6).

FIGURE 2.4.2.2: Scientific field of 2nd degree



For 90.7% of the doctorate holders the awarding country is Greece, followed by the United Kingdom with 2.6% and by France with 1.8% (Figure 2.4.2.3).

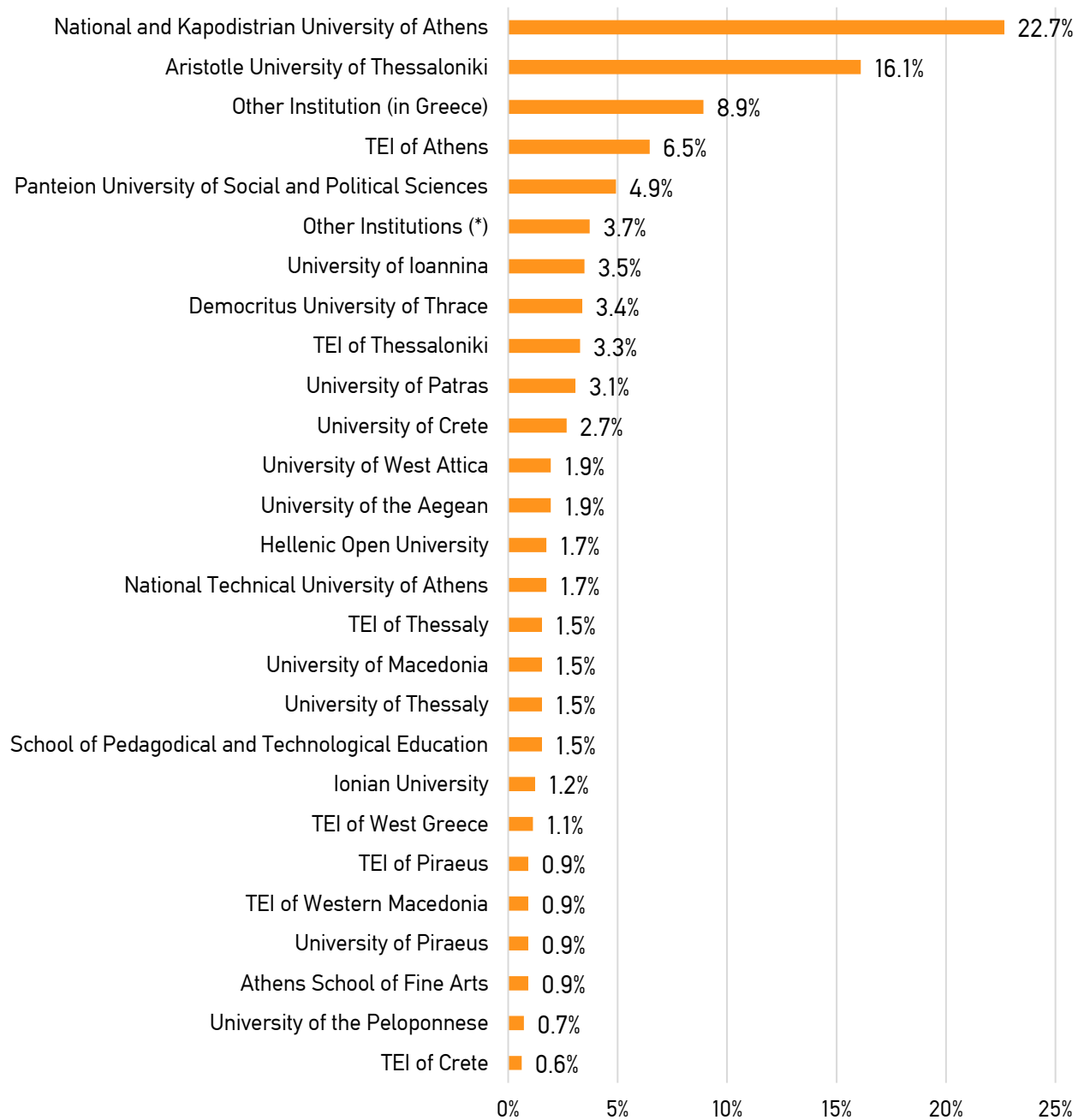
FIGURE 2.4.2.3: Country awarding 2<sup>nd</sup> degree



(\*) Namely: Bulgaria, Jordan, Spain, Canada, China, Lebanon, South Korea, Poland and the Czechia.

Of Greek institutions, the NKUA has the greatest share (22.7%) followed by the AUTH (16.1%) (Figure 2.4.2.4).

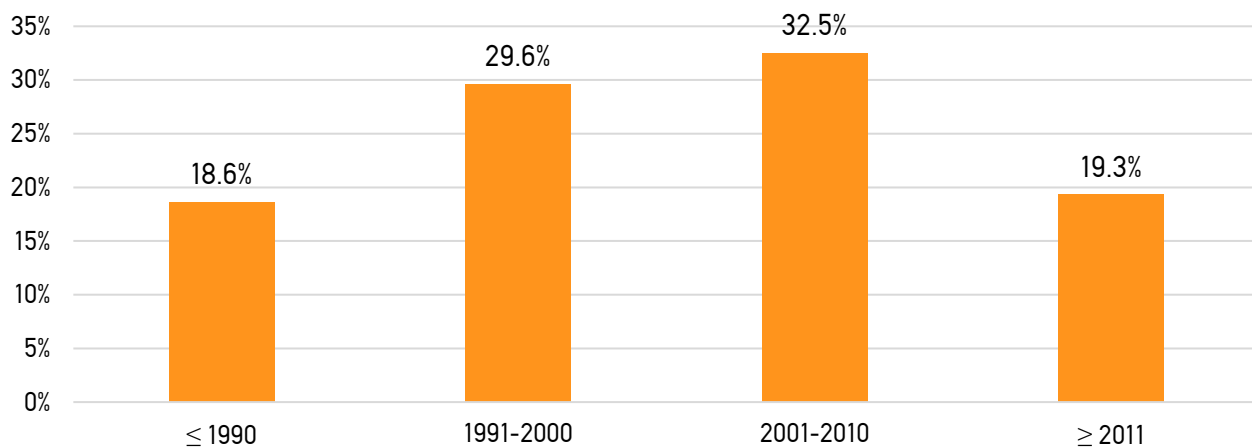
FIGURE 2.4.2.4: Institution awarding 2nd degree



(\*) Namely: Agricultural University of Athens, Hellenic Mediterranean University, Athens University of Economics, Technical University of Crete, TEI of Central Greece, Harokopio University, International University of Greece, University of Western Macedonia, TEI of Central Macedonia and TEI of Peloponnese.

Most received their second degree between the years 2001-2010 (32.5%), followed by those that received it during the period 1991-2000 (29.6%) (Figure 2.4.2.5).

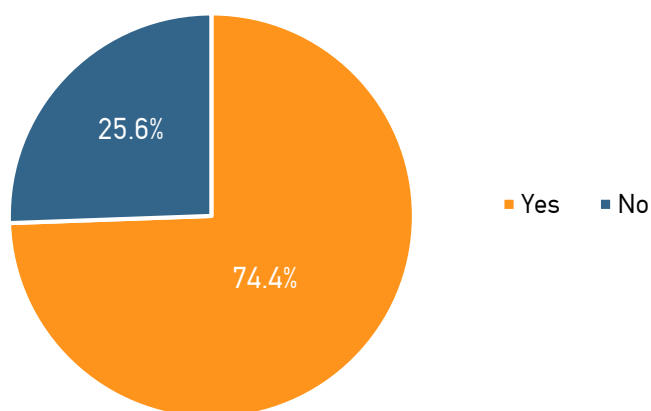
FIGURE 2.4.2.5: Year 2nd degree was awarded



### 2.4.3 First postgraduate degree

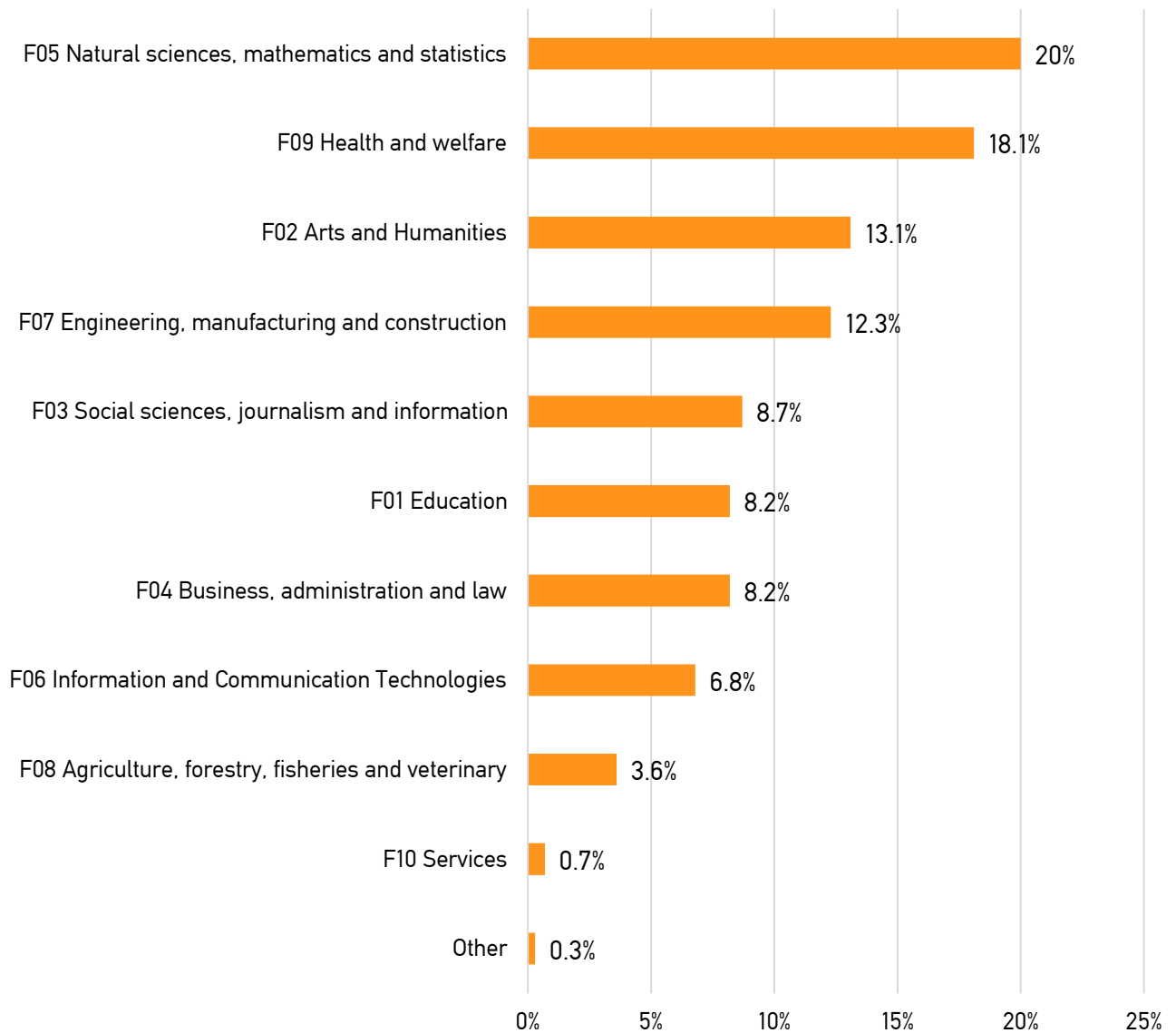
74.4% have a postgraduate degree (Figure 2.4.3.1).

FIGURE 2.4.3.1: 1st postgraduate degree



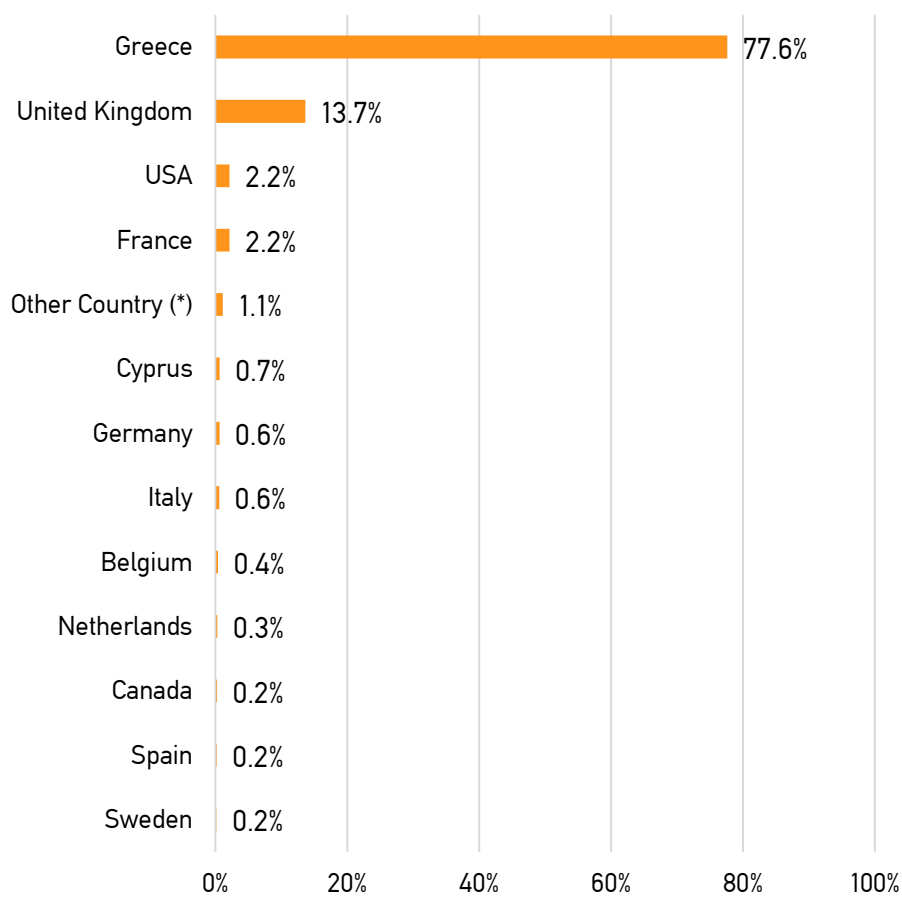
20% earned their master’s degree in “Natural Sciences, Mathematics and Statistics”, followed by those in “Health Sciences” with 18.1% and those in “Arts and Humanities” with 13.1% (Figure 2.4.3.2).

FIGURE 2.4.3.2: Scientific field of 1st postgraduate degree



For 77.6% of doctoral students with a master's degree, Greece is the awarding country. The United Kingdom is second with 13.7%, followed by the USA and France each with 2.2% (Figure 2.4.3.3).

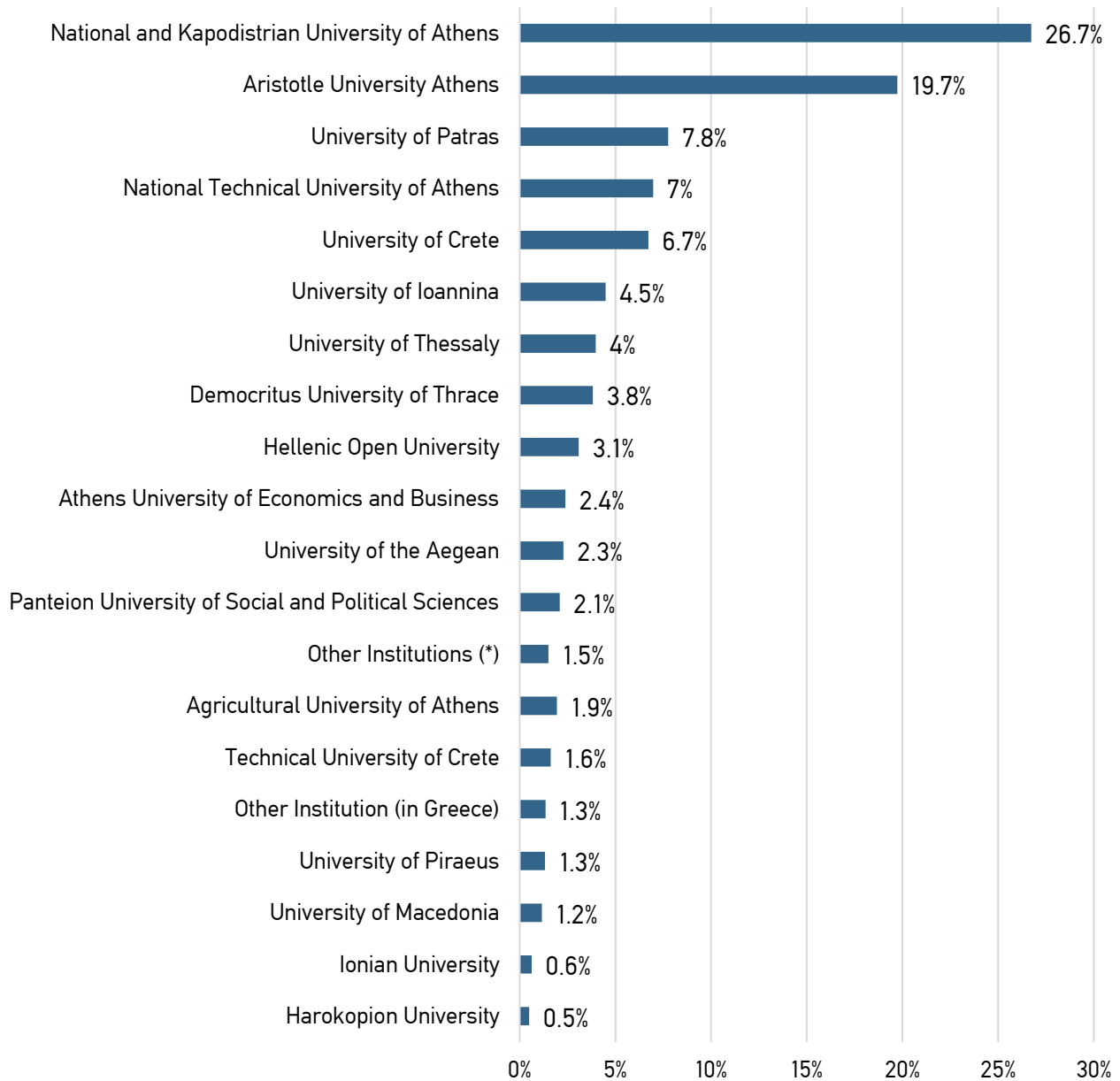
FIGURE 2.4.3.3: Country awarding 1st postgraduate degree



(\*) Namely: Denmark, Egypt, Austria, Switzerland, Bulgaria, Serbia, Romania, Venezuela, Iran, Ireland, Israel, Colombia, Lebanon, Malta, Mexico, New Zealand, Nigeria, South Korea, Mauritius, South Korea, Sudan, Syria, Czechia, Japan, Iraq, China, Ukraine, Poland, Armenia, Australia, India, Jordan, Bangladesh and Turkey.

Of Greek institutions, the NKUA has awarded the highest percentage of postgraduate degrees (26.7%) followed by AUTH (19.7%) (Figure 2.4.3.4).

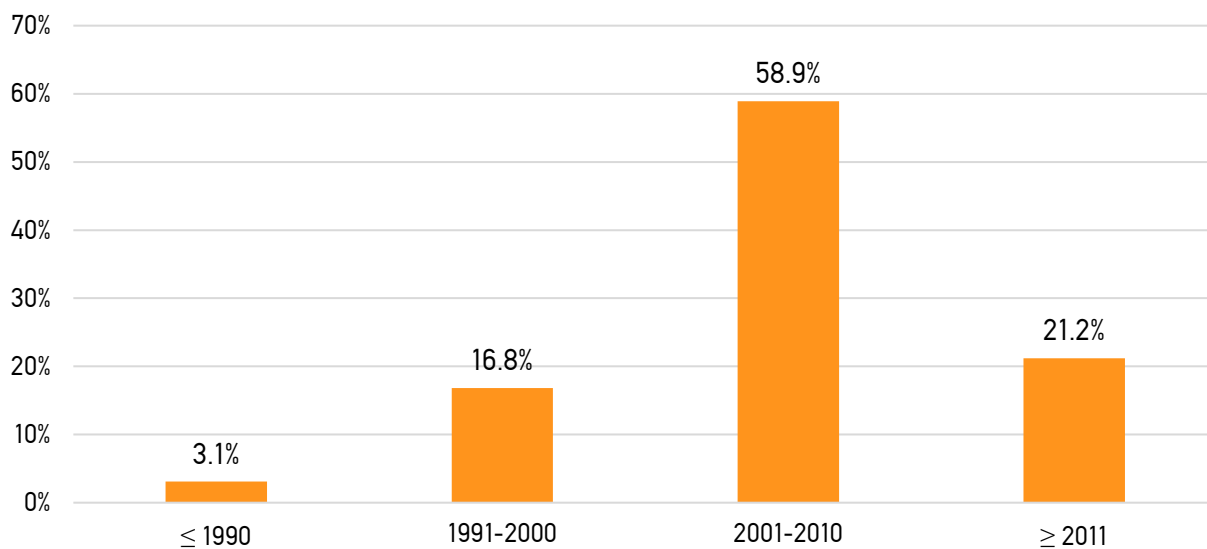
FIGURE 2.4.3.4: Institution of 1st postgraduate degree



(\*) Namely: TEI of Thessaly, School of Pedagogy and Technological Education, Athens School of Fine Arts, University of West Attica, International University of Greece, University of the Peloponnese, University of Western Macedonia, TEI of Piraeus, Hellenic Mediterranean University, TEI of Thessaloniki, TEI of Crete and TEI of Central Macedonia.

Most gained their first postgraduate degree between the years 2001-2010 (58.9%), followed by those doing so during the period 1991-2000 (16.8%) (Figure 2.4.3.5).

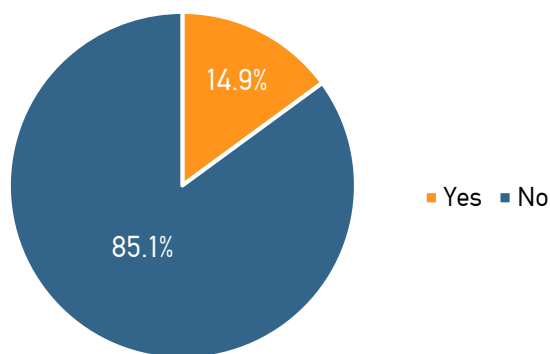
FIGURE 2.4.3.5: Year 1st postgraduate degree awarded



### 2.4.4 Second postgraduate degree

14.9% hold a second postgraduate degree (Figure 2.4.4.1).

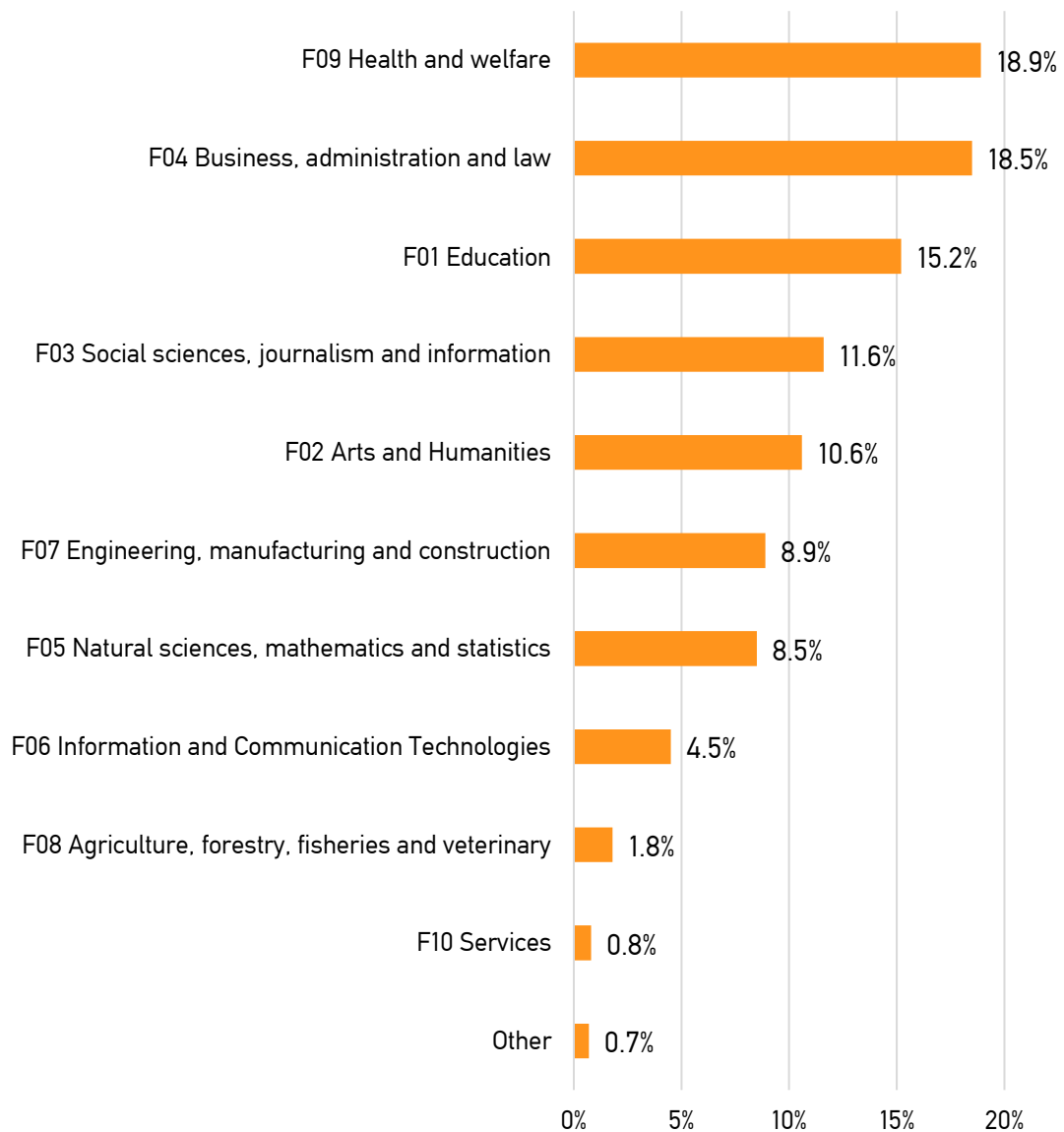
FIGURE 2.4.4.1: 2nd postgraduate degree



18.9% earned their second degree in “Health Sciences”, 18.5% in “Business Administration and Law” and 15.2% in “Education” (Figure 2.4.4.2).

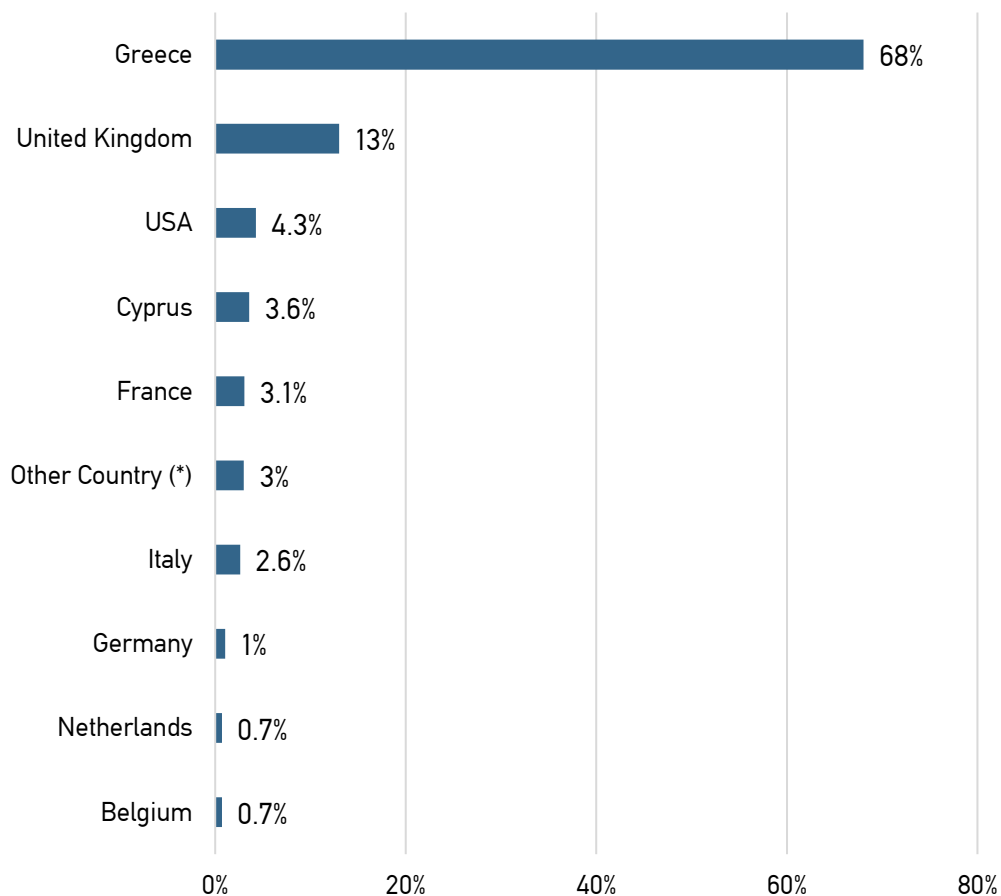


FIGURE 2.4.4.2: Scientific field of 2nd postgraduate degree



For 68% of doctorate holders, the country awarding the postgraduate degree is Greece, followed by the United Kingdom with 13% and the USA with 4.3% (Figure 2.4.4.3).

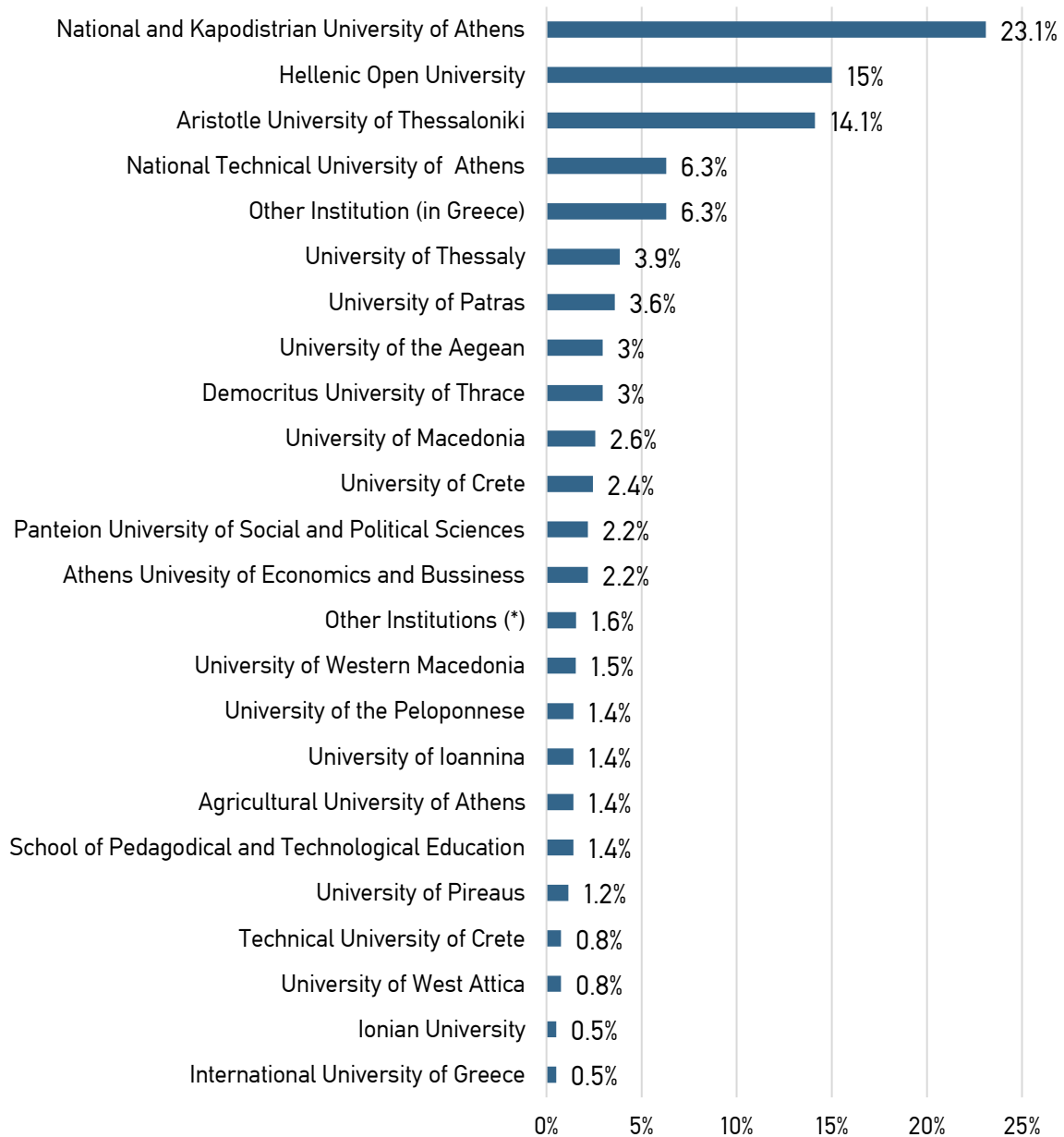
FIGURE 2.4.4.3: Country awarding 2nd postgraduate degree



(\*) Namely: Bulgaria, Japan, Cuba, Russia, Serbia, Finland, Austria, Portugal, Ireland, Australia, Switzerland, Canada, Sweden and Spain.

Of the Greek institutions awarding the degree, the NKUA had the largest share (23.1%), followed by the Hellenic Open University (HOU) with 15% and the AUTH with 14.1% (Figure 2.4.4.4).

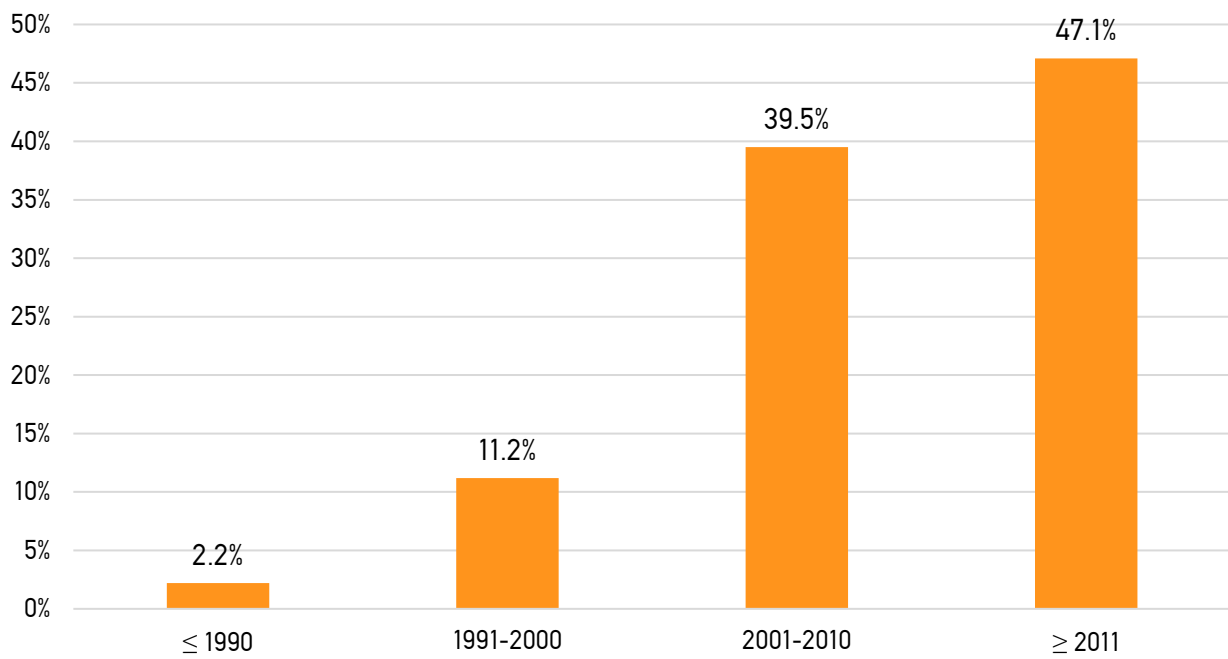
FIGURE 2.4.4.4: Institution awarding 2nd postgraduate degree



(\*) Namely: Athens School of Fine Arts, Hellenic Mediterranean University, TEI of Crete, TEI of Piraeus, TEI of Thessaly, TEI of Thessaloniki and Harokopio University.

Most doctorate holders gained their second postgraduate degree after 2011 (47.1%), followed by those doing so during the period 2000-2010 (39.5%) (Figure 2.4.4.5).

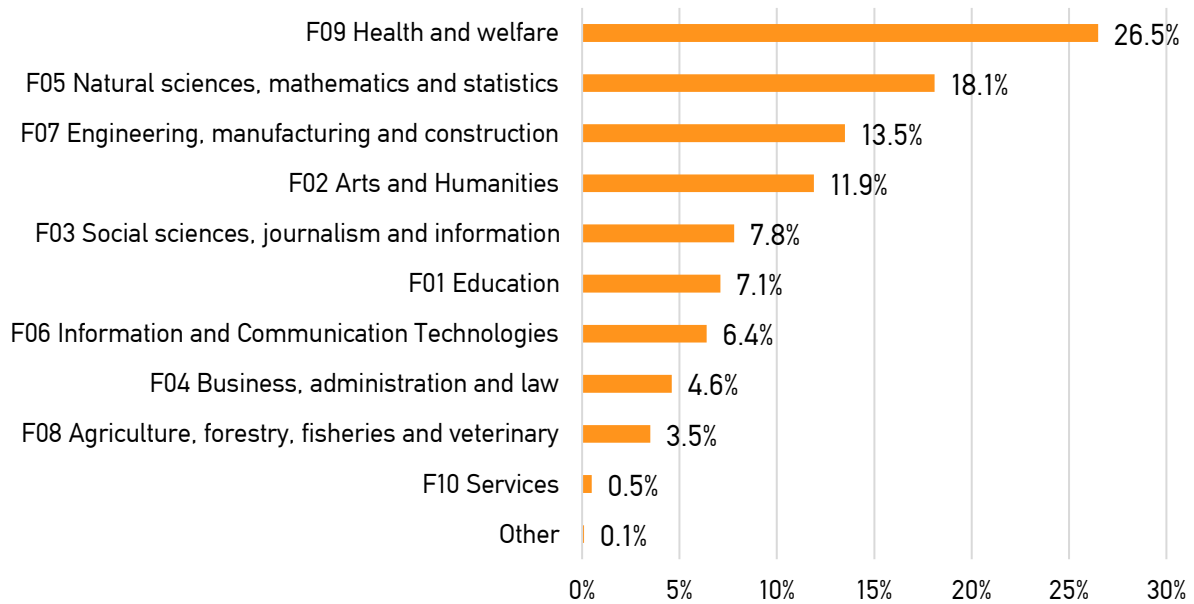
FIGURE 2.4.4.5: Year 2nd postgraduate degree was awarded



### 2.4.5 Doctoral degree

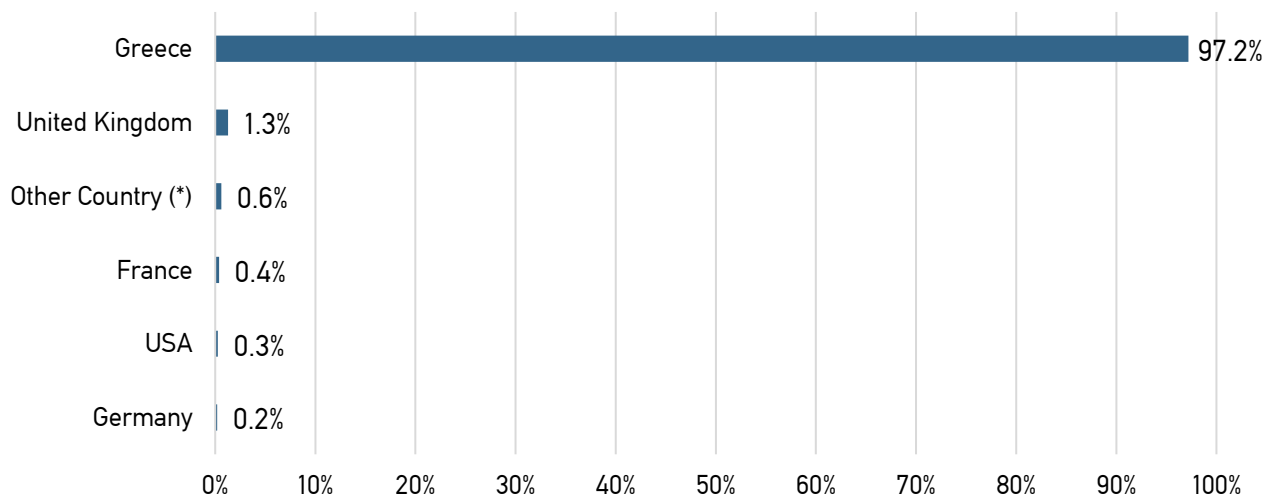
26.5% have a PhD in “Health Sciences”, 18.1% in “Natural Sciences, Mathematics and Statistics”, 13.5% in “Engineering and Technology” and 11.9% in “Arts and Humanities” (Figure 2.4.5.1).

FIGURE 2.4.5.1: Scientific field of 1st doctorate



For 97.2%, the country awarding the doctoral degree is Greece, followed by the United Kingdom (1.3%), France (0.4%), the USA (0.3%) and Germany (0.2%) (Figure 2.4.5.2).

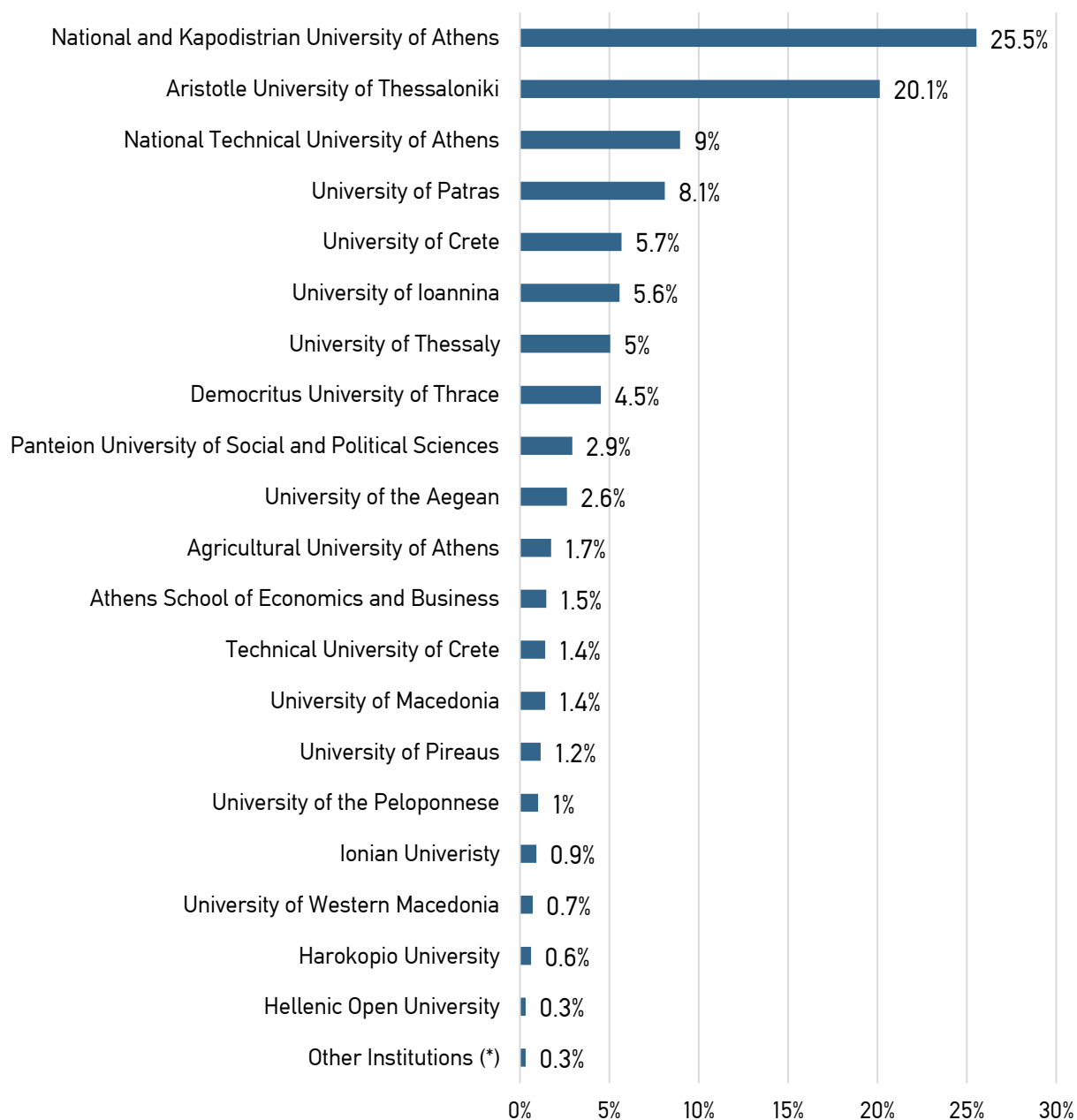
FIGURE 2.4.5.2: Country awarding doctorate



(\*) Namely: Denmark, Switzerland, Bulgaria, Romania, Serbia, Finland, Armenia, Japan, Canada, China, Poland, Czechia, Spain, Austria, Italy, Cyprus, the Netherlands and Belgium.

In Greece, most doctoral dissertations (25.5%) were completed at the NKUA. The Aristotle University of Thessaloniki follows with 20.1%, the NTUA with 9%, the University of Patras with 8.1% and the University of Crete with 5.7% (Figure 2.4.5.3).

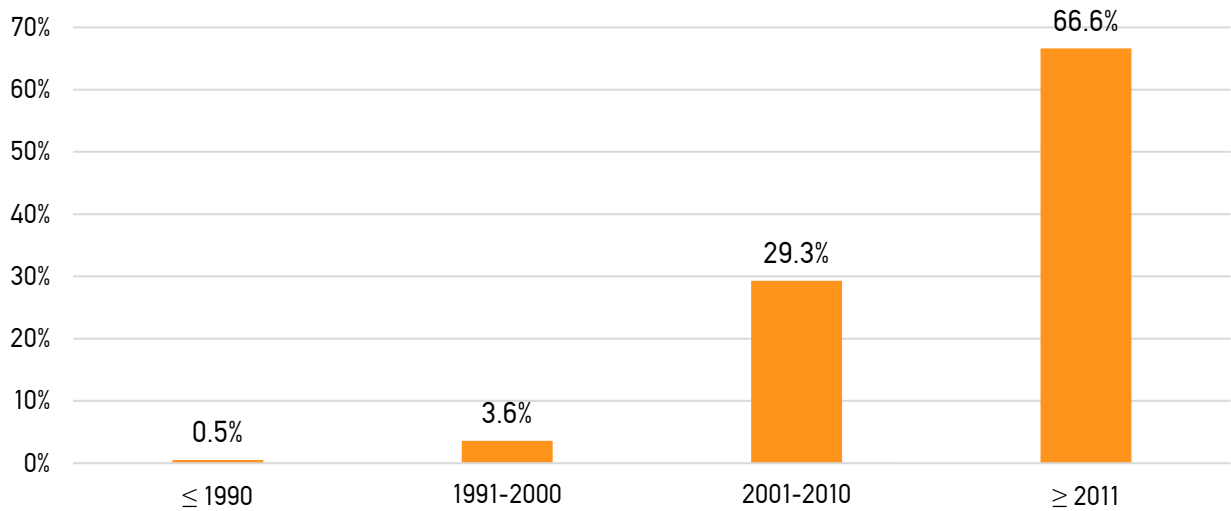
FIGURE 2.4.5.3: Institution awarding doctorate



(\*) Namely: Denmark, Switzerland, Bulgaria, Romania, Serbia, Finland, Armenia, Japan, Canada, China, Poland, Czechia, Spain, Austria, Italy, Cyprus, the Netherlands and Belgium.

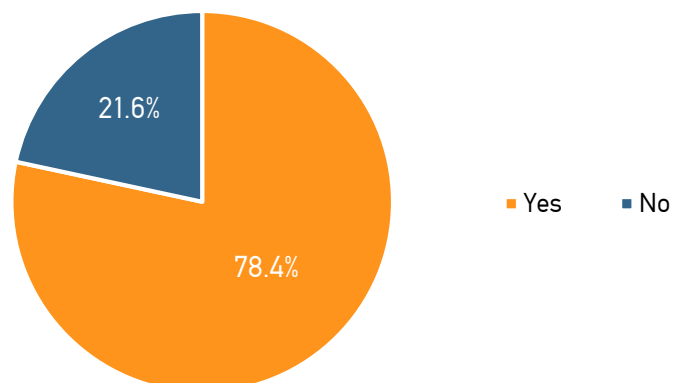
Most received their doctoral degree after 2011 (66.6%), followed by those doing so during the period 2001-2010 (29.3%) (Figure 2.4.5.4).

FIGURE 2.4.5.4: Year doctorate was awarded



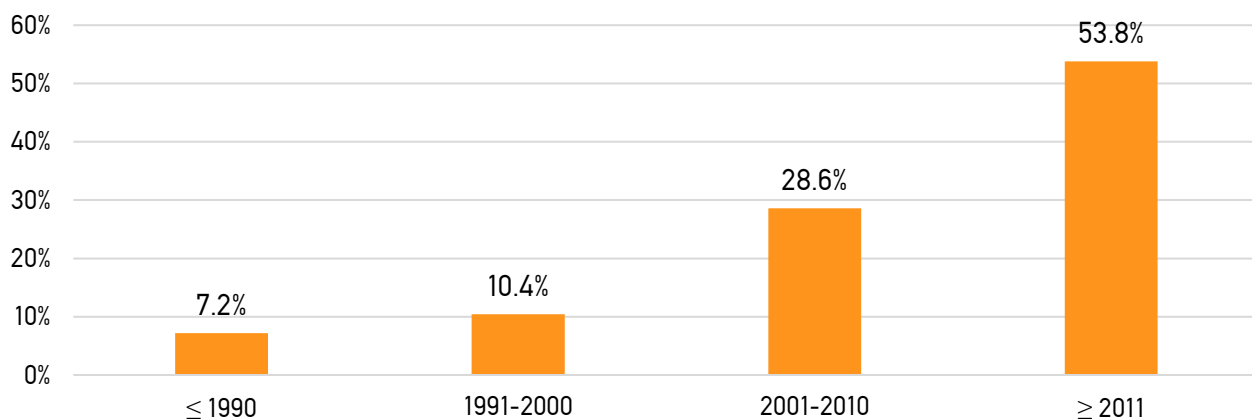
78.4% of those doctoral degrees awarded by foreign institutions (289 doctorates) have been recognised by NARIC (former DIKATSA) (Figure 2.4.5.5).

FIGURE 2.4.5.5: Recognition of doctorate by NARIC



Most doctoral titles were recognised after 2011 (53.8%), which was followed by those recognised during the period 2001-2010 (28.6%) (Figure 2.4.5.6).

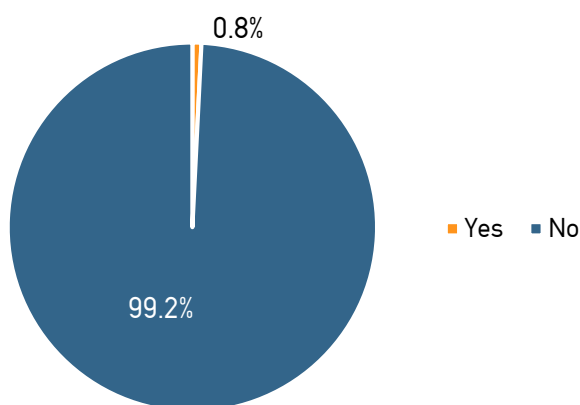
FIGURE 2.4.5.6: Year of recognition of 1st doctorate by NARIC



### 2.4.6 Second doctoral degree

99.2% of the participants do not hold a second doctoral title, in fact, only 21 people (0.8% of the total) do (Figure 2.4.6.1).

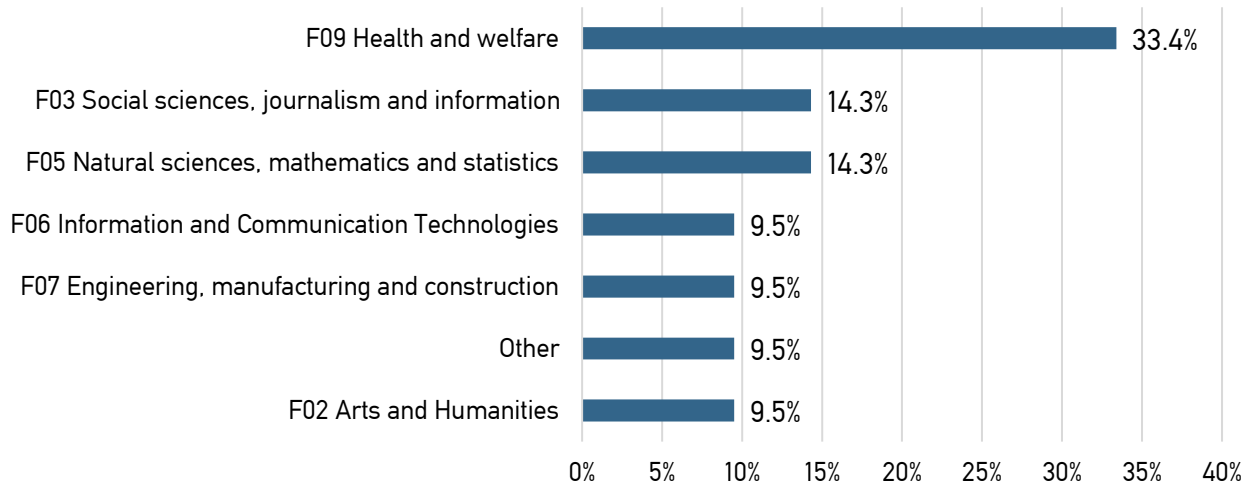
FIGURE 2.4.6.1: Completed a 2nd doctorate





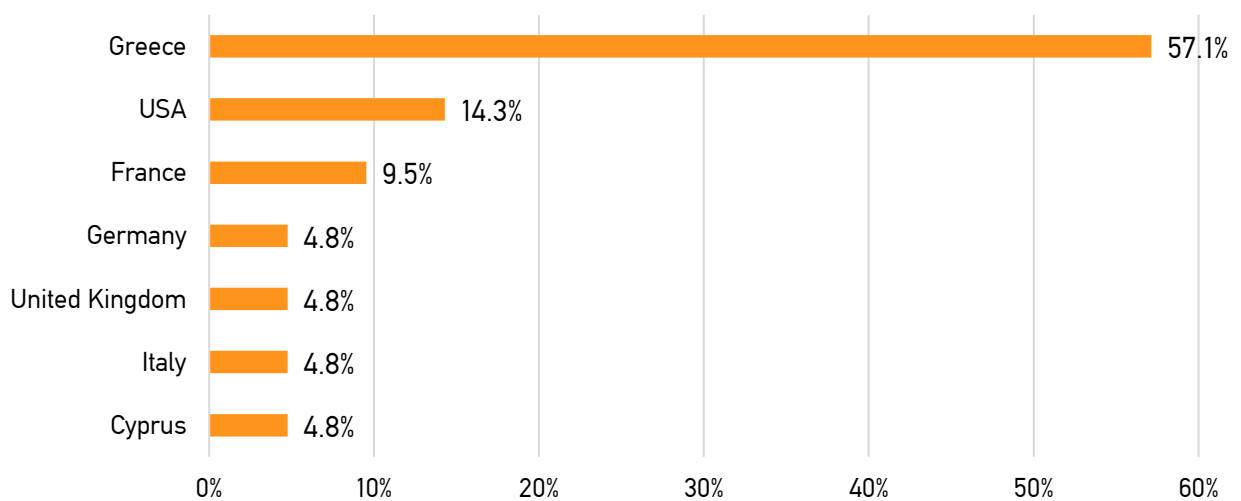
Their fields include “Health Sciences” (33.4%), “Social Sciences, Journalism and Information” (14.3%) and “Natural Sciences, Mathematics and Statistics” (14.3%) (Figure 2.4.6.2).

FIGURE 2.4.6.2: Scientific field of 2nd doctorate



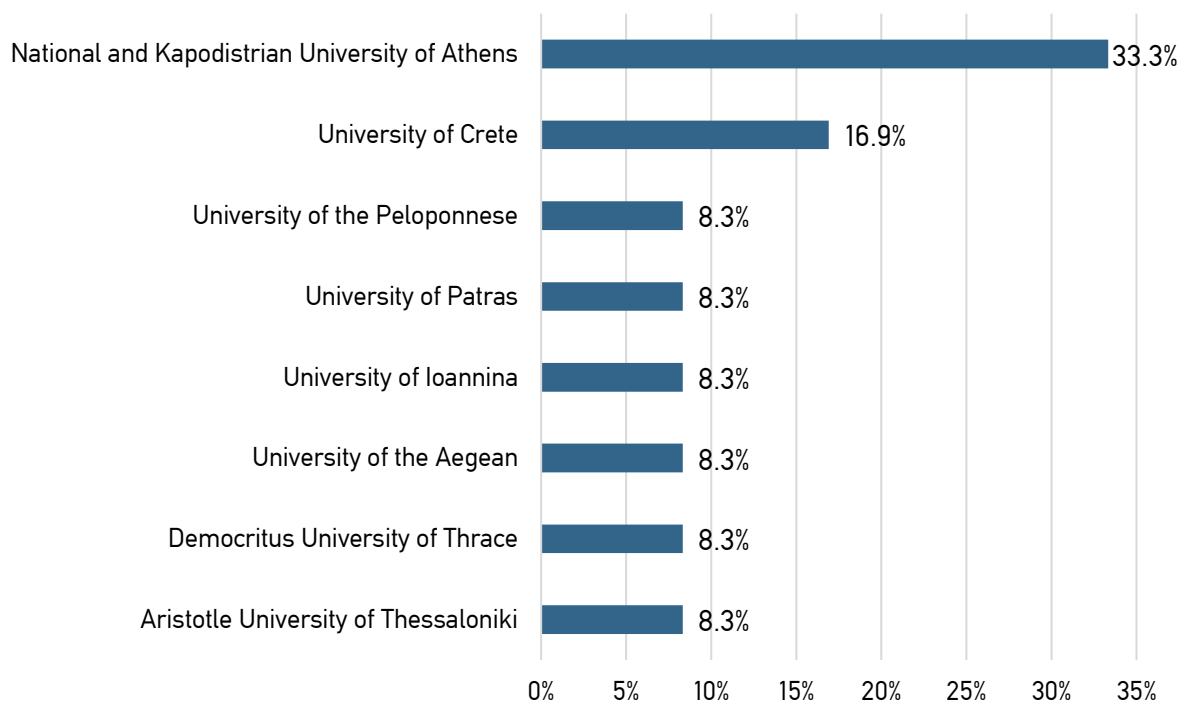
In terms of the awarding countries, Greece is in first place (57.1%), followed by the USA (14.3%), France (9.5%) and Germany (4.8%) (Figure 2.4.6.3).

FIGURE 2.4.6.3: Country awarding 2nd doctorate degree



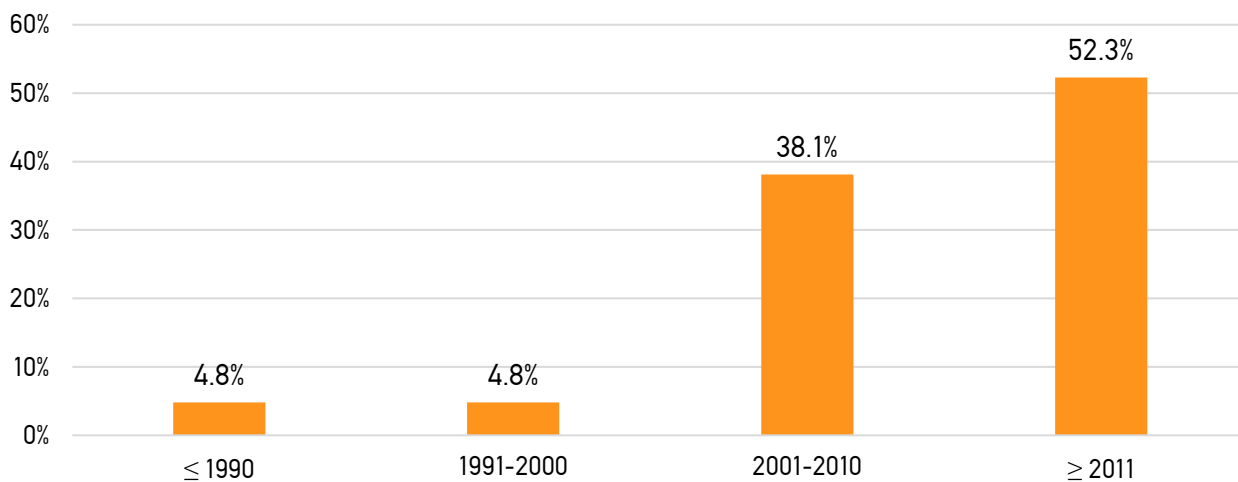
Of Greek institutions, the NKUA is in first place (33.3%) and is followed by the University of Crete with 16.9% (Figure 2.4.6.4).

FIGURE 2.4.6.4: Institution awarding 2nd doctorate degree



Most received their second doctoral degree after 2011 (52.3%) (Figure 2.4.6.5). Only 4 out of 21 doctorate holders (19%) stated that their degree had been recognised by NARIC.

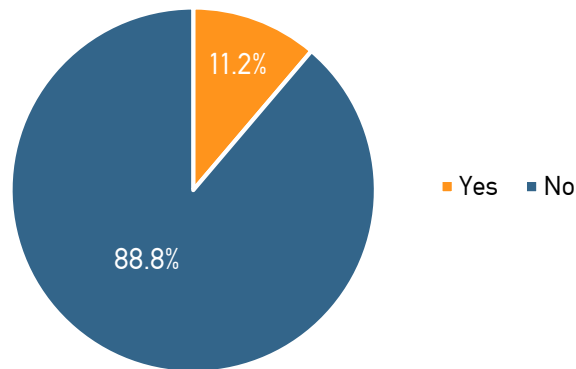
FIGURE 2.4.6.5: Year 2nd doctorate was awarded



## 2.4.7 Conducting postdoctoral research

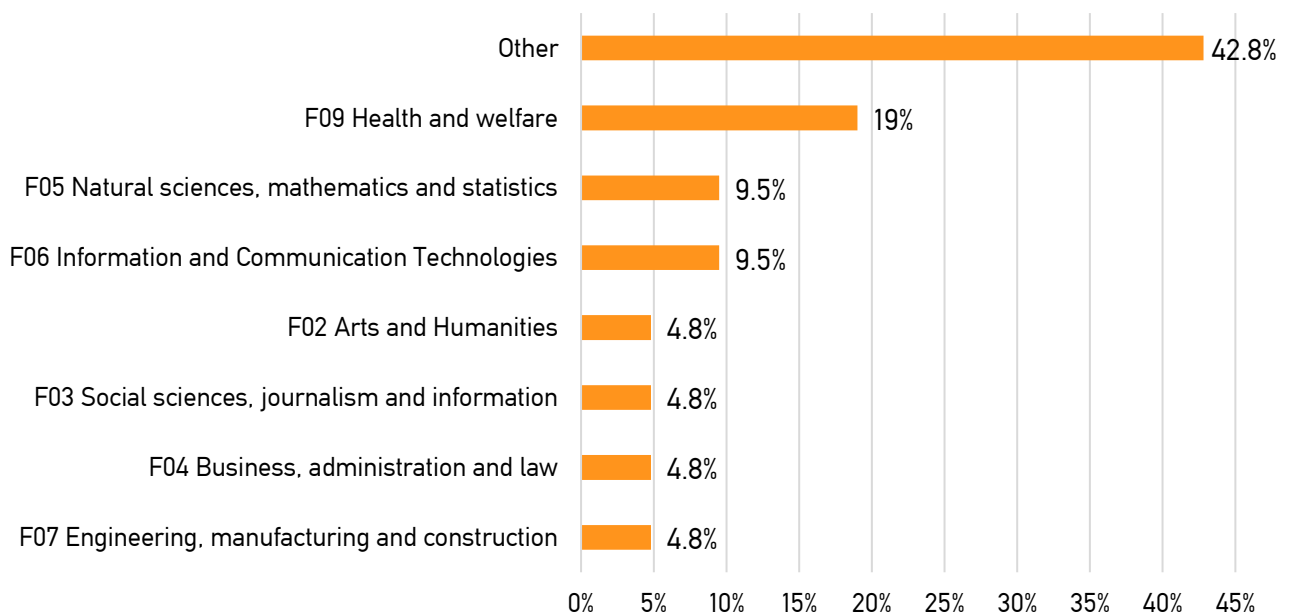
11.2% have conducted a postdoctoral research (post doc) (Figure 2.4.7.1).

FIGURE 2.4.7.1: Conducting postdoctoral research



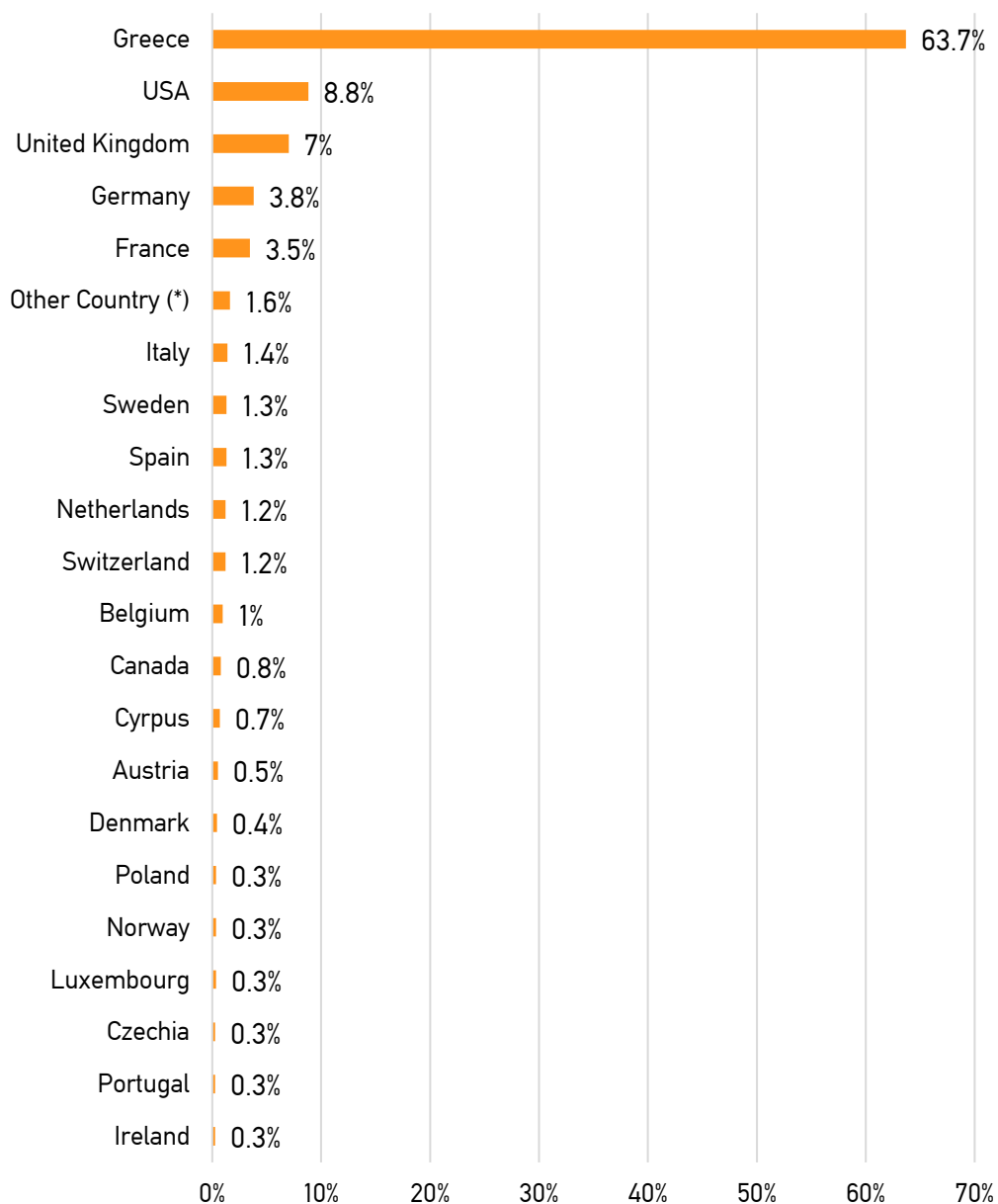
Of those who have conducted postdoctoral research, 19% have done so in “Health Sciences”, 9.5% in “Natural Sciences, Mathematics and Statistics” and “Information and Communication Technologies”. 42.8% chose “Other” field (Figure 2.4.7.2).

FIGURE 2.4.7.2: Postdoctoral scientific field



63.7% completed postdoctoral research in Greece, 8.8% in the USA, 7% in the United Kingdom, 3.8% in Germany and 3.5% in France (Figure 2.4.7.3).

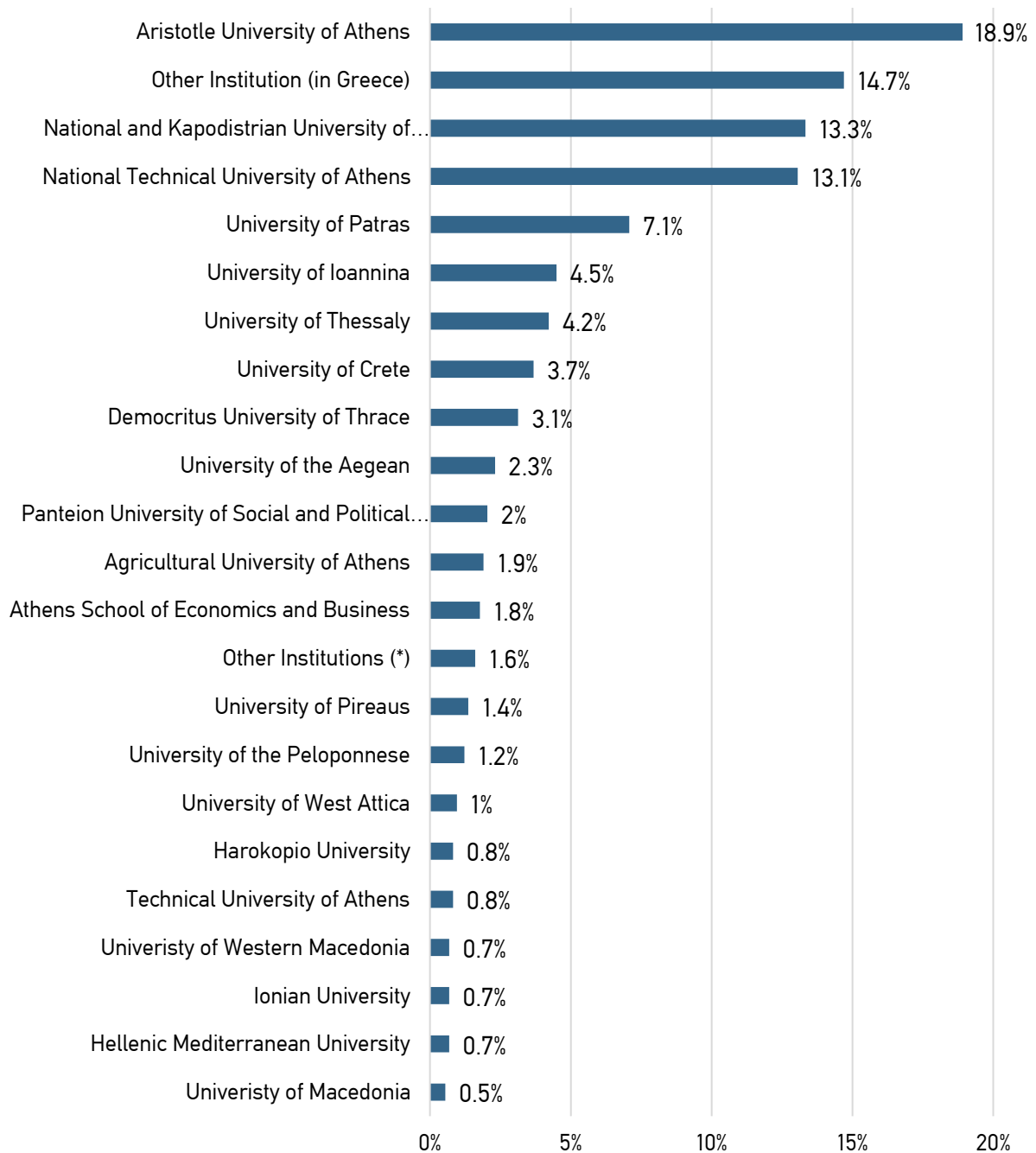
FIGURE 2.4.7.3: Country hosting postdoctoral research



(\*) Namely: United Arab Emirates, Japan, Malaysia, Mexico, Hungary, Romania, Russia, Saudi Arabia, Turkey, Finland, Australia, Brazil, Israel and Qatar.

Regarding Greek institutions where postdoctoral research was conducted, in first place with 18.9% of the responses was the ATh. It is followed by the answer “Other educational institution in Greece” with 14.9%, while in third place was the NKUA with 13.3%, followed by the NTUA with 13.1%, and in fifth place was the University of Patras with 7.1 % (Figure 2.4.7.4)

FIGURE 2.4.7.4: Post-doctoral institution

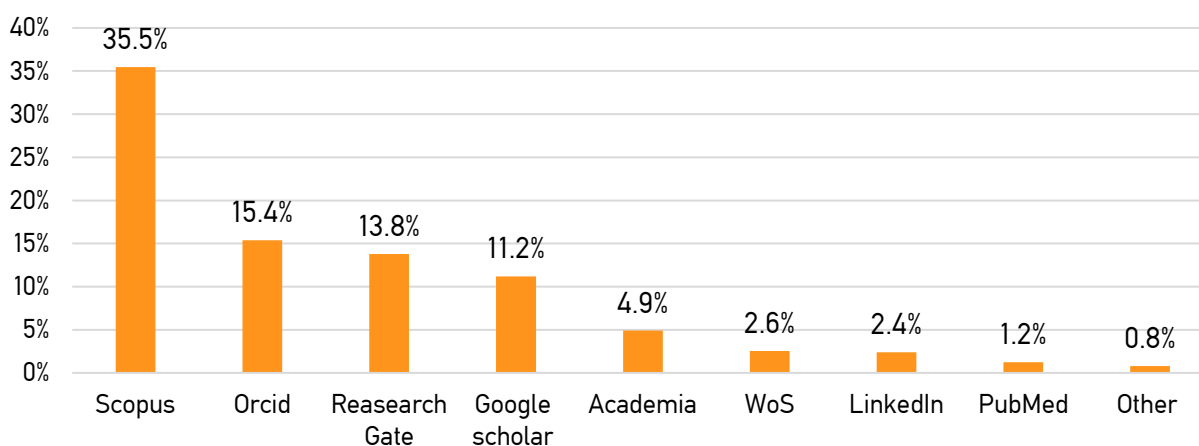


(\*) Namely: Hellenic Open University, TEI of Epirus, TEI of Thessaloniki, Athens School of Fine Arts, International University of Greece, TEI of Athens and TEI of Crete.

## 2.4.8 Bibliometric accounts

Participants were asked if they had unique author IDs (e.g. Scopus, Web of Science, Orcid Ids). 35.5% of the total population stated that they have a bibliometric account in Scopus and 15.4% in Orcid. 13.8% participate in the digital research community Research Gate and 11.2% in the Google scholar community (Figure 2.4.8.1).

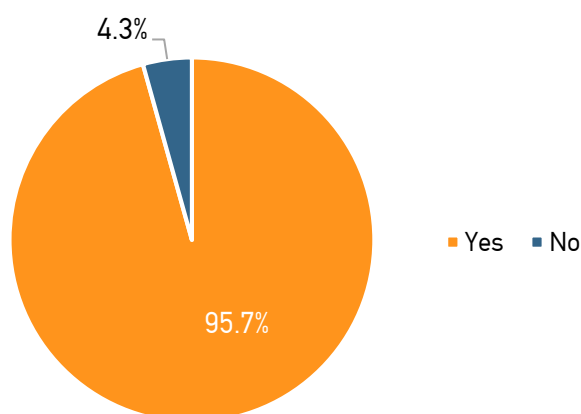
FIGURE 2.4.8.1: Bibliometric accounts



## 2.5 Current employment data

95.7% of the doctorate holders who participated in the survey are currently working (Figure 2.5.1)

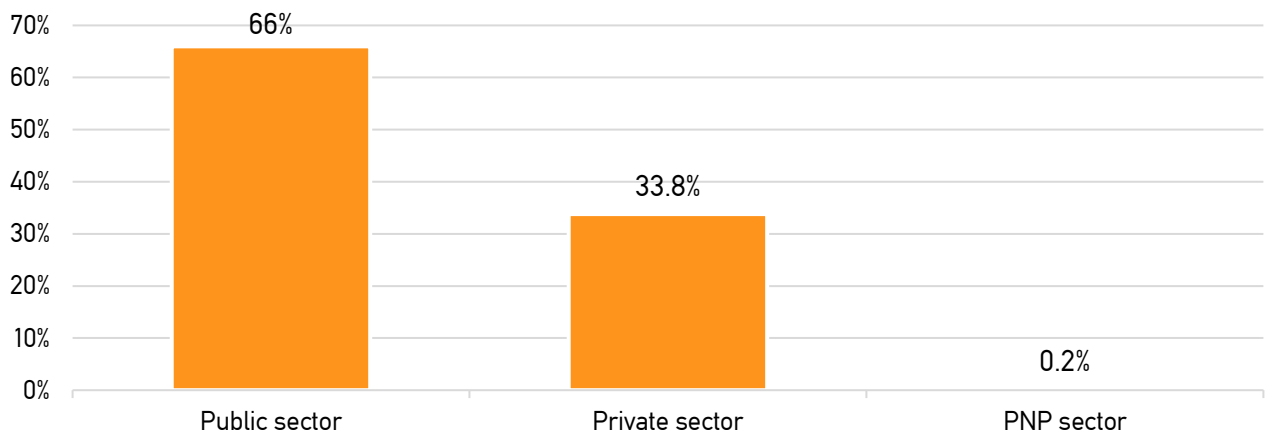
FIGURE 2.5.1: Are you currently working?



Note: The "No" category includes "unemployed" and/or "retired".

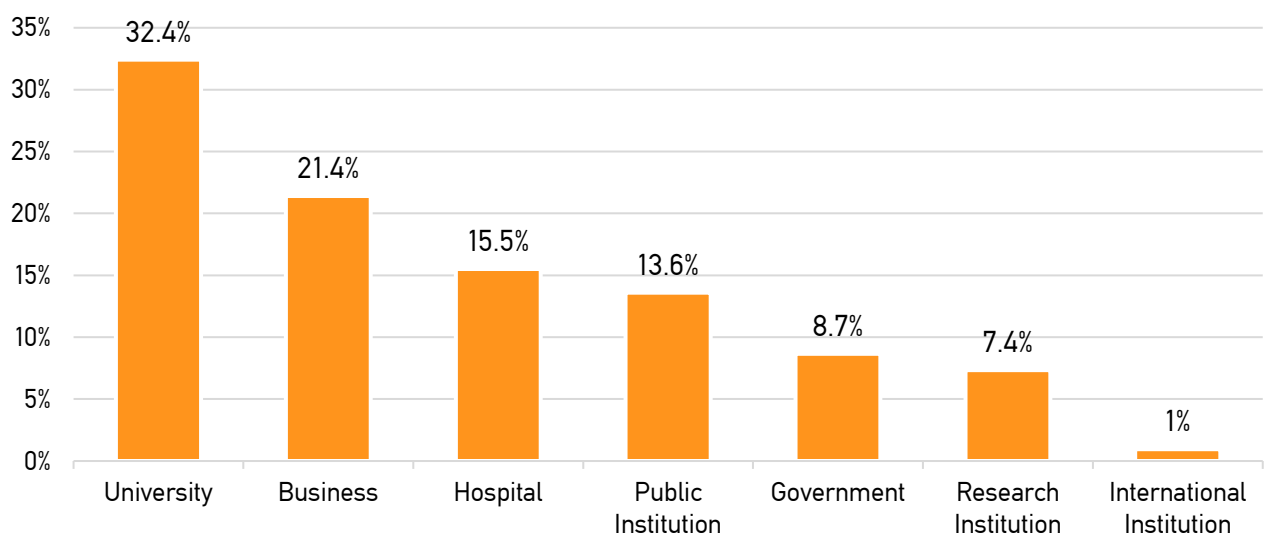
Of the doctorate holders who stated that they currently work, 66% work in the public sector, while 33.8% in the private sector and 0.2% are employed in the social sector (Figure 2.5.2).

FIGURE 2.5.2: In which sector do you work?



The subcategories of employment sectors of those employed in either the private or public are as follows: 32.4% work at a university, 21.4% for a business, 15.5% at a hospital, 13.6% in a public organisation, 8.7% in public administration, 7.4% in a research centre. 1% stated that they work in an international organisation (Figure 2.5.3).

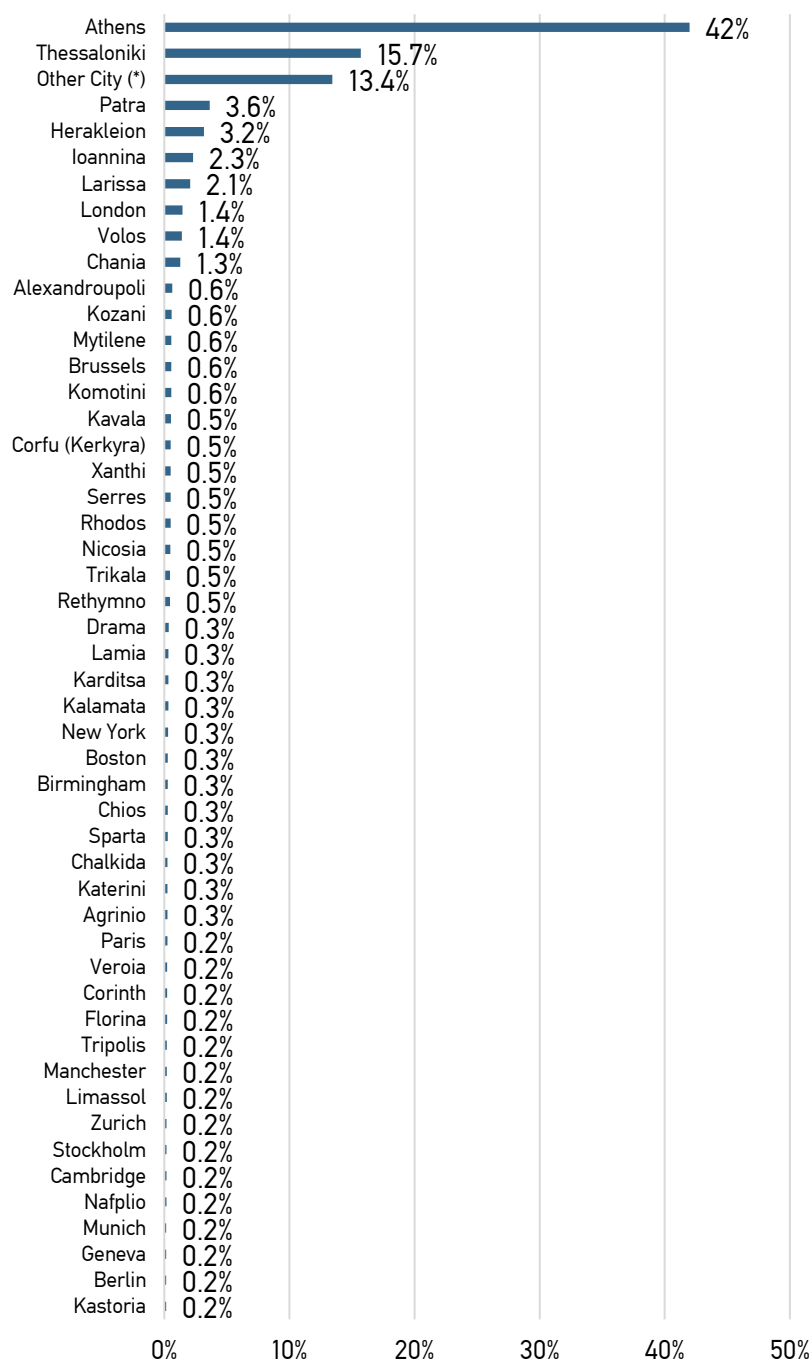
FIGURE 2.5.3: Employment sector subcategory (public and private sector)



## 2.6 Place of residence

57.7% of doctorate holders live in the two largest cities in the country. 42% stated that they live in Athens while 15.7% in Thessaloniki (Figure 2.6.1).

FIGURE 2.6.1: In which town/city do you currently live?



(\*) Another city: A total of 548 other cities in Greece and abroad.



## 2.7 Categorisation of Greek doctorate holders according to current residence and current employment status

This subsection presents the responses to the final question of the demographic data<sup>11</sup> category and classifies the population of doctorate holders with Greek citizenship according to their geographical and professional status. More specifically, it notes if they are in Greece or abroad and if they work, are unemployed or retired. In addition, any relocations to and from Greece are recorded. According to the responses:

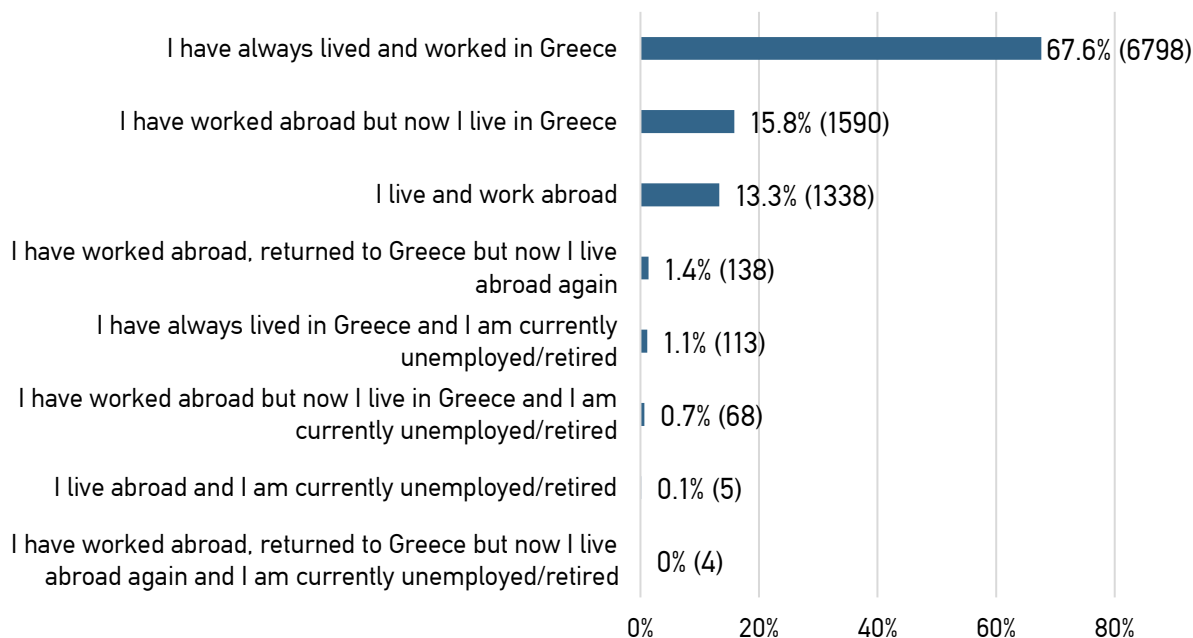
1. 67.6%, i.e. in the vast majority of cases, the doctorate holder chose the response “I have never worked abroad, I live and work in Greece”
2. 15.8% chose the response “I worked abroad for some time, but now I live and work in Greece”
3. 13.3% chose the response “I live and work abroad”
4. 1.4% chose the response “I worked abroad, I returned to Greece, but now I live and work again abroad”
5. 1.1% chose the response “I have never worked outside Greece, I am unemployed/retired and I live in Greece”
6. 0.7% chose the response “I worked abroad for some time, but now I live in Greece and I am unemployed/retired”
7. 0.1% chose the response “I live abroad and I am unemployed/retired”, and finally
8. 0.03% chose the response “I worked abroad, I returned to Greece, but now I live abroad again and I am unemployed/retired”.

The following figure (figure 2.7.1) shows the percentages and numbers per response category.

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<sup>11</sup> Respondents chose the category in which they are classified according to their current place of residence (if they live in Greece or abroad) and their current employment status (if they work, are unemployed or retired).

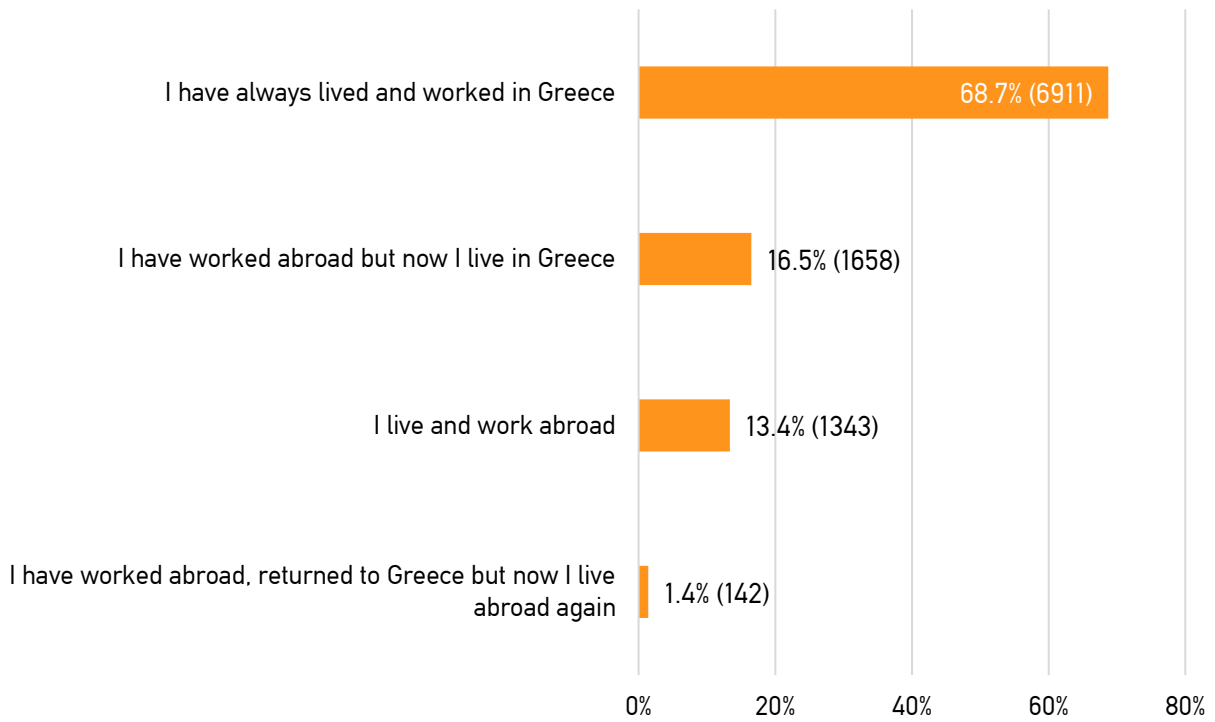
FIGURE 2.7.1: Number and percentage of doctorate holders per category



In order to facilitate the processing of the data, to simplify the results, and because the responses concerning the retired or unemployed were very few in number, these responses were merged with those of the employed and four subsequent sections were created (Figure 2.7.2) based on the workplace pattern of the doctorate holders as follows:

- The section titled “I have always worked in Greece, I am unemployed / retired and I live in Greece” was merged with the section “I have always worked in Greece”. The resulting section – respective chapter of this edition- was then renamed “I always lived and worked in Greece” and included 68.7% of doctorate holders (6,911 people).
- The section titled “I worked abroad but now I live in Greece and I am unemployed/retired” was merged with the section “I worked abroad but now I live and work in Greece”. The resulting section – respective chapter of this edition- was renamed “I worked abroad but now I live in Greece” and included 16.5% (1,658 people).
- The section titled “I live abroad and I am unemployed/retired” was merged with the section “I live and work abroad”. The resulting section – respective chapter of this edition- was renamed “I live abroad” and included 13.4% (1,343 people), and finally
- The section titled “I worked abroad, returned to Greece but now I live abroad again and I am unemployed/retired” was merged with the section “I worked abroad, returned to Greece but now I live and work abroad again”. The resulting section – respective chapter of this edition- was renamed “I worked abroad, returned to Greece but now I live and work abroad again” and included 1.4% (142 people).

FIGURE 2.7.2: Number and percentage of doctorate holders per combined category





3

## Those who have always worked and lived in Greece

66.7% of doctorate holders who have always worked in Greece live in the Attica Region (48.4%) and in the prefecture of Thessaloniki (18.3%). 38.5% of them characterise their current professional position as being senior, with high social status. 33.3% are teaching staff in higher education institutions and researchers in research centres. 85.4% are employed on a full-time basis. The vast majority found their first job through conventional means of information. Various objective parameters such as their scientific specialisation, professional experience and the prestige of the university where they studied helped them find their first job.

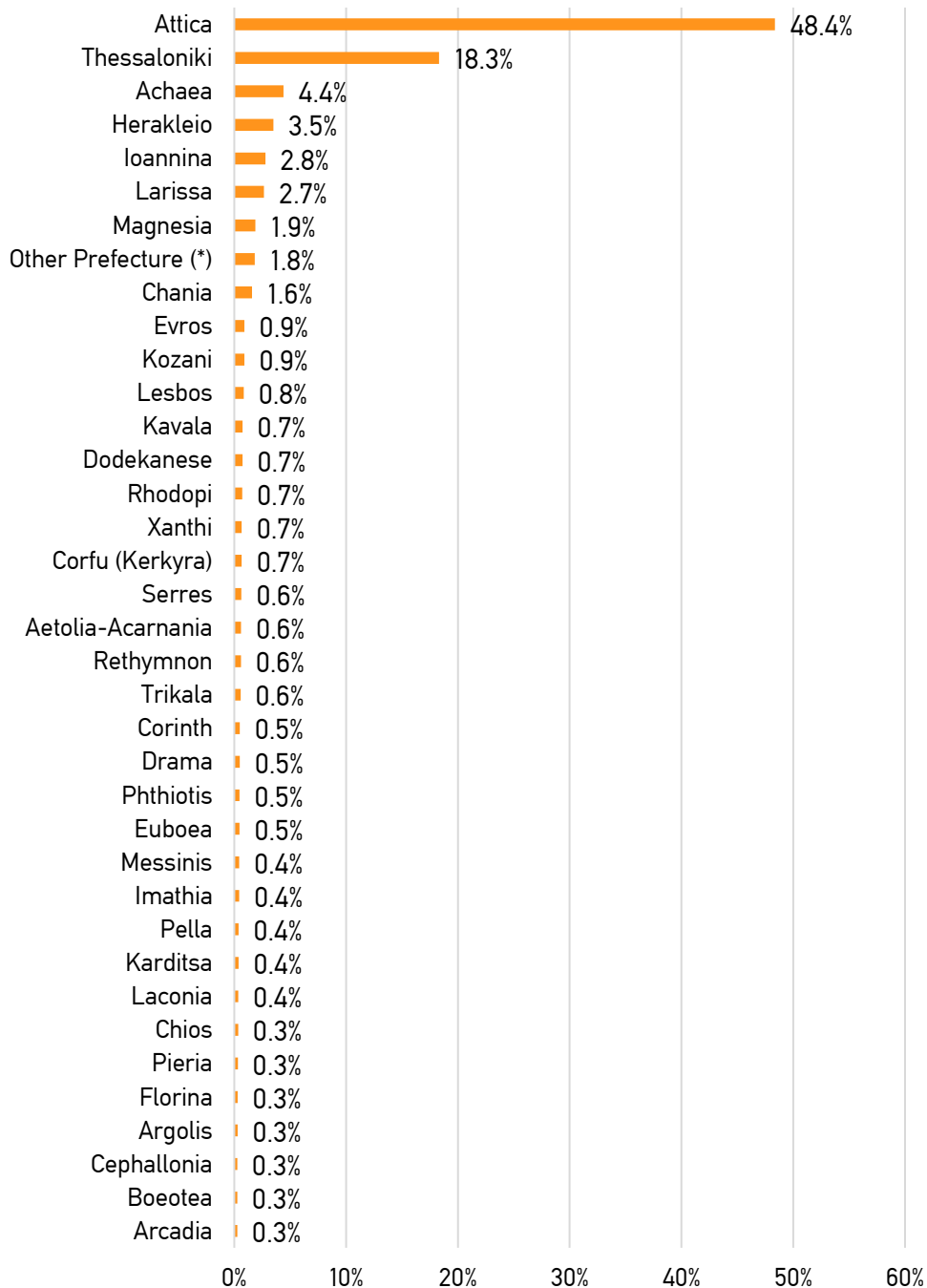
91.7% are from quite to very satisfied with their quality of life. An extremely high percentage said they were satisfied because of the responsible position they hold, the working environment, the social recognition and the security provided by their work - but not because of their salary.

85.7% do not have professional relationships with abroad, while 82.2% do not intend to leave Greece.

### 3.1 Place of residence

To the question “in which prefecture/region do you currently live”, 48.4% of doctorate holders answered the prefecture of Attica and 18.3% the prefecture Thessaloniki (Figure 3.1.1).

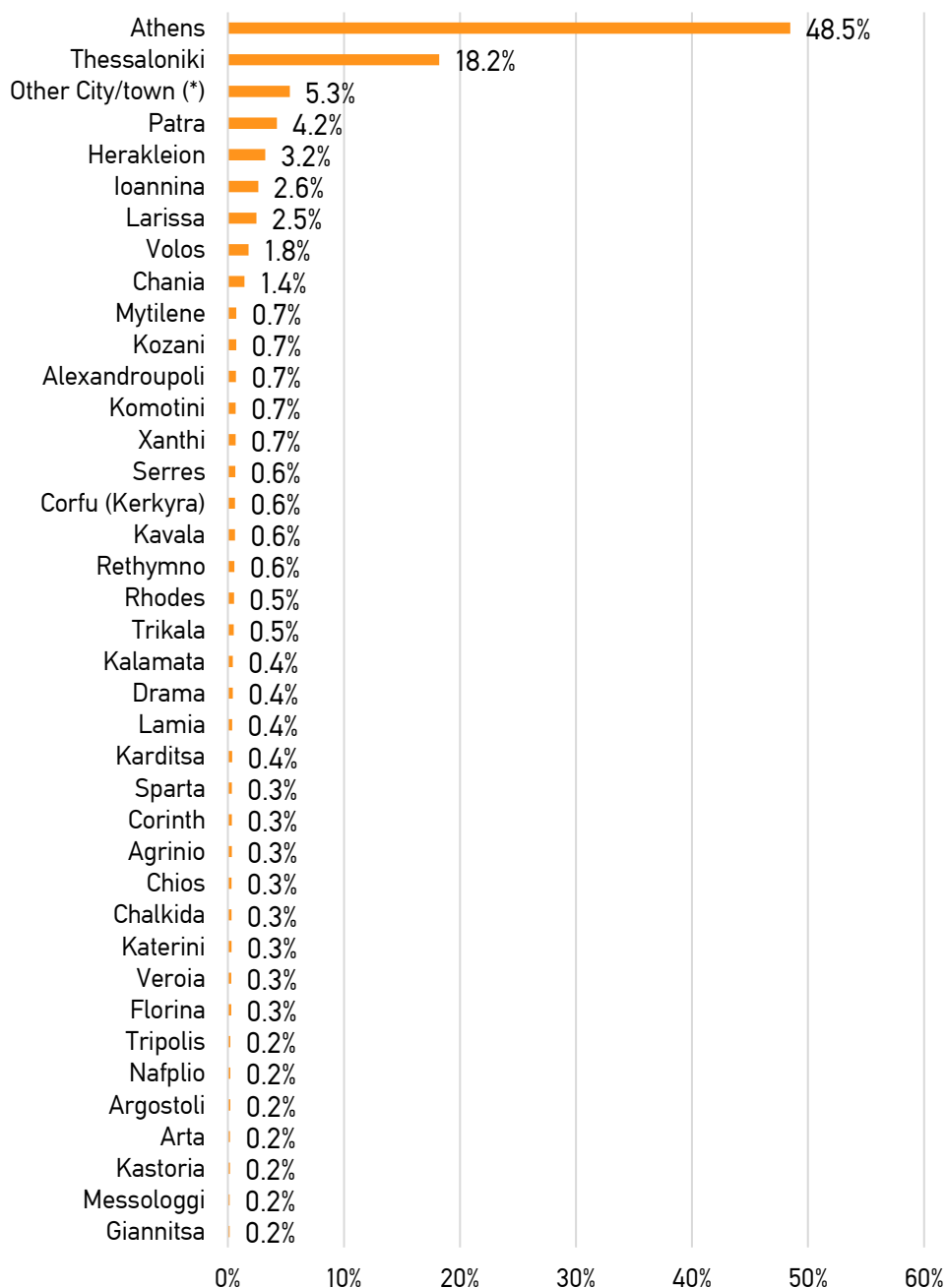
FIGURE 3.1.1: Prefecture of current residence in Greece



(\*) Namely: Evritania, Grevena, Preveza, Halkidiki, Thesprotia, Kilkis, Zakynthos, Elis, Lassithi, Samos, Arta, Kastoria and Cyclades.

48.5% of the doctorate holders who recorded their city of residence stated Athens while 18.2%, Thessaloniki (Figure 3.1.2)

FIGURE 3.1.2: City/town of current residence



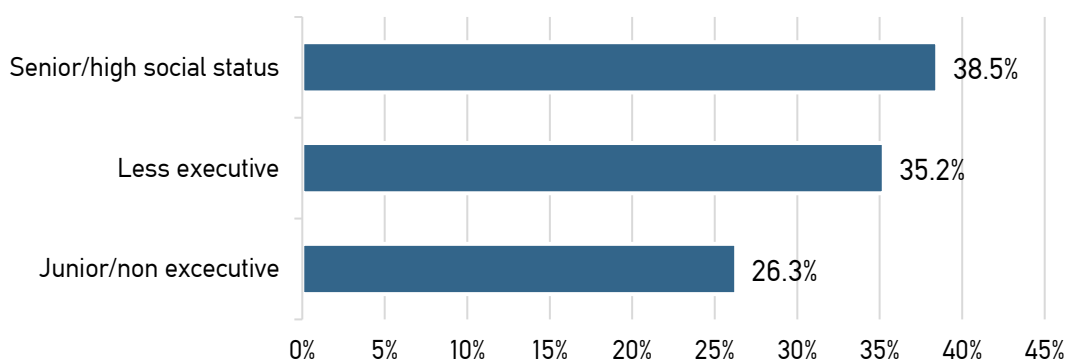
(\*) Other city/town: That is in 176 other towns

Note: In figure 3.1.1, there were responses from all the doctorate holders (6,911), while for this particular question, about place of residence, only 6,799 doctorate holders responded. 48.5% gave "Athens" as place of residence whereas 48.4% gave the "Attica Region" in figure 3.1.1. The same goes for figures 5.6.6 and 5.6.7 in section 5.

## 3.2 Employment data

73.7% of doctorate holders characterise their current professional position in Greece as “senior/with high social status” or “less senior”, while 26.3% as “non-executive” (Figure 3.2.1).

FIGURE 3.2.1: How would you characterise your (last) professional position?



When asked about the professional fields in which they work, 42.9% of the participants stated that they are “Professionals”, 27.6% “Teaching staff of higher education and research institutions”, 15% “Senior managers and administrators” and 7.6% “Employees (public or private)” (Figure 3.2.2).

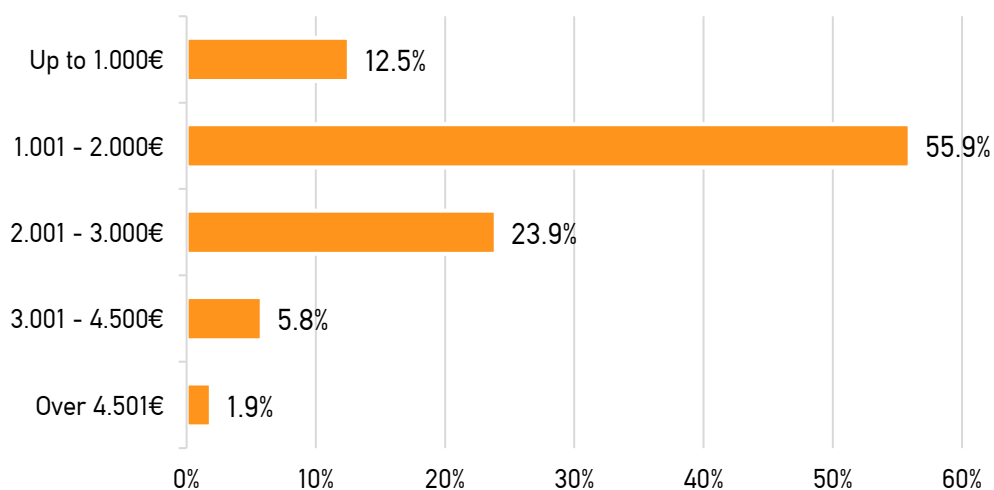
FIGURE 3.2.2: Professional field



Note: See Appendix for the “Other” category.

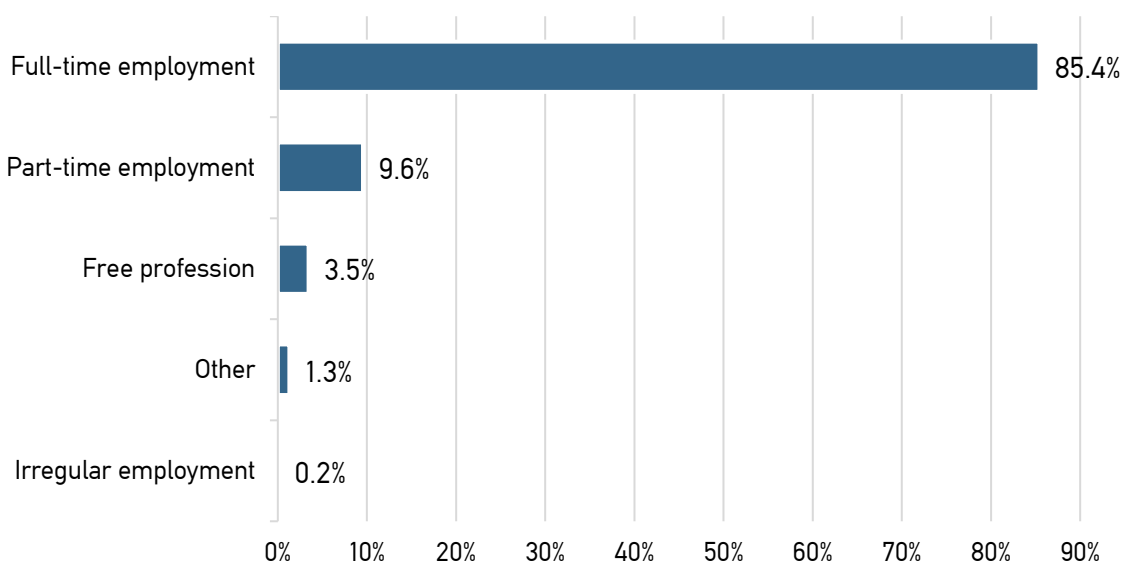
55.9% stated that their gross monthly salary is between € 1,001 and € 2,000, while 31.6% over € 2,000 (Figure 3.2.3).

FIGURE 3.2.3: What is your gross monthly salary?



85.4% stated that they are employed on a full-time basis (Figure 3.2.4).

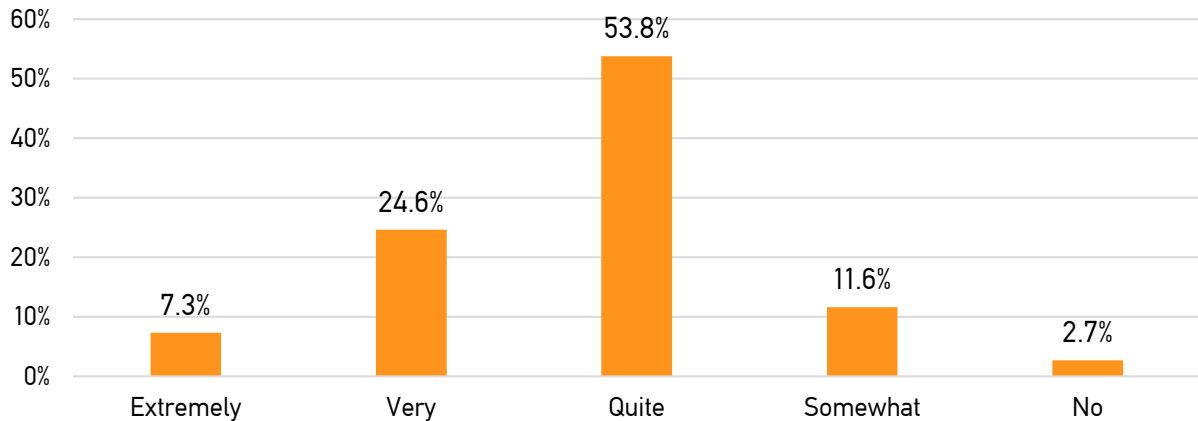
FIGURE 3.2.4: What is your employment status?





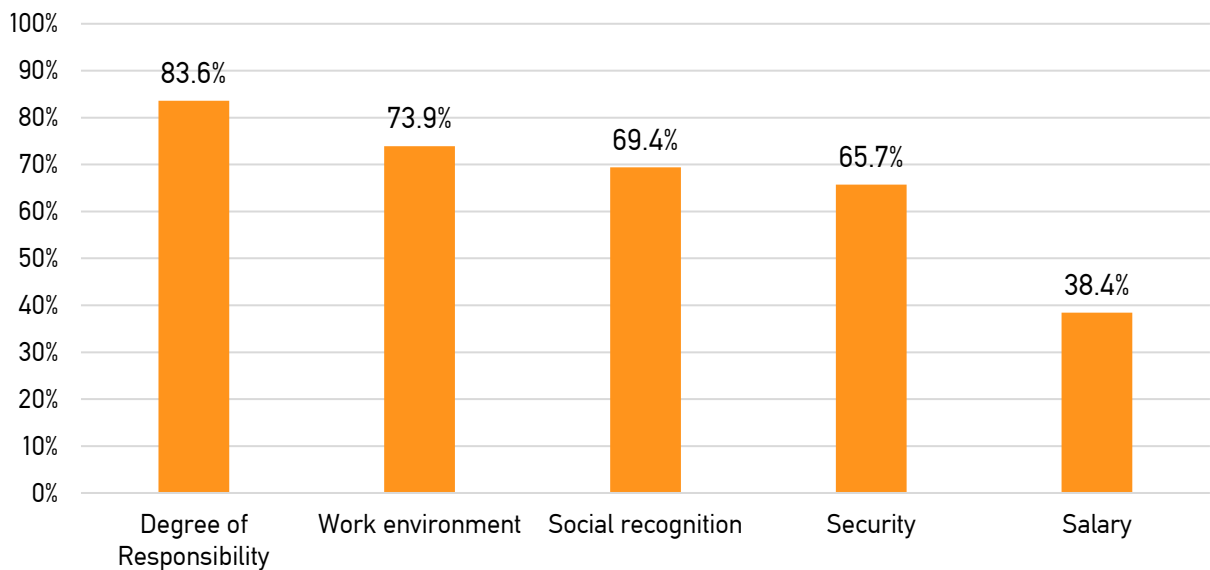
53.8% of the population stated that they are quite satisfied with their quality of life, while 31.9% are “very/extremely” satisfied (Figure 3.2.5).

FIGURE 3.2.5: Are you satisfied with your quality of life?



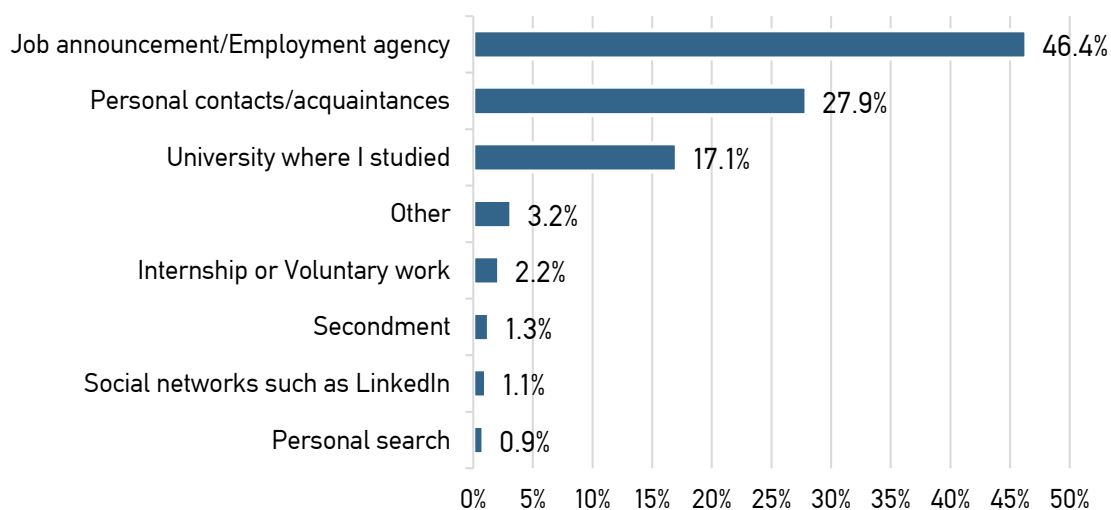
An extremely high percentage said they were satisfied because of the responsible position they hold, their working environment, their social recognition and the “security” that their work provides. However, only 38.4% said they were satisfied with their “salary” (Figure 3.2.6).

FIGURE 3.2.6: Are you satisfied with your current working conditions in terms of the following aspects?



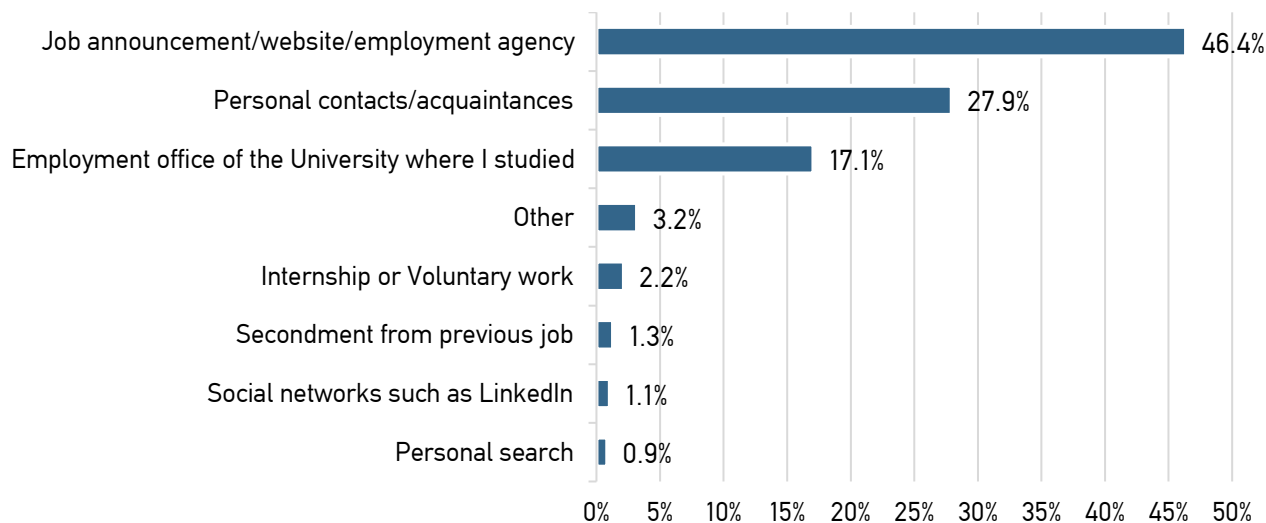
The vast majority found their first job through conventional means of information (e.g. 46.4% through a job announcement/employment agency, and 1.1% through social networks such as LinkedIn). 27.9% found employment through personal contacts/acquaintances, while 17.1% through the university where they studied. For 1.3%, employment in their first job led to their main job (Figure 3.2.7).

FIGURE 3.2.7: How did you find your first job?



Answers to the question “What helped you find your first job?” included a variety of parameters. Of these, the most important was their “scientific specialisation” with 77.6%, while the “professional and social networks” amounted to only 12.1% (Figure 3.2.8).

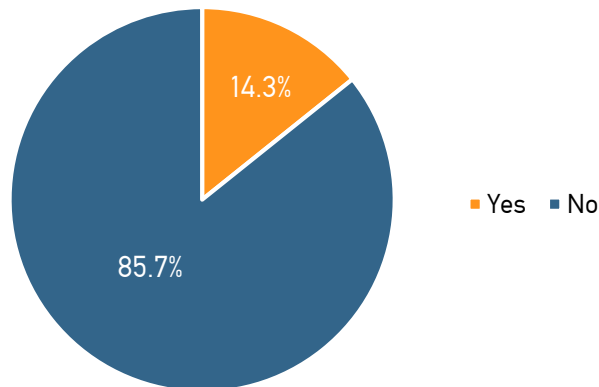
FIGURE 3.2.8: What helped you find your first job?



### 3.3 Professional ties with other countries

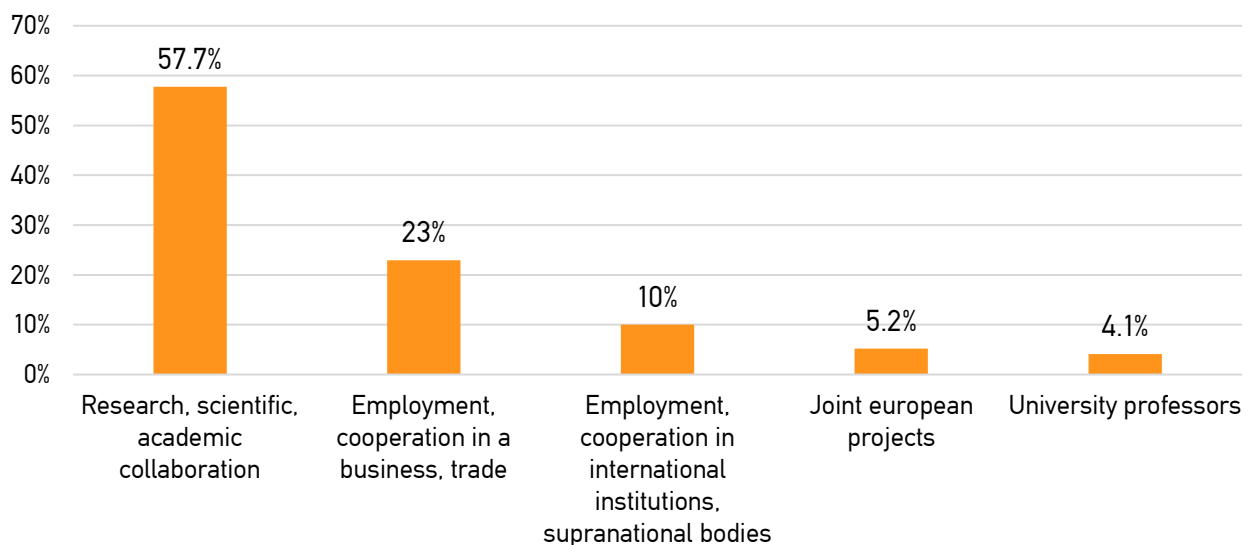
85.7% of doctorate holders stated that they do not currently have a professional relationship with other countries (Figure 3.3.1).

FIGURE 3.3.1: Do you currently have a professional relationship abroad?



The largest percentage of those who have professional relations abroad (90.7%) stated that it relates to co-operation. Specifically, 57.7% reported research, scientific or academic collaboration, 23% work and collaboration in a company or commercial collaboration, while 10% reported work or collaboration in international organisations or supranational bodies (Figure 3.3.2).

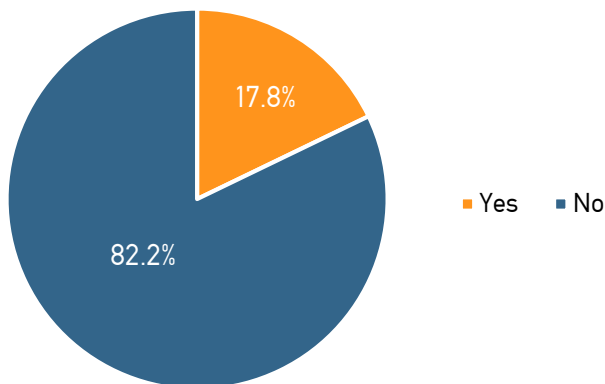
FIGURE 3.3.2: What is this professional relationship abroad?



### 3.4 Intention to move abroad

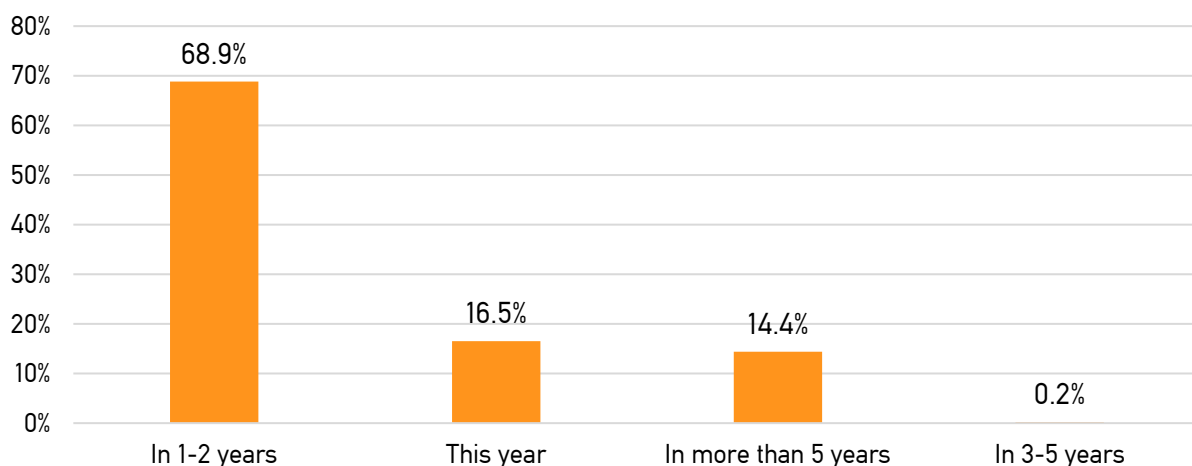
The doctorate holders were asked if they were considering going abroad. 82.2% responded negatively (Figure 3.4.1).

FIGURE 3.4.1: Are you considering going abroad?



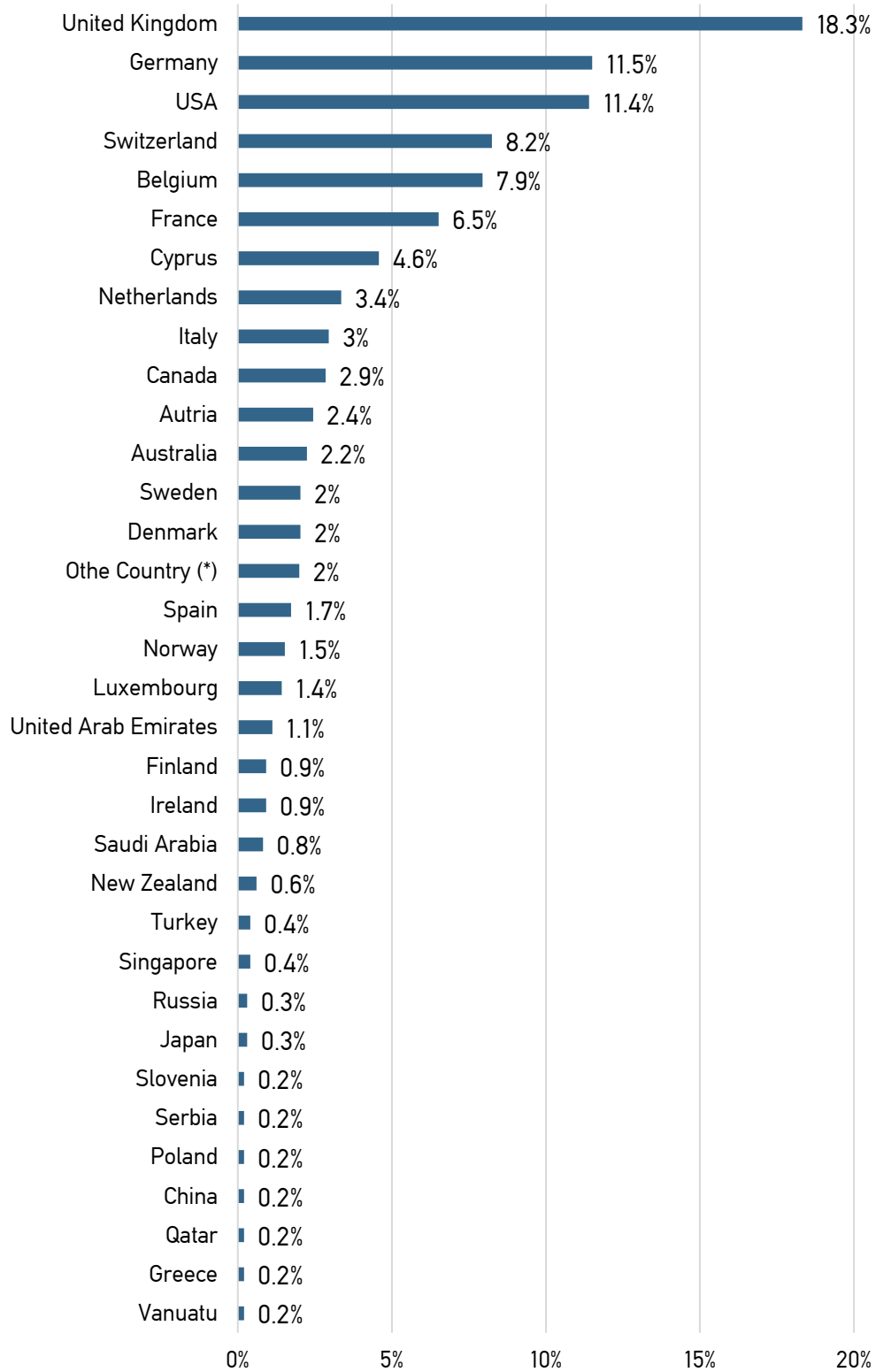
The doctorate holders were asked if they were considering going abroad. 82.2% responded negatively (Figure 3.4.1).

FIGURE 3.4.2: If you are considering leaving, when will that be?



If they went abroad, 18.4% would go to the United Kingdom, 11.5% to Germany and 11.4% to the United States (Figure 3.4.3).

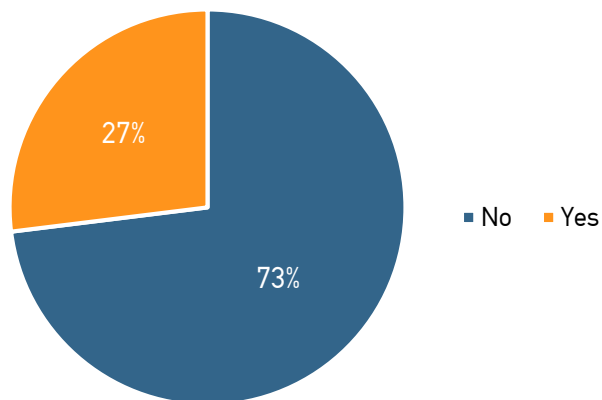
FIGURE 3.4.3: If you leave, which country will you go to?



(\*) Namely: Saint Lucia, Ethiopia, Andorra, Argentina, Vanuatu, Vietnam, Brazil, Estonia, Iceland, Kazakhstan, Croatia, Latvia, Lithuania, Maldives, Hungary and Portugal.

27% of doctorate holders have stated that they have sought work abroad (Figure 3.4.4).

FIGURE 3.4.4: Have you looked for a job abroad?





## 4

# Those who worked abroad for some time but now live in Greece

41.1% of the doctorate holders who worked abroad for some time but now live in Greece left Greece after 2011. Most (76.6%) had worked in Greece prior to going abroad, and in fact had had secure employment. They left Greece mainly for business reasons (career development opportunities, to find work in their field, better financial earnings and better working conditions). For the same reasons they chose the country to which they emigrated.

33.4% found their first job abroad through personal contacts/acquaintances and through “conventional” channels (advertisement, website, employment agency, etc.). Various parameters helped them find their first job such as their scientific specialisation, professional experience, good knowledge of a foreign language and having performed well in their studies.

80.6% had lived abroad up to 5 years. They emigrated to more than 55 countries, but mainly to the United Kingdom, the United States and Germany. 29.5% lived in more than one country. They emigrated to more than 530 cities, but mainly to London, Paris, Brussels, New York, Nicosia and Munich.

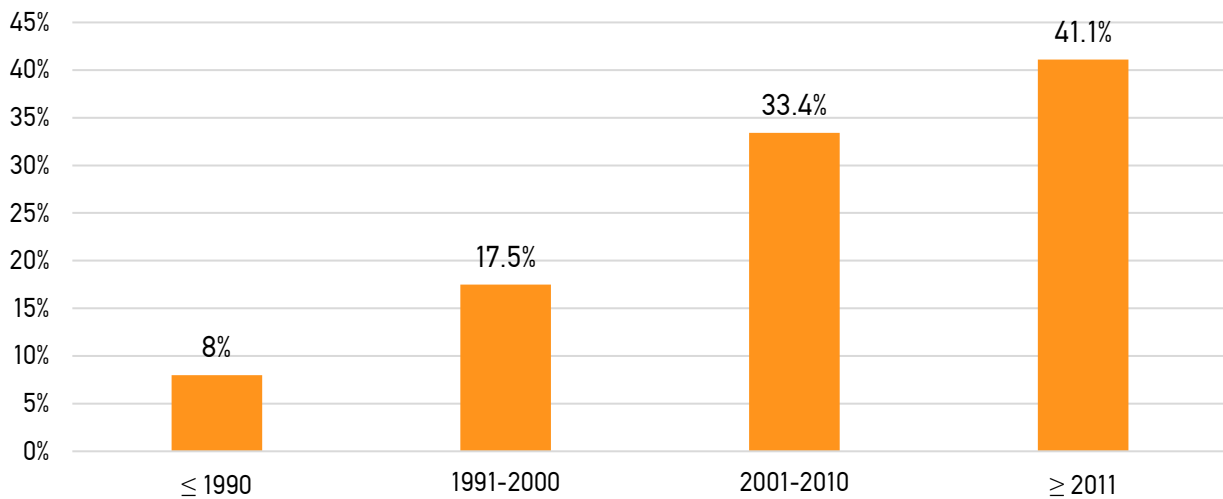
44.4% were university teaching staff or researchers in research centres. 79.7% worked full time. 51.4% were very/extremely satisfied with the quality of life abroad. They were also very satisfied with the working conditions (degree of responsibility, work environment, social recognition). 56% socialised with Greeks, often or everyday, and 91.5% followed Greek media. 82.9% visited Greece at least once a year while living abroad.

The largest percentage of those who returned (53.7%), did so after 2011. They returned mainly for family reasons, as well as due to nostalgia for their home country. 69.8% of those who returned settled in Athens (51.3%) and Thessaloniki (18.5%). 43.2% are teaching staff in higher education institutions and researchers in research centres. 40.5% are slightly or not at all satisfied with their quality of life in Greece. The largest percentage (69.3%) are not considering going abroad again for work, nor do they currently have a professional relationship with other countries (80.4%).

## 4.1 Before moving abroad

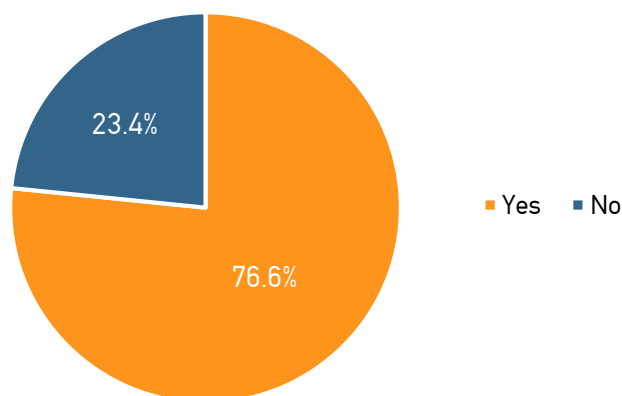
The largest percentage of doctorate holders (41.1%) left Greece after 2011 and 33.4% in the period 2001-2010 (Figure 4.1.1).

FIGURE 4.1.1: When did you leave Greece?



Most (76.6%) stated that they had worked in Greece before moving abroad (Figure 4.1.2).

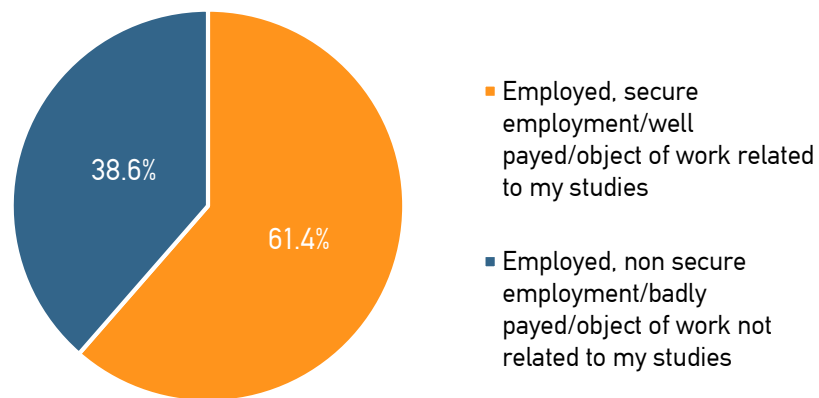
FIGURE 4.1.2: Did you work in Greece before going abroad?





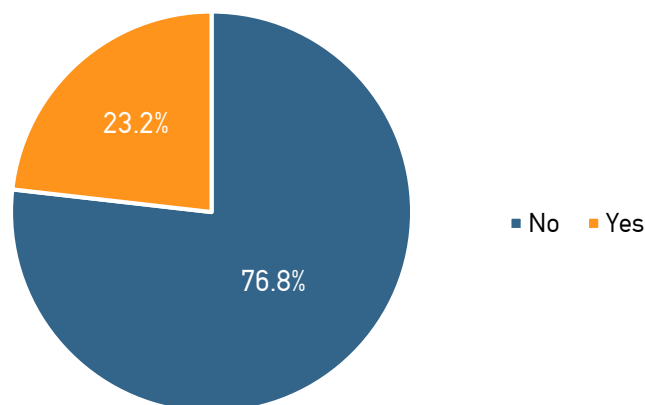
Of those who had worked, the largest percentage (61.4%) stated that they had had secure employment, good pay and a job related to their studies (Figure 4.1.3).

FIGURE 4.1.3: What was your professional status prior to leaving?



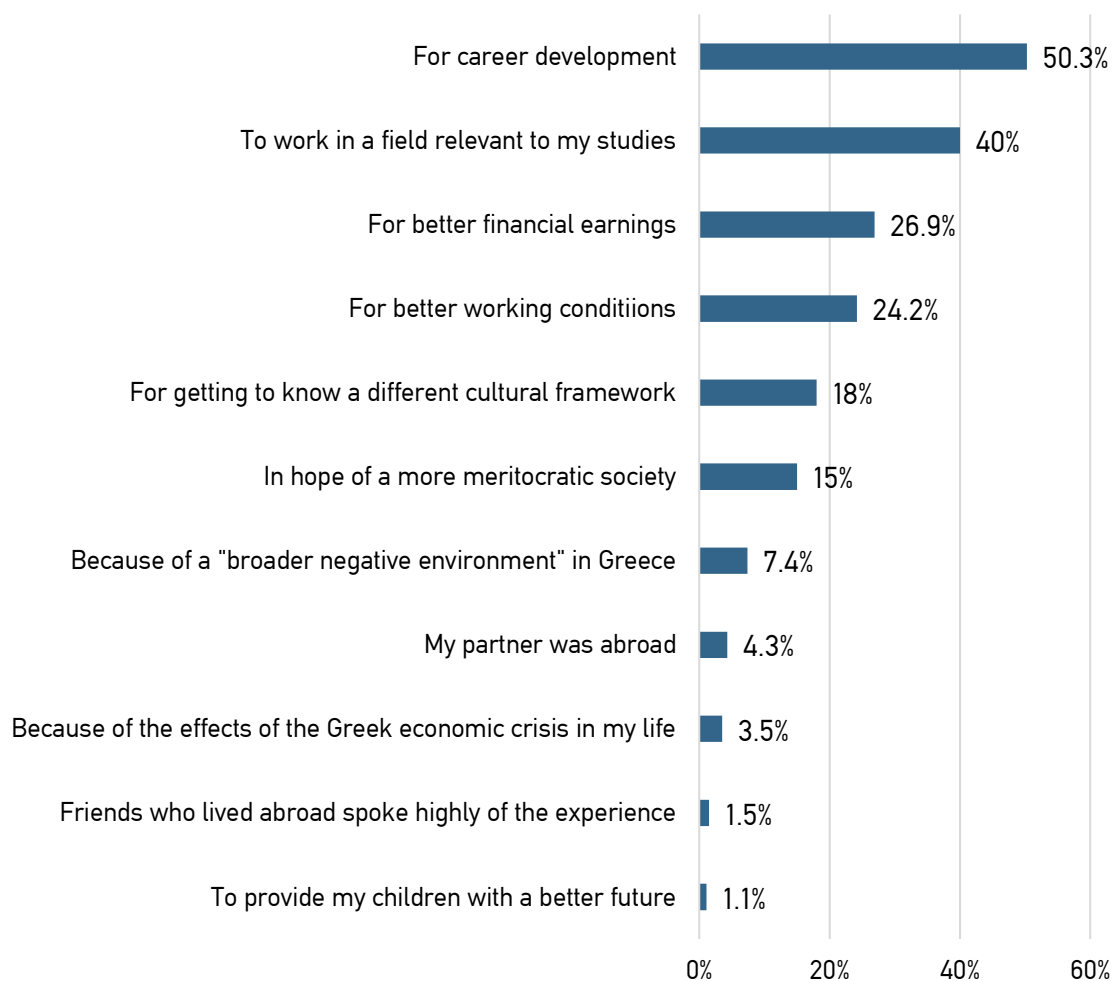
Of those who had not worked, the largest percentage (76.8%) stated that they had not sought work in Greece before going abroad (Figure 4.1.4).

FIGURE 4.1.4: Did you look for a job in Greece before leaving?



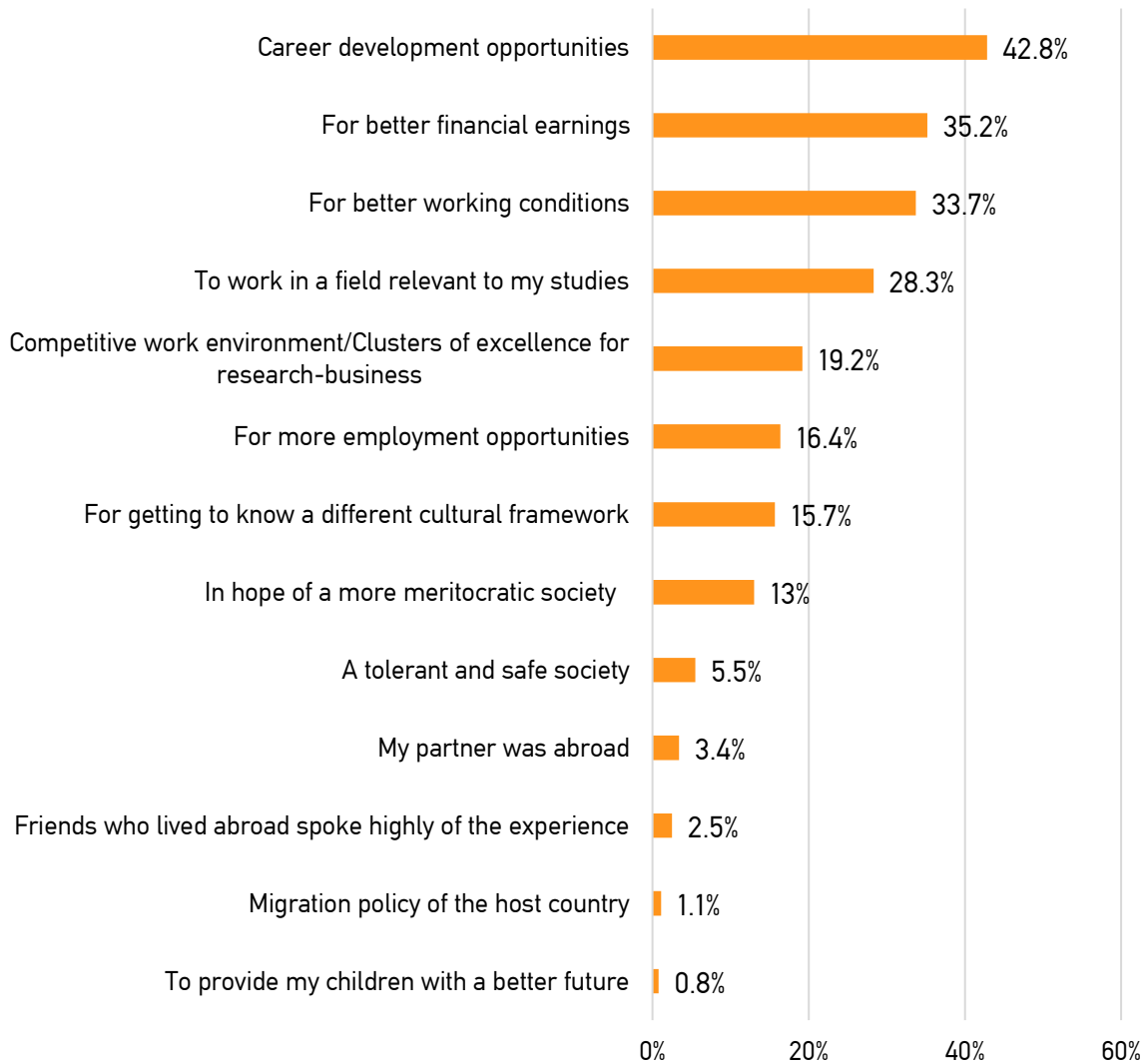
In all cases, the doctorate holders left mainly for professional reasons. Most (50.3%) left Greece for reasons of “career development”. 40% to find work in their field of studies, 26.9% to find “better financial earnings” and 24.2% for “better working conditions” (Figure 4.1.5).

FIGURE 4.1.5: Why did you leave Greece?



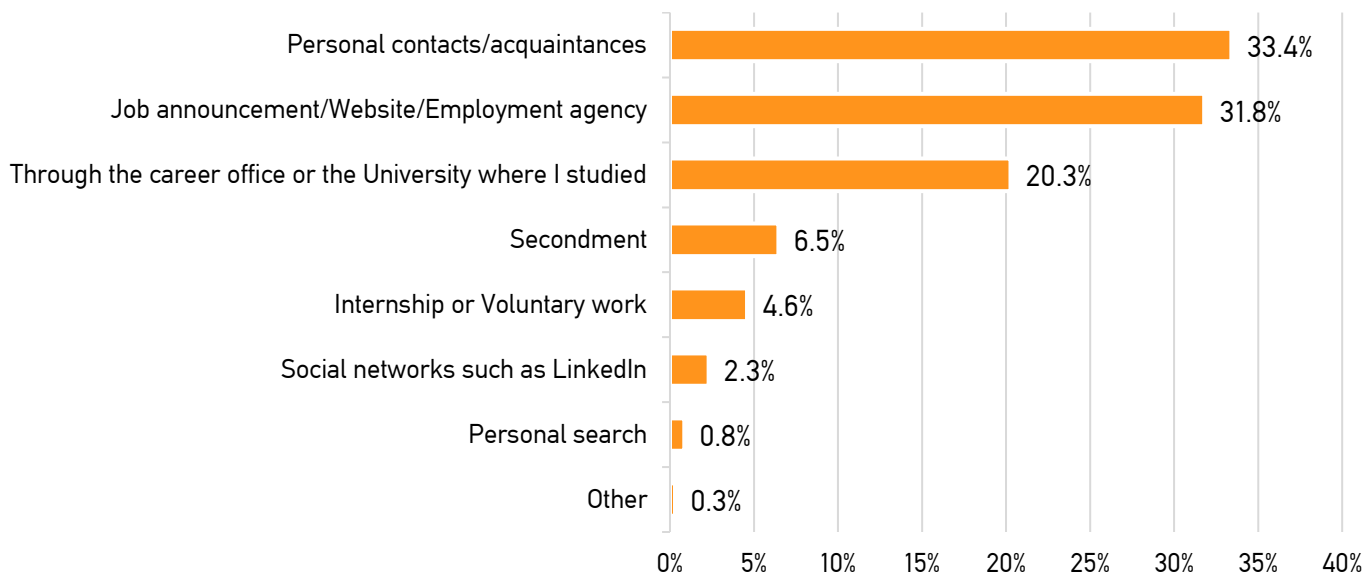
The factors that attracted them to the country which they emigrated to mainly related to issues connected to work. The largest percentage (42.8%) chose the destination country for "career development", 35.2% for "better financial earnings", 33.7% for "better working conditions" and 28.3% for ability to work in a field relevant to their studies (Figure 4.1.6).

FIGURE 4.1.6: What attracted you to the country you went to?



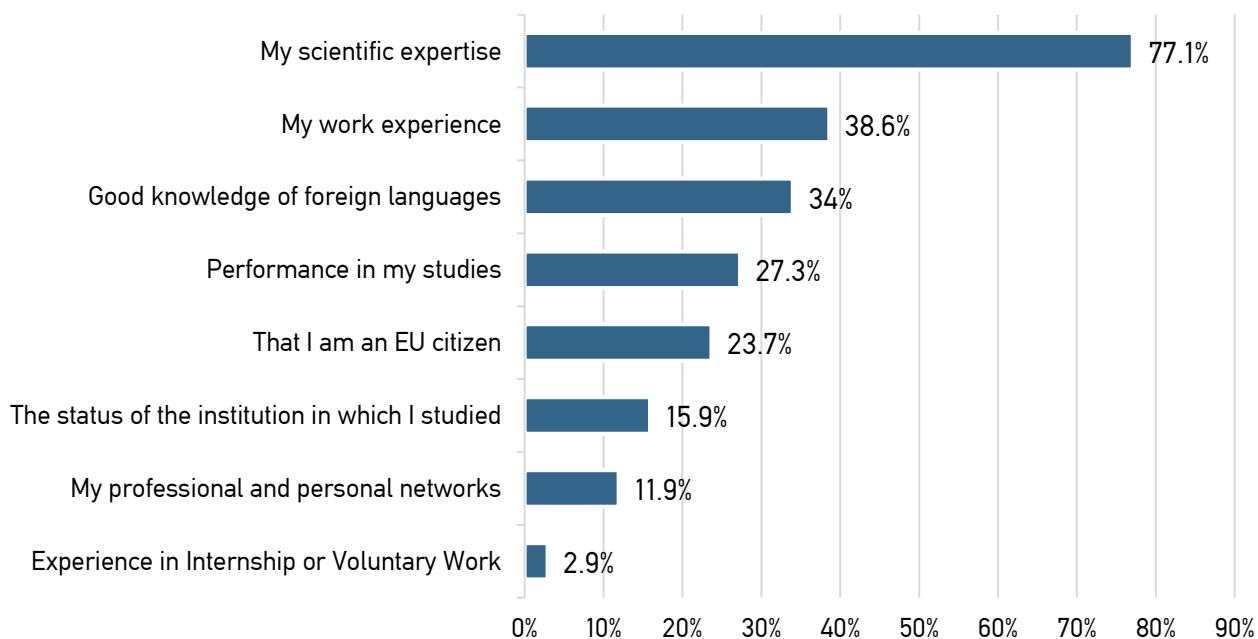
33.4% of doctorate holders found their first job abroad “through personal contacts and acquaintances”. 31.8% used typical job search mechanisms, such as responding to an advertised job, website or employment agency, and 20.3% found work through their University. 2.3% used social media (LinkedIn etc.) (Figure 4.1.7).

FIGURE 4.1.7: How did you find your first job abroad?



For the question “what helped you find your first job”, the answers included a variety of factors. The most important was “scientific specialisation” (77.1%), followed by “professional experience” (38.6%), “good knowledge of the language” (34%) and “having performed well in their studies” (27.4%) (Figure 4.1.8).

FIGURE 4.1.8: What helped you find your first job abroad?

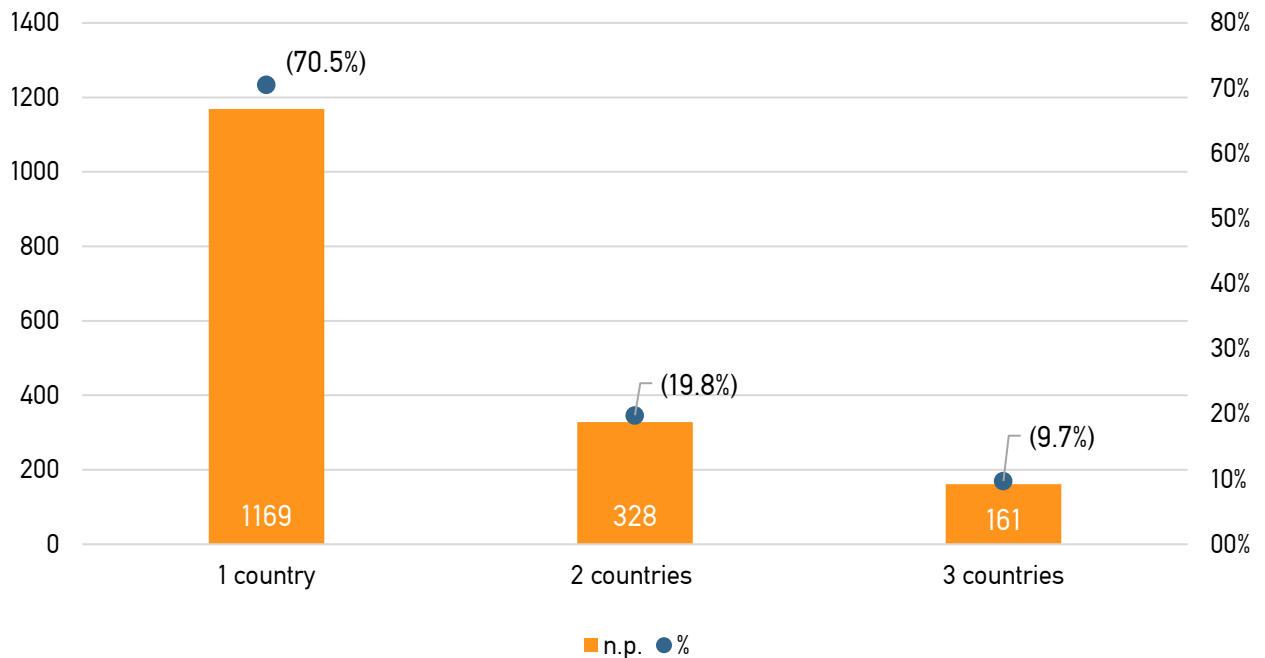


## 4.2 Residence abroad

### 4.2.1 Countries and duration of stay

29.5% of doctorate holders (489 people) lived in more than one country during their time abroad (Figure 4.2.1.1)

FIGURE 4.2.1.1: Number of countries where doctorate holders resided during their time abroad (number of people and %).



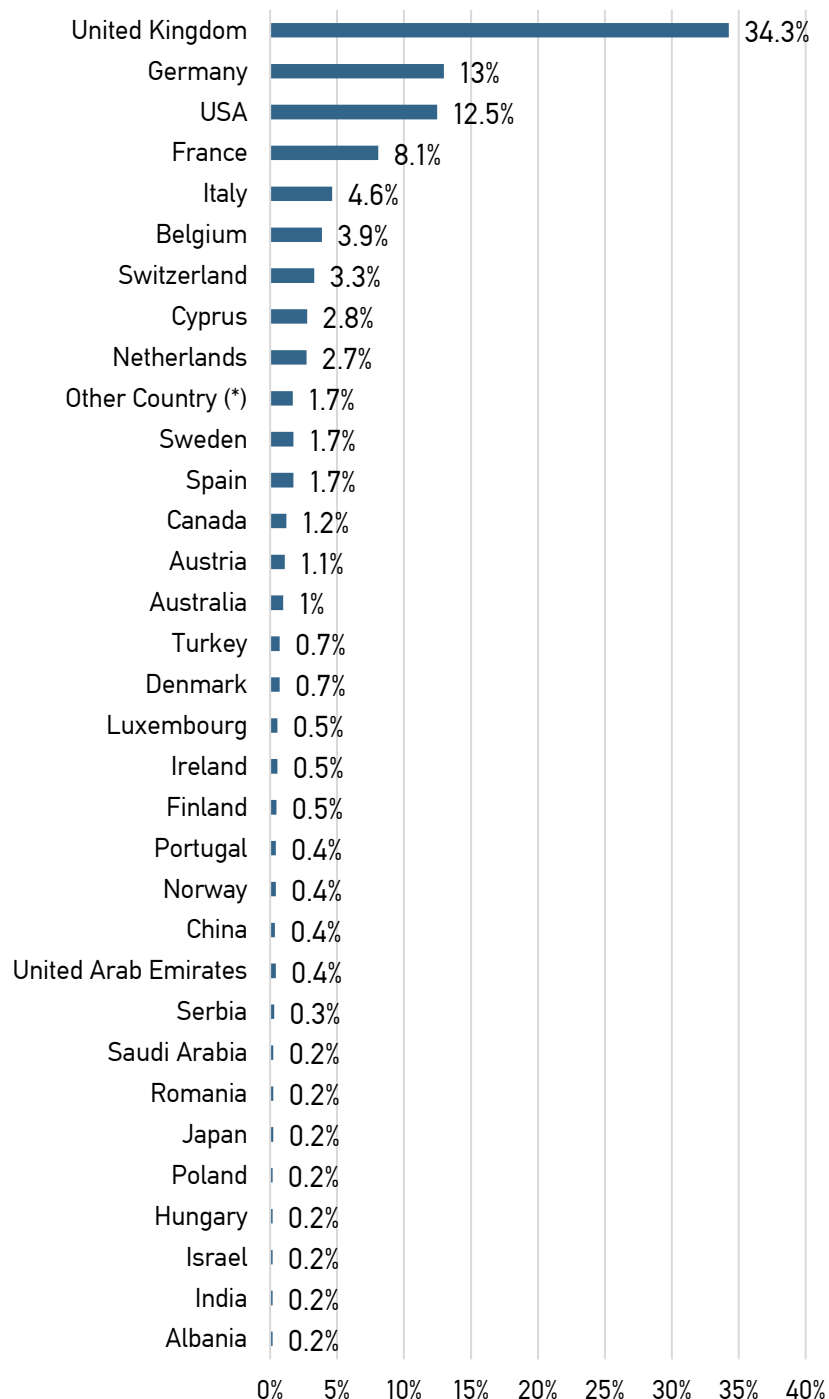
For those doctorate holders who lived in more than one foreign country, the following figures show distribution. The most popular responses are as follows:

Of those who lived abroad, their first country of residence was mainly the United Kingdom with 34.3%, Germany with 13% and the USA with 12.5% (Figure 4.2.1.2).

Their 2nd country of residence was mainly the United Kingdom with 21.7%, Germany with 12.6% and the USA with 11% (Figure 4.2.1.3).

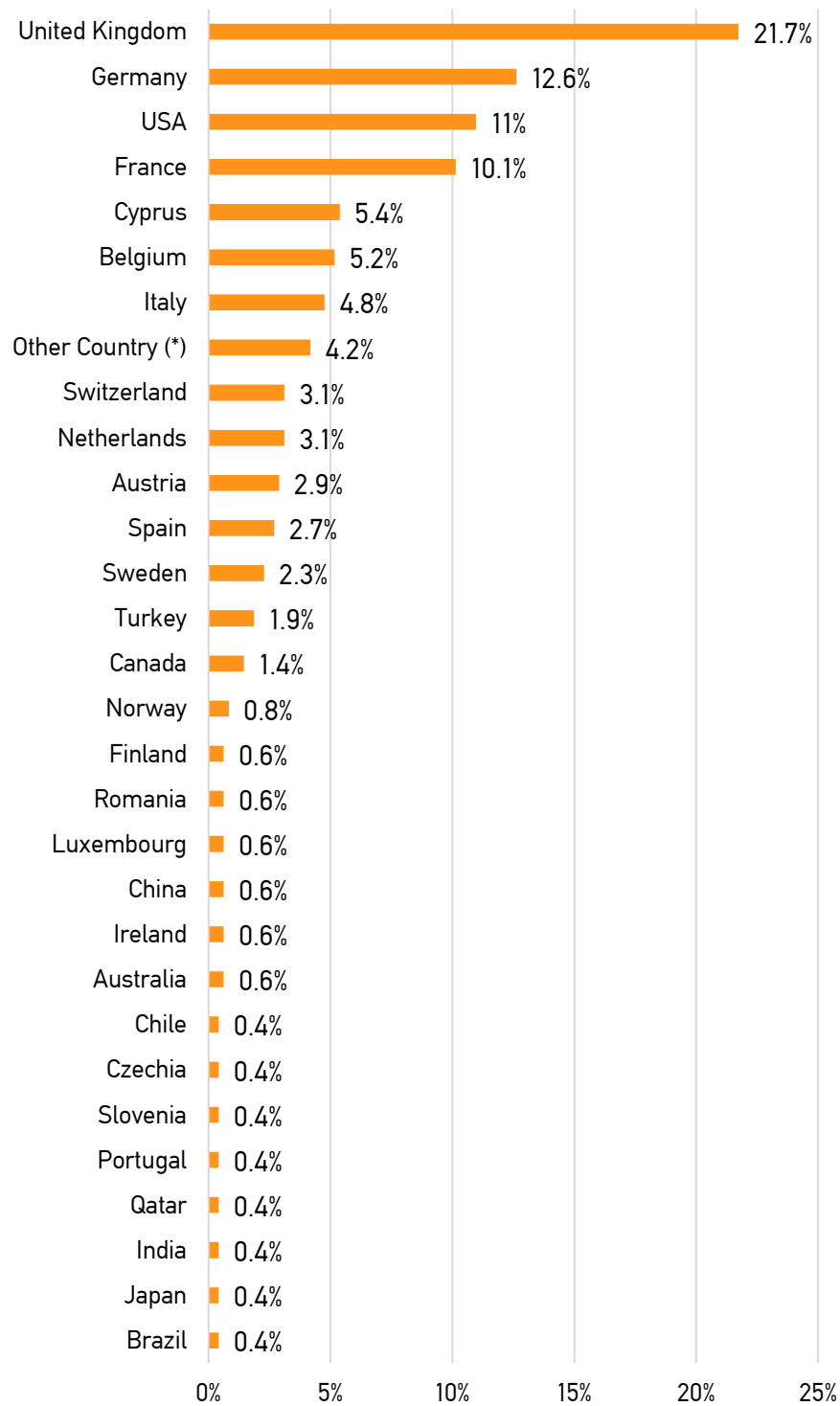
Their 3rd country of residence was mainly the United Kingdom with 24.6%, Germany with 14.4% and the USA with 13.2% (Figure 4.2.1.4).

FIGURE 4.2.1.2: 1st country of residence



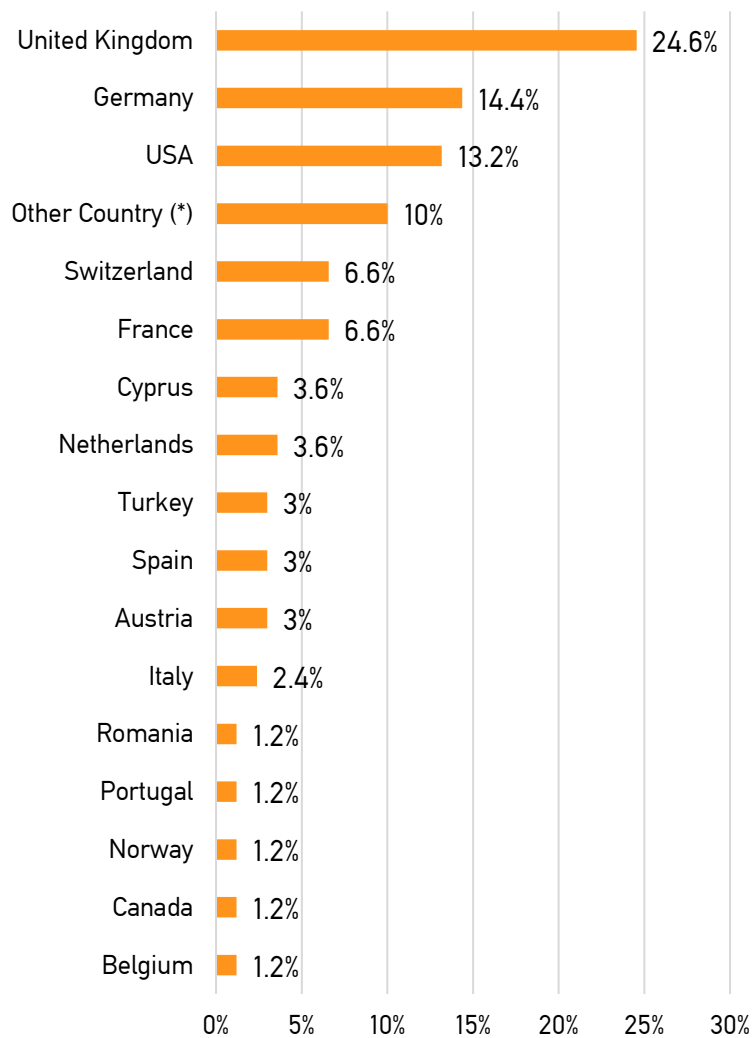
(\*) Namely: Azerbaijan, Ethiopia, Argentina, Venezuela, Bulgaria, Dominican Republic, Indonesia, Iceland, Kazakhstan, Kuwait, Democratic Republic of the Congo, Mexico, Northern Macedonia, Singapore, Slovenia, Czechia, Egypt, Jordan, Qatar, Lebanon, South Africa and Russia.

FIGURE 4.2.1.3: 2nd country of residence



(\*) Namely: Egypt, Haiti, Albania, Argentina, Bulgaria, Georgia, Ghana, Grenada, Denmark, United Arab Emirates, Israel, Kuwait, Croatia, South Africa, Panama, Russia, Slovakia and Thailand.

FIGURE 4.2.1.4: 3rd country of residence

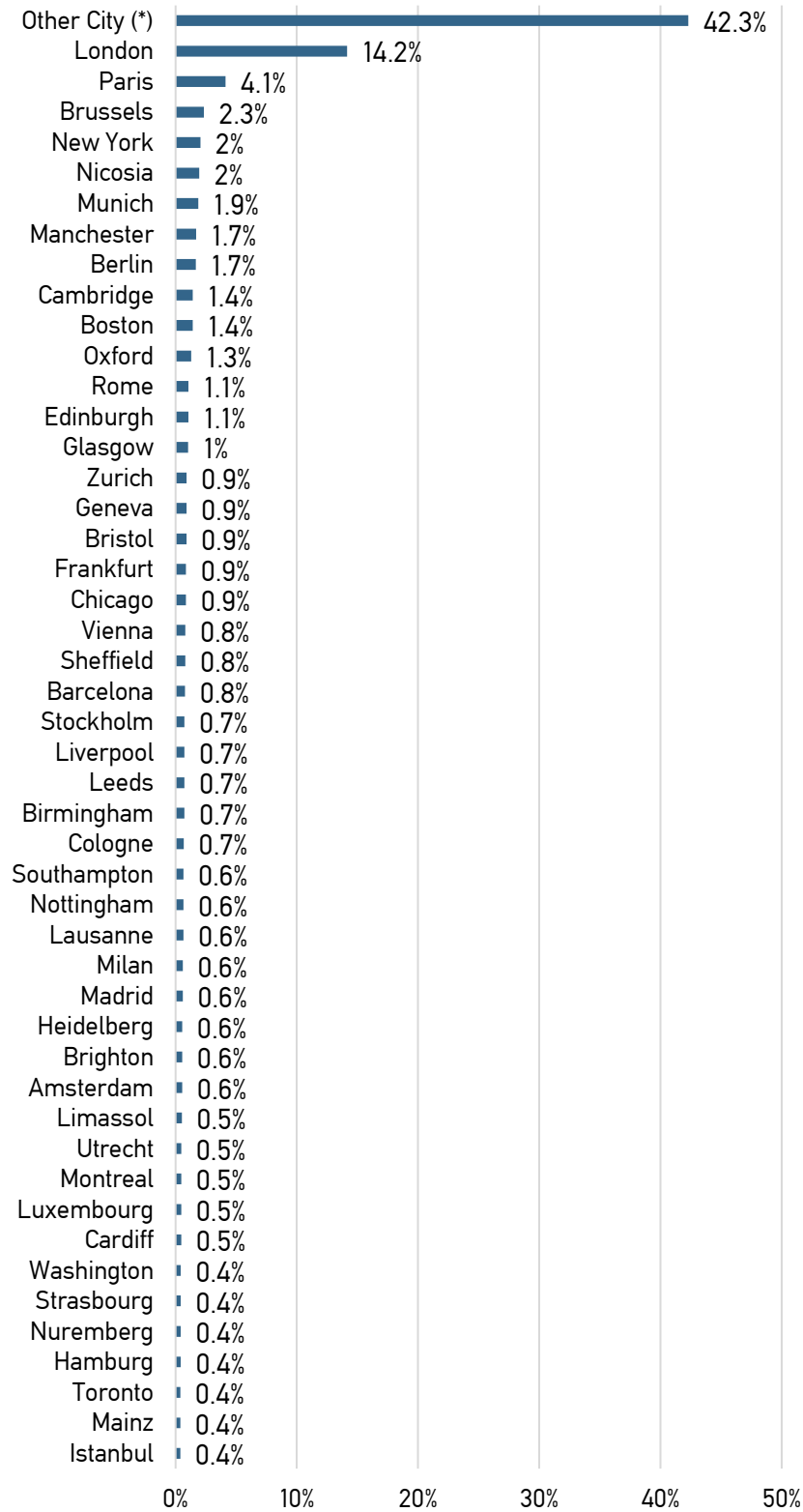


(\*) Namely: Haiti, Australia, Denmark, Zimbabwe, United Arab Emirates, Japan, Ireland, China, Luxembourg, Oman, Pakistan, Poland, Saudi Arabia, Singapore, Slovenia and Chile.

The main city of choice was London with 14.2%, followed by Paris with 4.1%. The top five city choices also included New York, Brussels and Nicosia, with percentages of 2%, 2.3% and 2% respectively (Figure 4.2.1.5).



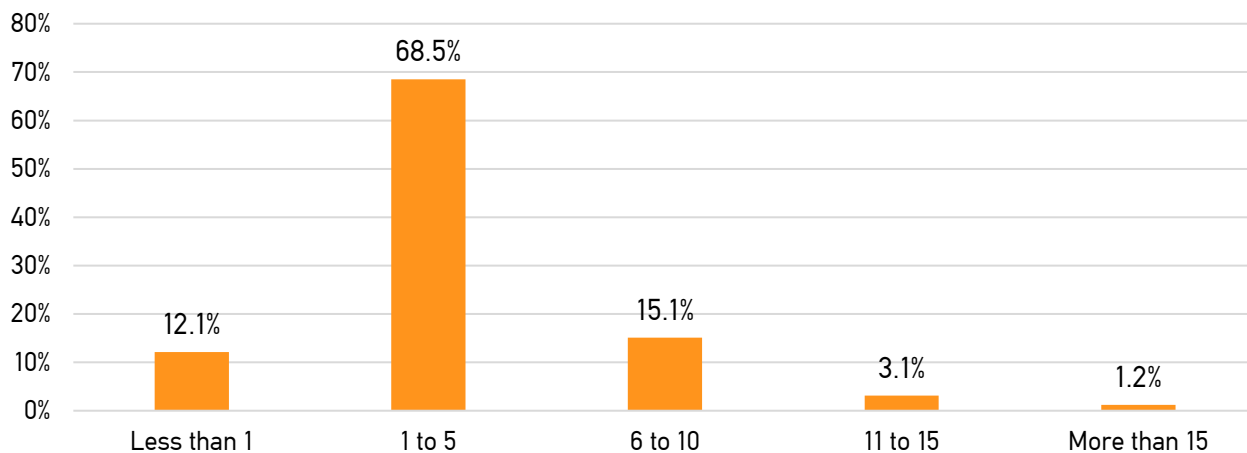
FIGURE 4.2.1.5: Cities of residence abroad



(\*) Namely, 487 other cities, each with a percentage of less than 0.4%.

80.6% stated that they lived abroad for up to 5 years. Of these, the largest percentage (68.5%) lived 1 to 5 years abroad, while 12.1% less than 1 year. 19.4% worked for 6 years or more (Figure 4.2.1.6).

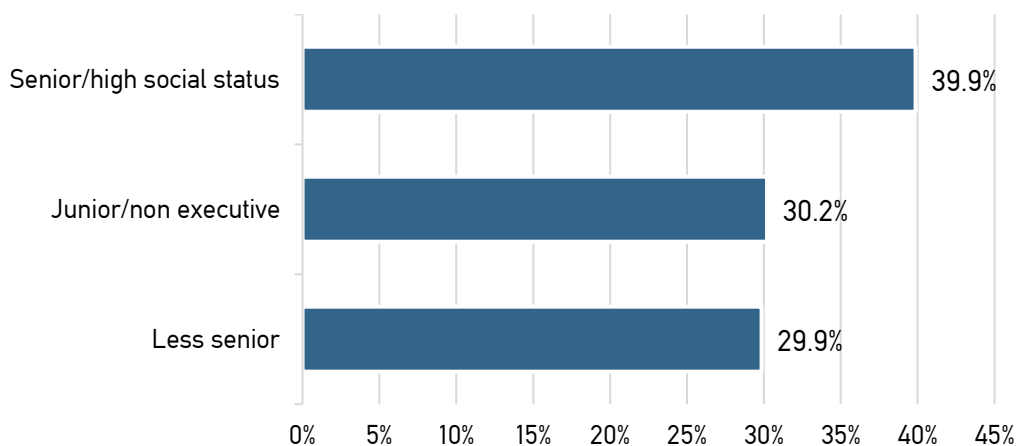
FIGURE 4.2.1.6: How many years did you work abroad?



## 4.2.2 Employment data

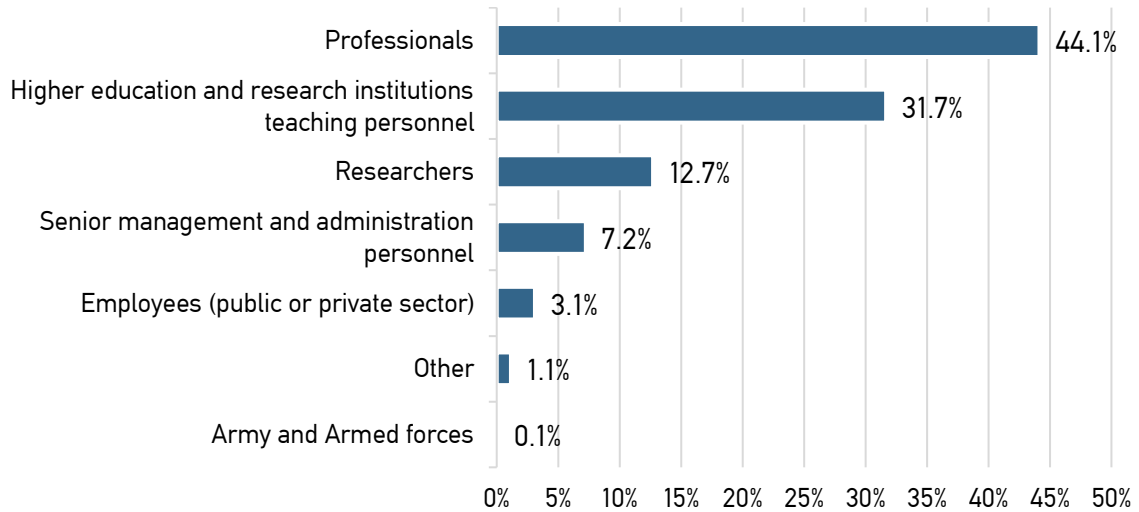
39.9% of doctorate holders described their professional position when working abroad as “senior”, while 30.2% stated that their professional position was “non-executive” (Figure 4.2.2.1).

FIGURE 4.2.2.1: How would you characterise your then professional position?



When asked about the professional fields in which they were active, 44.1% of the participants stated that they were “Professionals”, 31.7% “Teaching staff of higher education and research institutions”, 12.7% “researchers” and 7.2% “Senior managers and executives” (Figure 4.2.2.2).

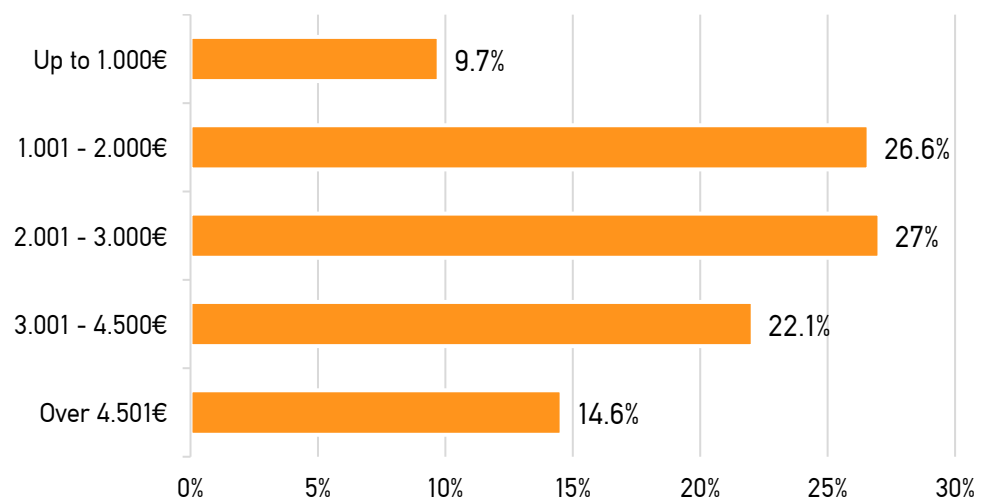
FIGURE 4.2.2.2: What was your professional field?



Note: See Annex on the Other category.

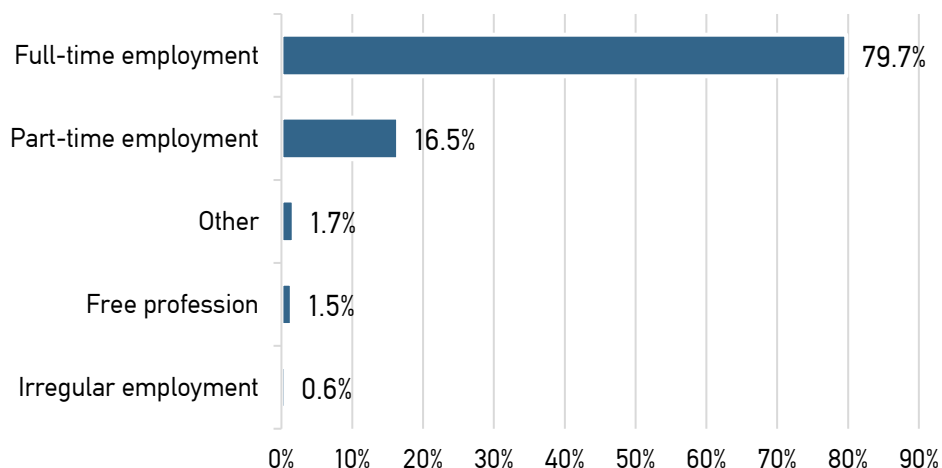
63.7% of doctorate holders stated that when they worked abroad they received a gross monthly salary of over € 2,000 (Figure 4.2.2.3).

FIGURE 4.2.2.3: What was your gross monthly salary?



79.7% stated that they worked abroad in “full-time employment”, while 16.5% “part-time” (Figure 4.2.2.4).

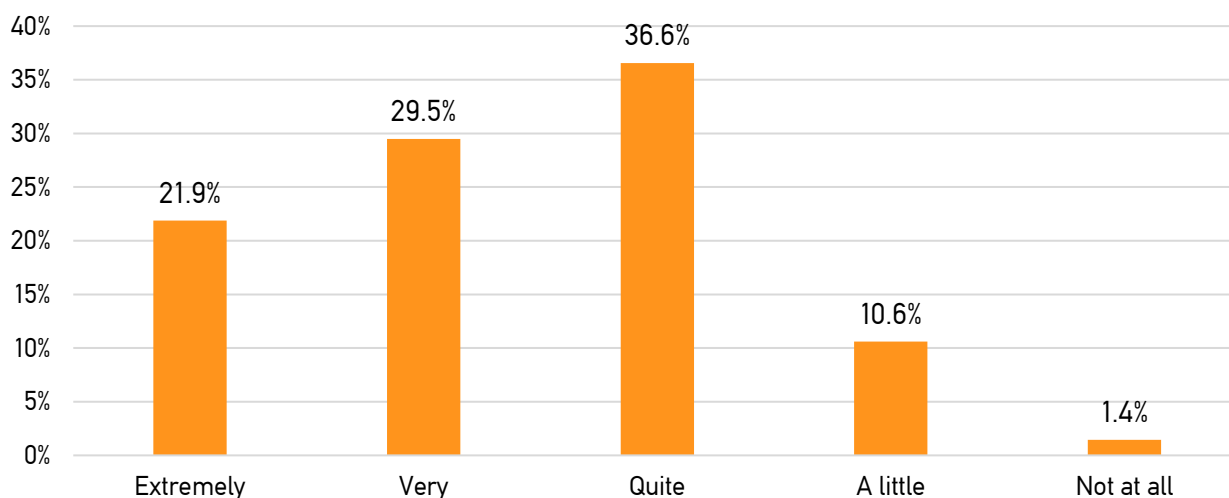
FIGURE 4.2.2.4: What was your employment status while you were living abroad?



Note: See Annex on the Other category.

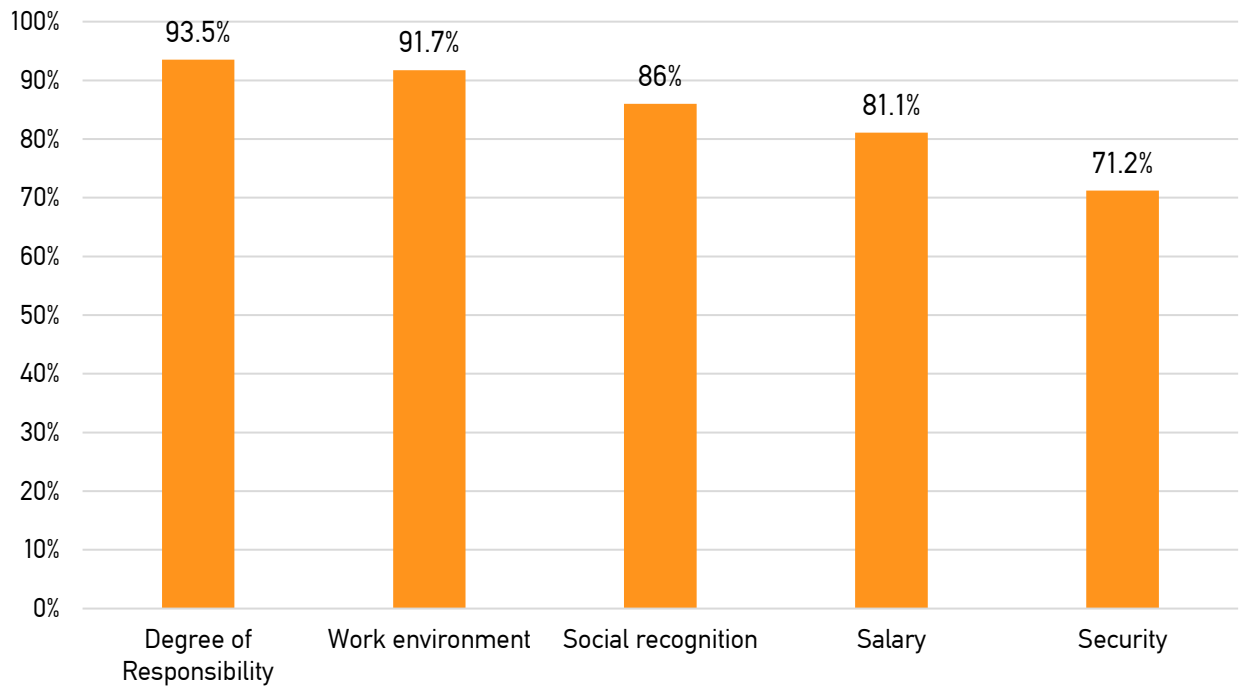
51.4% of doctorate holders stated that they were very/extremely satisfied with the quality of life abroad (Figure 4.2.2.5).

FIGURE 4.2.2.5: How satisfied were you with your quality of life abroad?



93.5% stated that they were satisfied with the working conditions, and more specifically with the degree of “responsibility” of their work, 91.7% with the “work environment”, while 86% with the “social recognition”. (Figure 4.2.2.5).

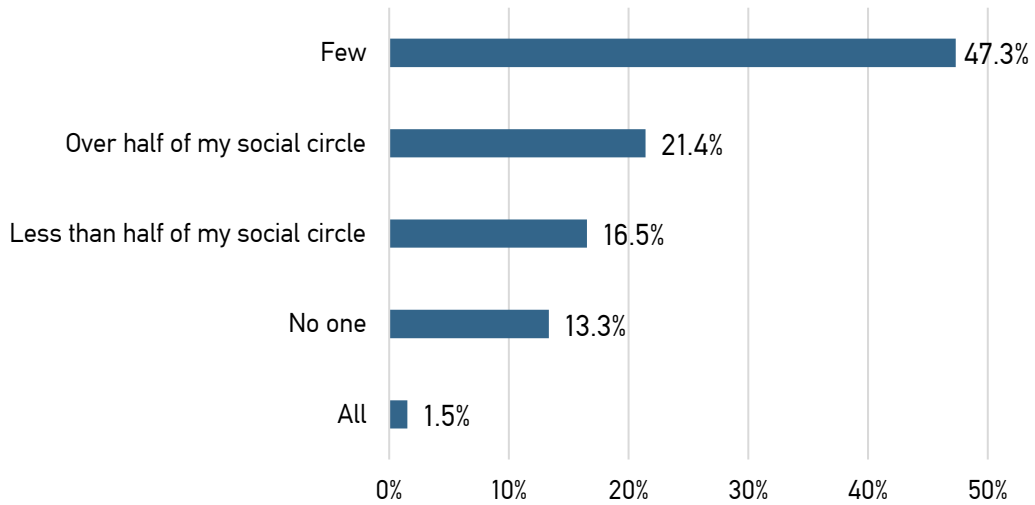
FIGURE 4.2.2.5: Were you satisfied with the working conditions abroad in the following areas?



### 4.2.3 Family and social environment

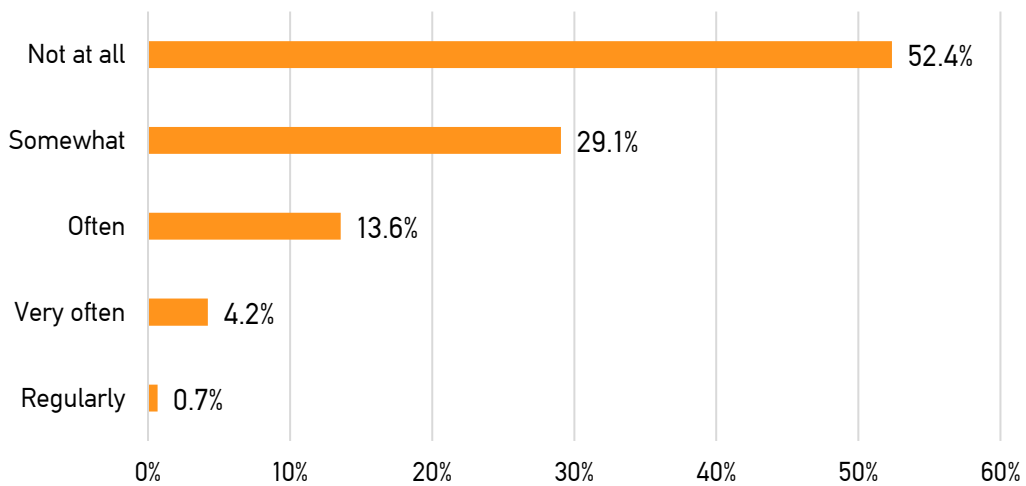
Only 13.3% of doctorate holders stated that there were no Greeks in their social environment abroad (Figure 4.2.3.1).

FIGURE 4.2.3.1: How many Greeks were in your social environment?



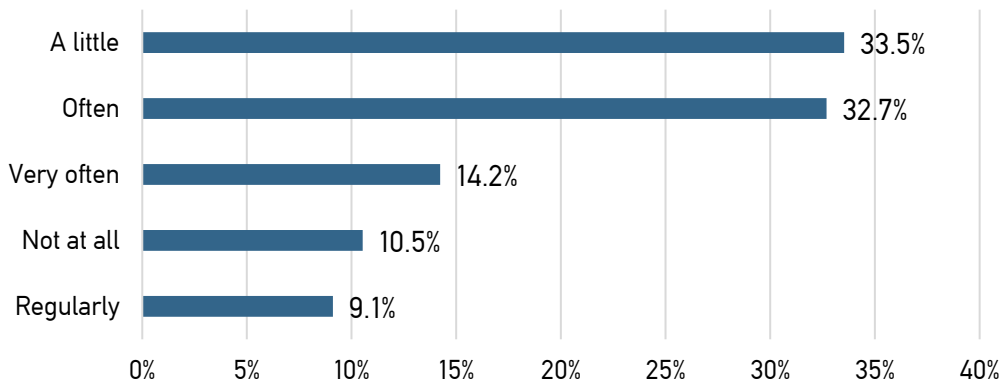
52.4% of doctorate holders answered negatively when asked whether they participated in gatherings of Greek associations while living and working abroad (Figure 4.2.3.2).

FIGURE 4.2.3.2: Were you involved in meetings of Greek associations?



33.5% met Greeks “very few” times while living abroad, while 32.7% “quite often” (Figure 4.2.3.3).

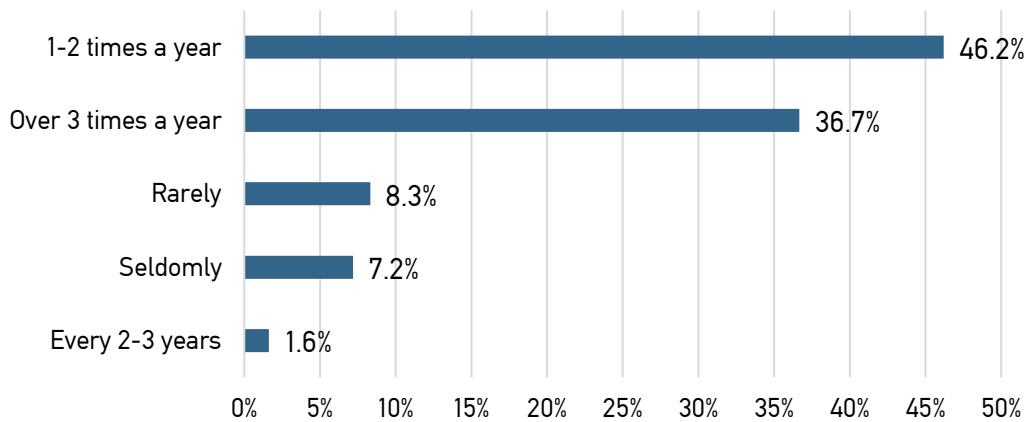
FIGURE 4.2.3.3: How often did you meet other Greeks living there?



#### 4.2.4 Professional and social ties with Greece

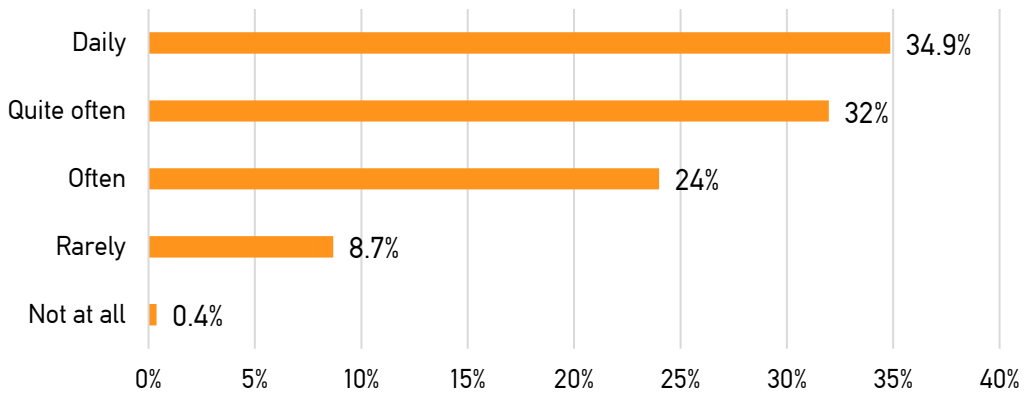
While living abroad, 82.9% visited Greece at least once a year. 46.2% came “1-2 times a year” and 36.7% “over three times a year” (Figure 4.2.4.1).’

FIGURE 4.2.4.1: How often did you come to Greece when you lived abroad?



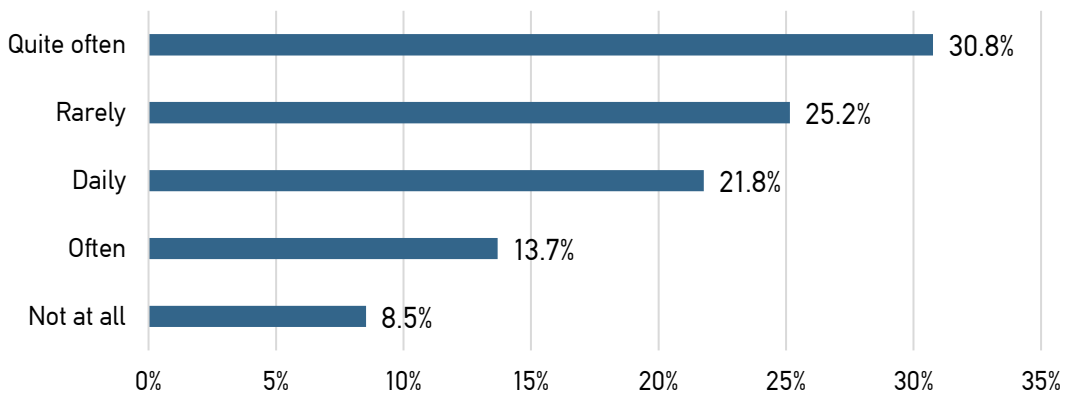
The vast majority of doctorate holders (90.9%) stated that while working abroad they quite frequently had daily contact with friends and relatives in Greece (Figure 4.2.4.2).

FIGURE 4.2.4.2: How often did you talk to friends and relatives in Greece?



Only 8.5% of doctorate holders did not follow Greek media while living abroad (Figure 4.2.4.3).

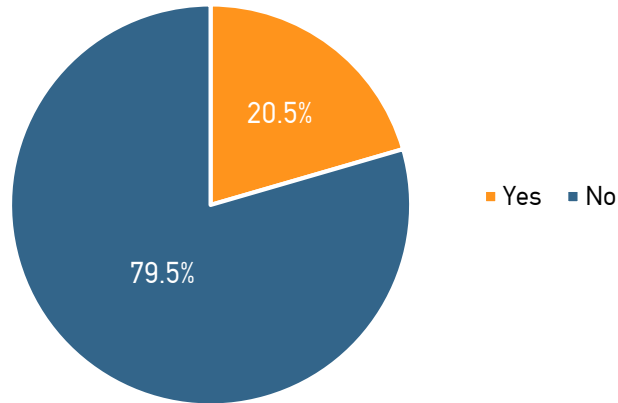
FIGURE 4.2.4.3: How often did you follow Greek media?



79.5% of the participants answered negatively when asked whether they had a professional relationship with Greece while living abroad (Figure 4.2.4.4).

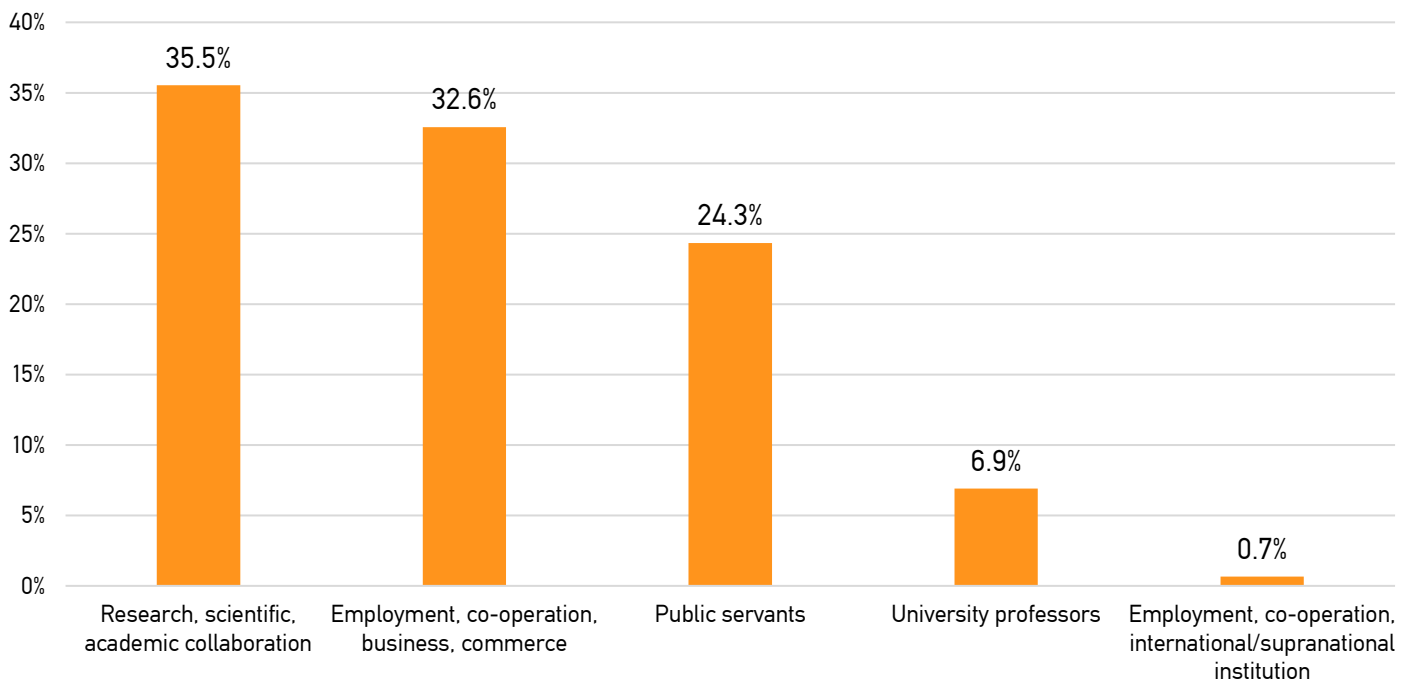


FIGURE 4.2.4.4: Did you have any professional relationship with Greece while you were abroad?



68.8% of the participants stated that the professional relationship they had with Greece while living abroad was at the co-operation level. Specifically, for 35.5% this relationship concerned research, scientific or academic collaboration, for 32.6% it concerned work and corporate or commercial collaboration, and for 0.7% work or collaboration in international organisations or supranational bodies. 24.3% stated that they were civil servants on secondment (Figure 4.2.4.5).

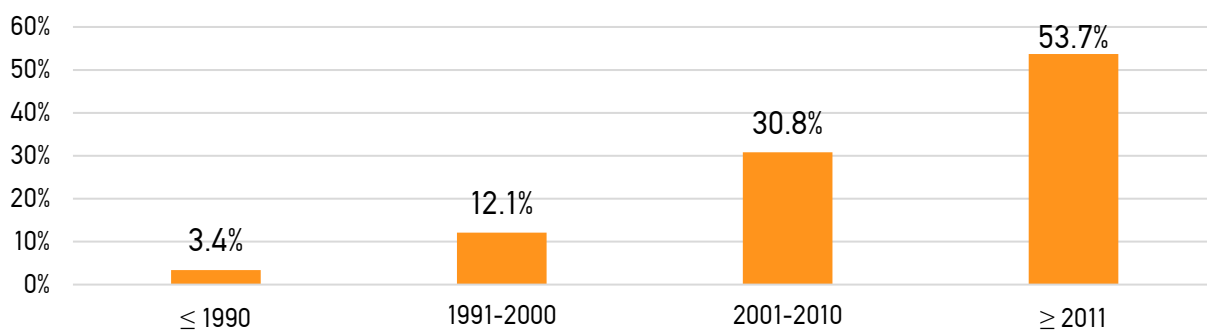
FIGURE 4.2.4.5: What was this professional relationship you had with Greece while you were abroad?



## 4.3 Return to Greece

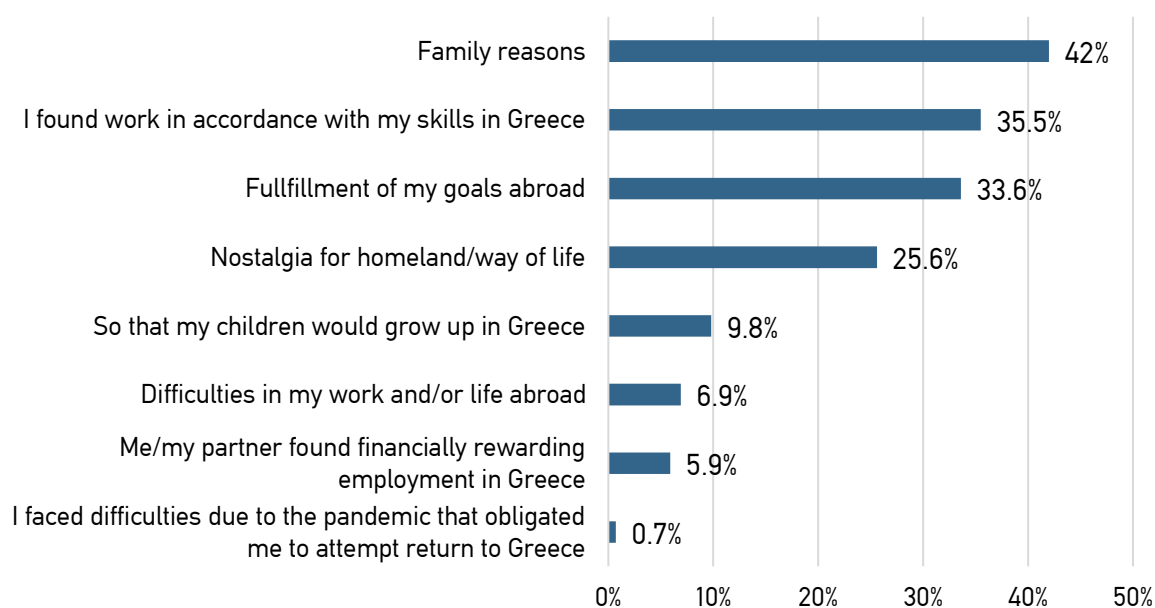
The highest proportion of returnees (53.7%) did so after 2011, while 30.8% in the period between 2001-2010 (Figure 4.3.1)

FIGURE 4.3.1: When did you return to Greece?



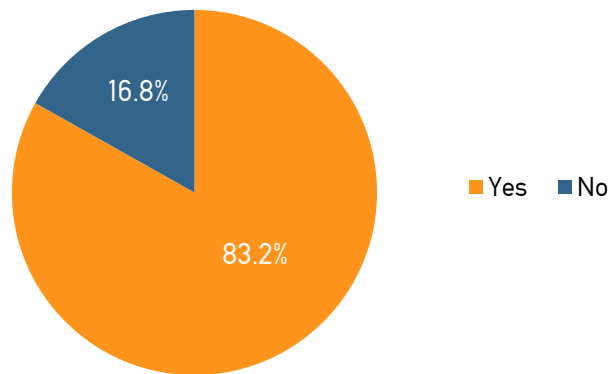
They returned mainly for family reasons, as well as for nostalgia for the home country. The highest proportion (42%) returned for “family reasons”, 25.6% due to “nostalgia for the home country”, and 9.8% because they wanted “children to grow up in Greece”. Professional reasons were also recorded: 35.5% “found work in Greece matching [their] qualifications” 6.9% experienced “difficulties at work while living abroad”, while 5.9% found satisfactory work in Greece (Figure 4.3.2).

FIGURE 4.3.2: Why did you return to Greece?



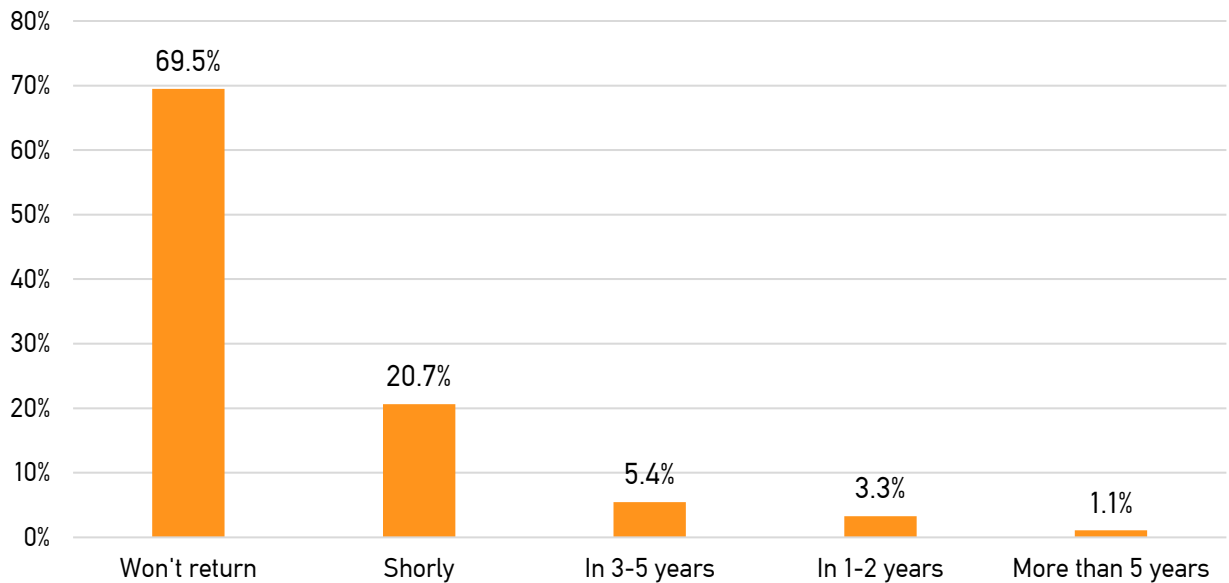
83.2% of doctorate holders stated that they and their partner returned to Greece together (Figure 4.3.3).

FIGURE 4.3.3: Did you and your partner return together?



The largest percentage of those who answered negatively to the above question (69.5%) stated that their partner/spouse will not return (Figure 4.3.4).

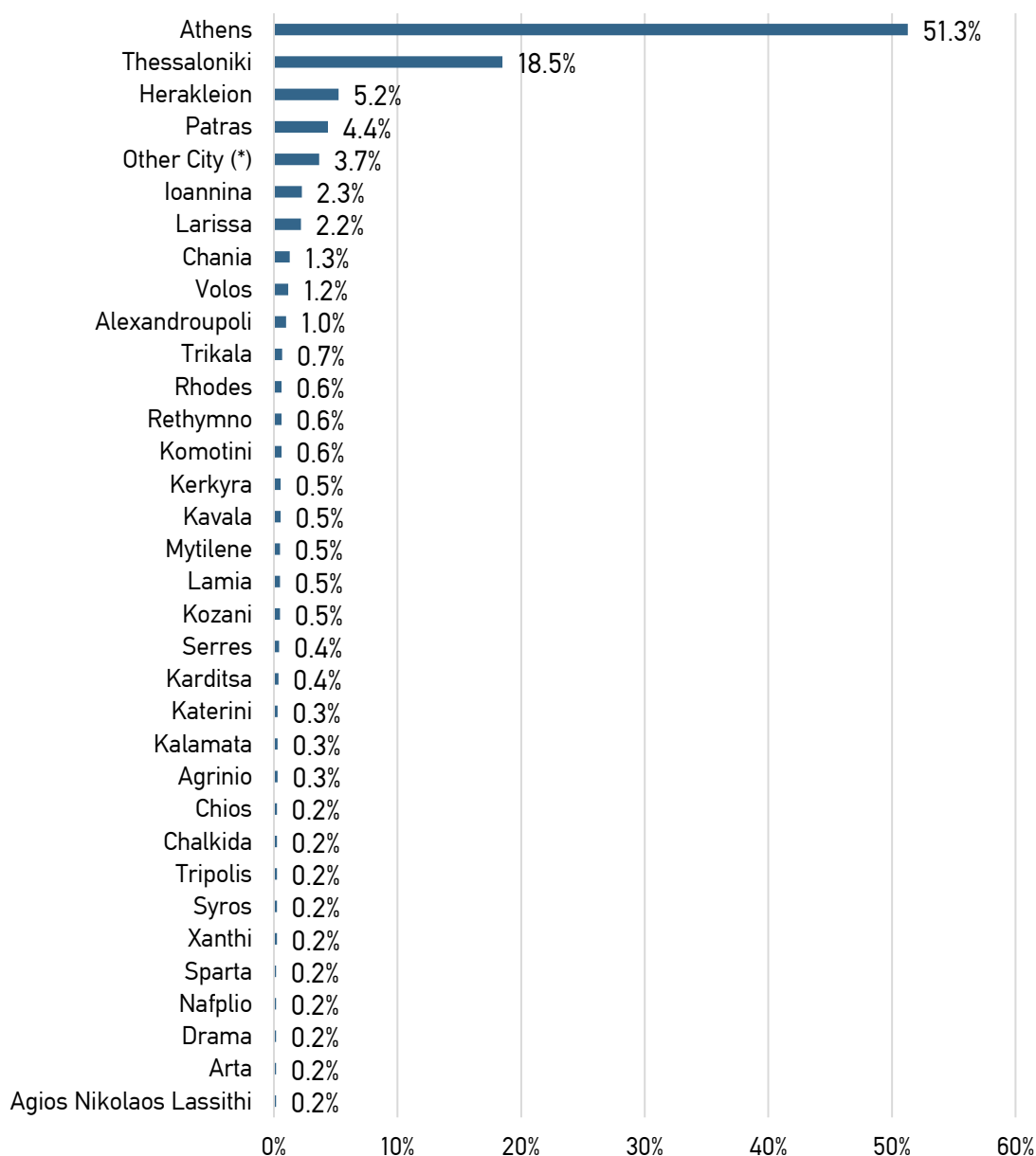
FIGURE 4.3.4: When do you estimate your partner will return?



### 4.3.1 Place of residence in Greece

To the question “in which town/city do you currently live”, 51.3% of the doctorate holders said Athens and 18.5% Thessaloniki (Figure 4.3.1.1).

FIGURE 4.3.1.1: In which town/city do you currently live?

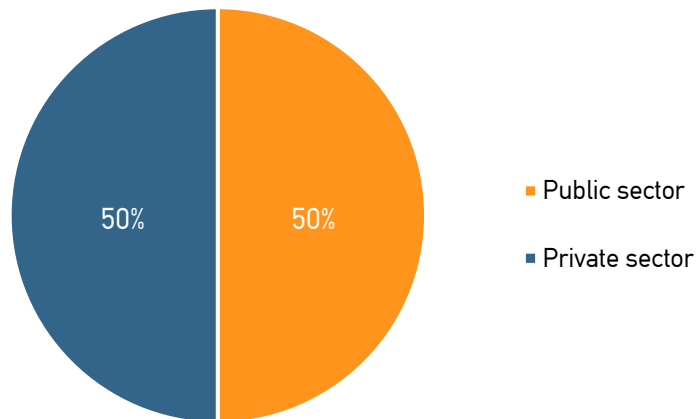


(\*) Namely: Agioi Theodoroi Korinthias, Agios Efstratios, Agios Konstantinos, Aiginio Pierias, Aigio, Amynteo, Andros, Axioupoli, Arachova, Argos, Argostoli, Arkalochori, Vathi, Vasiliko Chalkida, Giannitsa, Grammatiko Karditsa, Domokos, Ellinika, Erimanthos, Zakynthos, Igoumenitsa, Thermi, Thermo, Ierapetra, Kerasia, Cephallonia, Messolonghi, Mykonos, Myrina, Naoussa, Nafpaktos, Nea Ionia Volou, Neo Rysio, Orestiada, Pyrgos, Samos, Skalani, Skiathosi, Triandria, Florina, Oreokastro, Tripoli, Agios Dimitrios, Veria, Karlovasi, Kastoria, Kiato, Kilkis, Preveza, Ptolemaida, Sitia, Halkidiki and Ioannina.

### 4.3.2 Employment data

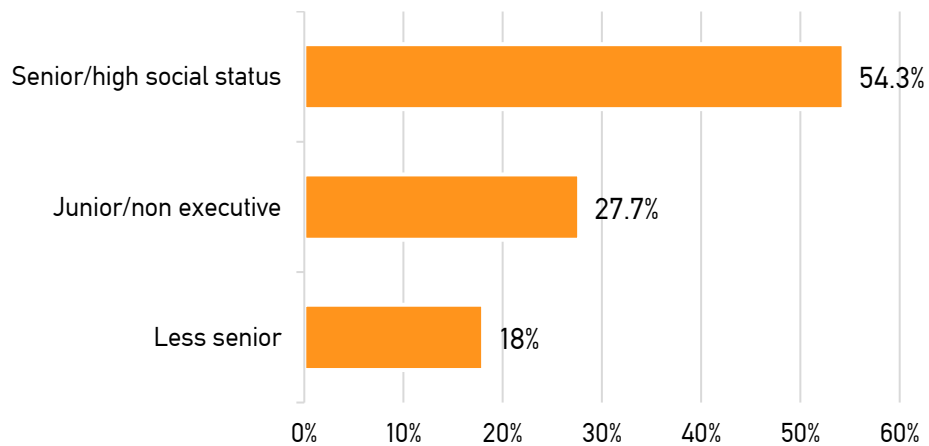
Of those currently working in Greece, 50% work in the public sector and the other 50% in the private sector (Figure 4.3.2.1).

FIGURE 4.3.2.1: In which sector do you work in Greece today?



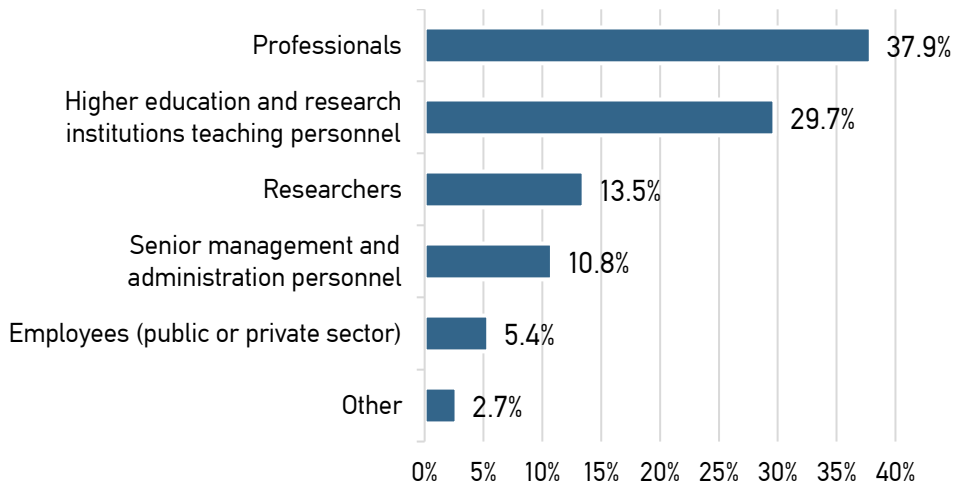
82% of those who work today describe their professional position as “senior with high social status” or “less senior” (Figure 4.3.2.2).

FIGURE 4.3.2.2: How would you describe your current professional position?



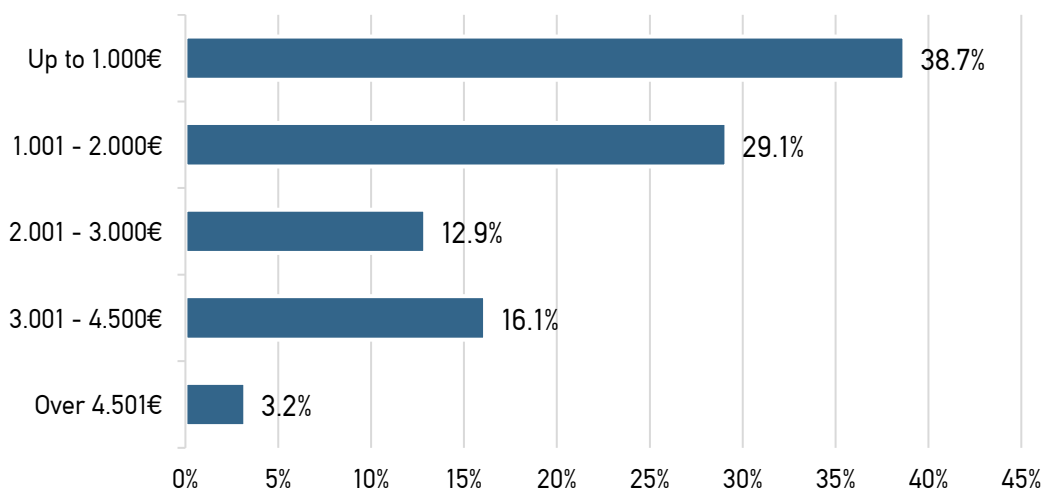
When asked about the professional fields in which they work, the participants 37.9% stated that they are “professionals”, 29.7% “teaching staff of higher education and research institutions”, 13.5% “researchers” and 10.8% “senior managers and administrators” (Figure 4.3.2.3).

FIGURE 4.3.2.3: Professional field



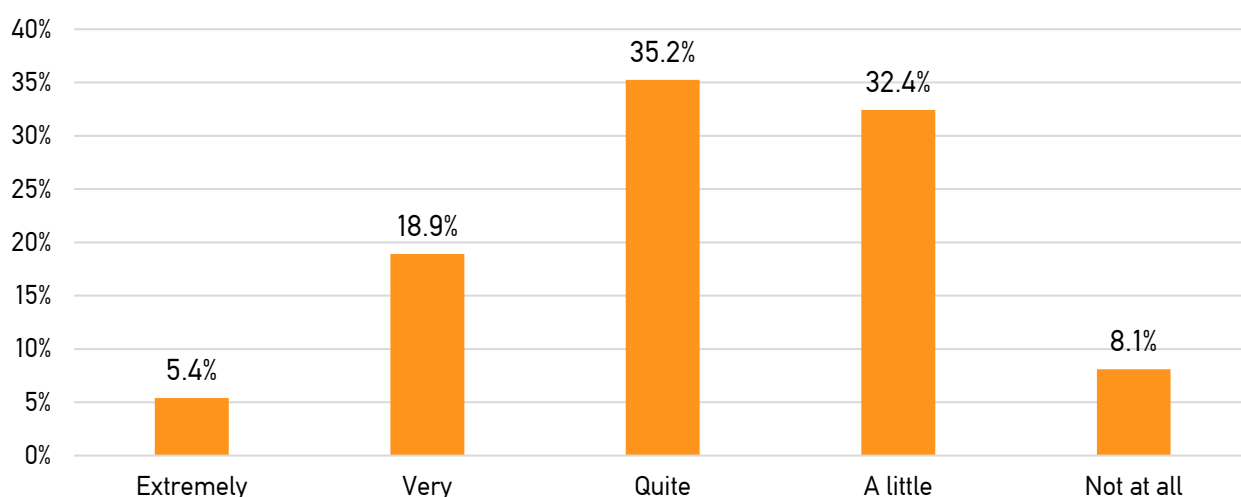
38.7% of the doctorate holders who currently work stated that they receive a gross monthly salary of up to € 1,000, 29.1% up to € 2,000, while 32.2% more than € 2,000 (Figure 4.3.2.4).

FIGURE 4.3.2.4: What is your gross monthly salary?



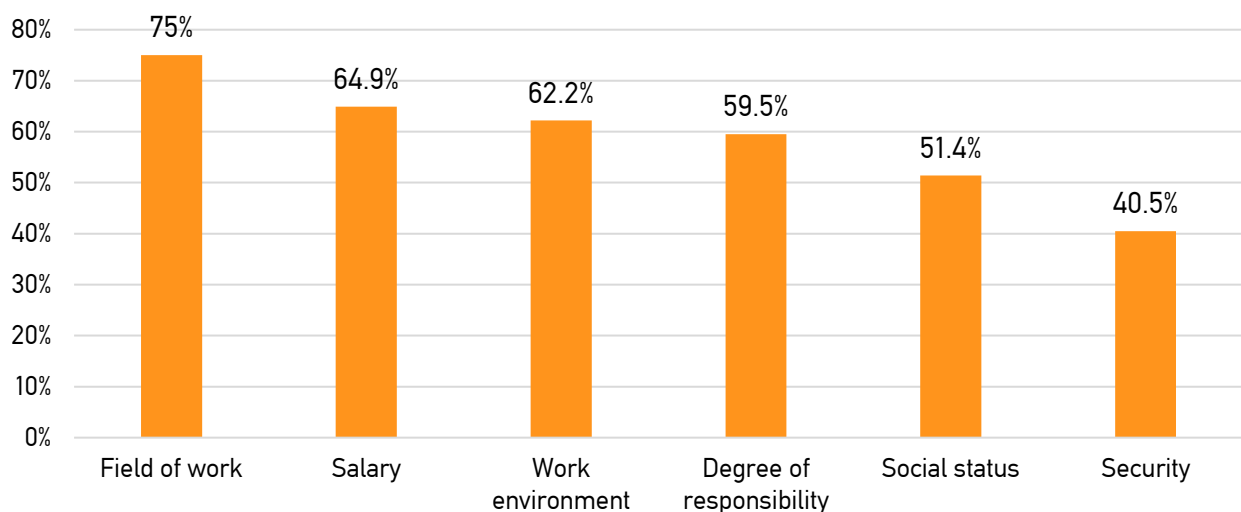
Only 23.4% chose “very/extremely” satisfied with their quality of life in Greece, while 40.5% “a little/not at all” (Figure 4.3.2.5).

FIGURE 4.3.2.5: How satisfied are you with your quality of life in Greece?



With percentages that exceed 50%, they stated that they are satisfied with the working conditions (field of work, salary, working environment, responsibility and social recognition), but not in terms of the issue of security (40.5%) (Figure 4.3.2.6).

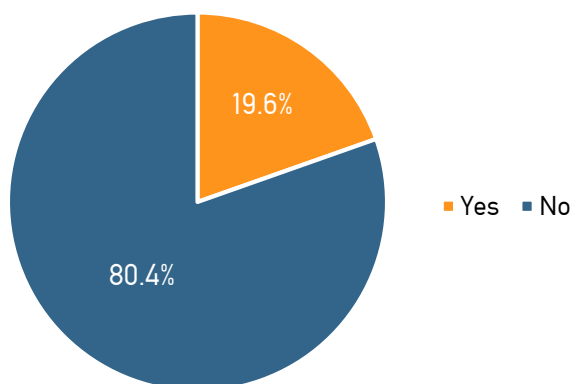
FIGURE 4.3.2.6: Are you satisfied with your current working conditions in Greece in terms of the following factors?



### 4.3.3 Professional ties abroad

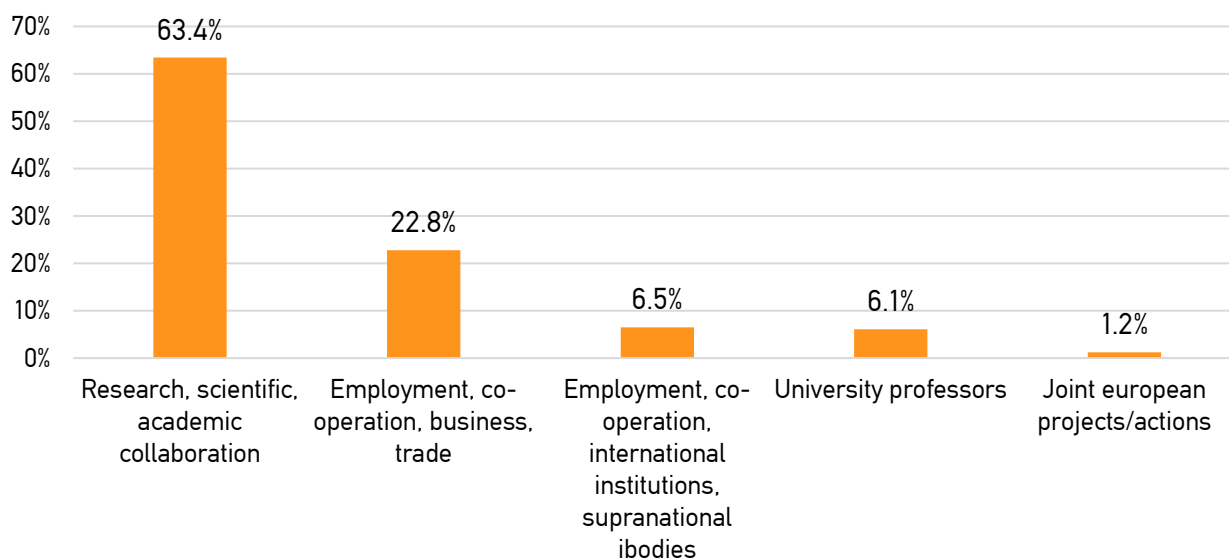
80.4% stated that they do not have any professional relationship with other countries (Figure 4.3.3.1).

FIGURE 4.3.3.1: Professional relationship with other countries



Of those who maintain a professional relationship abroad, the largest percentage (92.7%) stated that this relates to co-operation. Specifically, 63.4% reported research, scientific or academic collaboration, 22.8% work and collaboration in a company or commercial collaboration, while 6.5% reported work or collaboration in international organisations or supranational bodies (Figure 4.3.3.2)

FIGURE 4.3.3.2: What is your professional relationship with other countries?

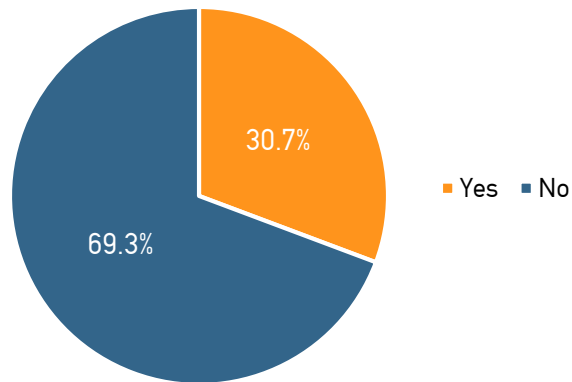




### 4.3.4 Intention to move abroad

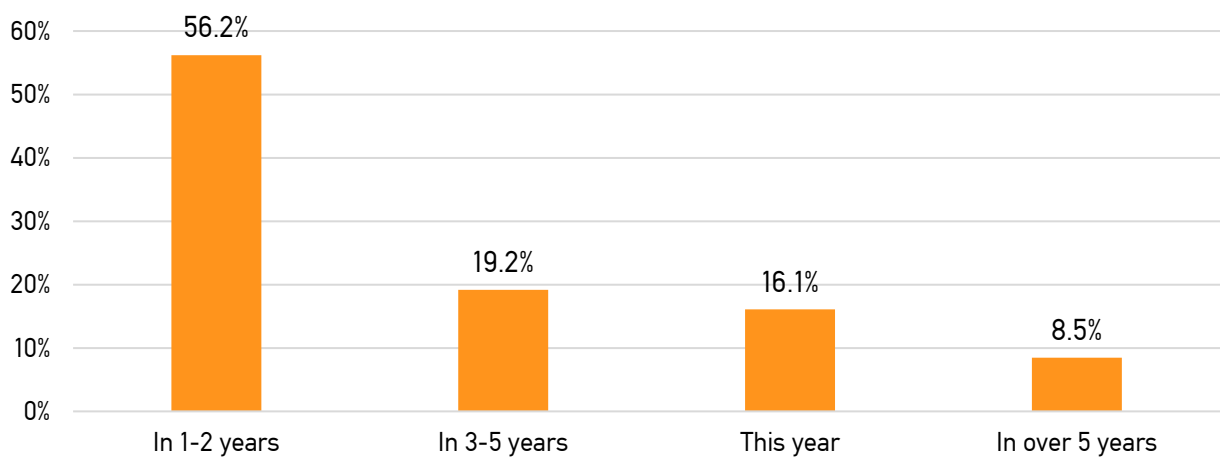
The largest percentage of participants (69.3%) are not considering going abroad again for work (Figure 4.3.4.1).

FIGURE 4.3.4.1: Are you considering going abroad again to work?



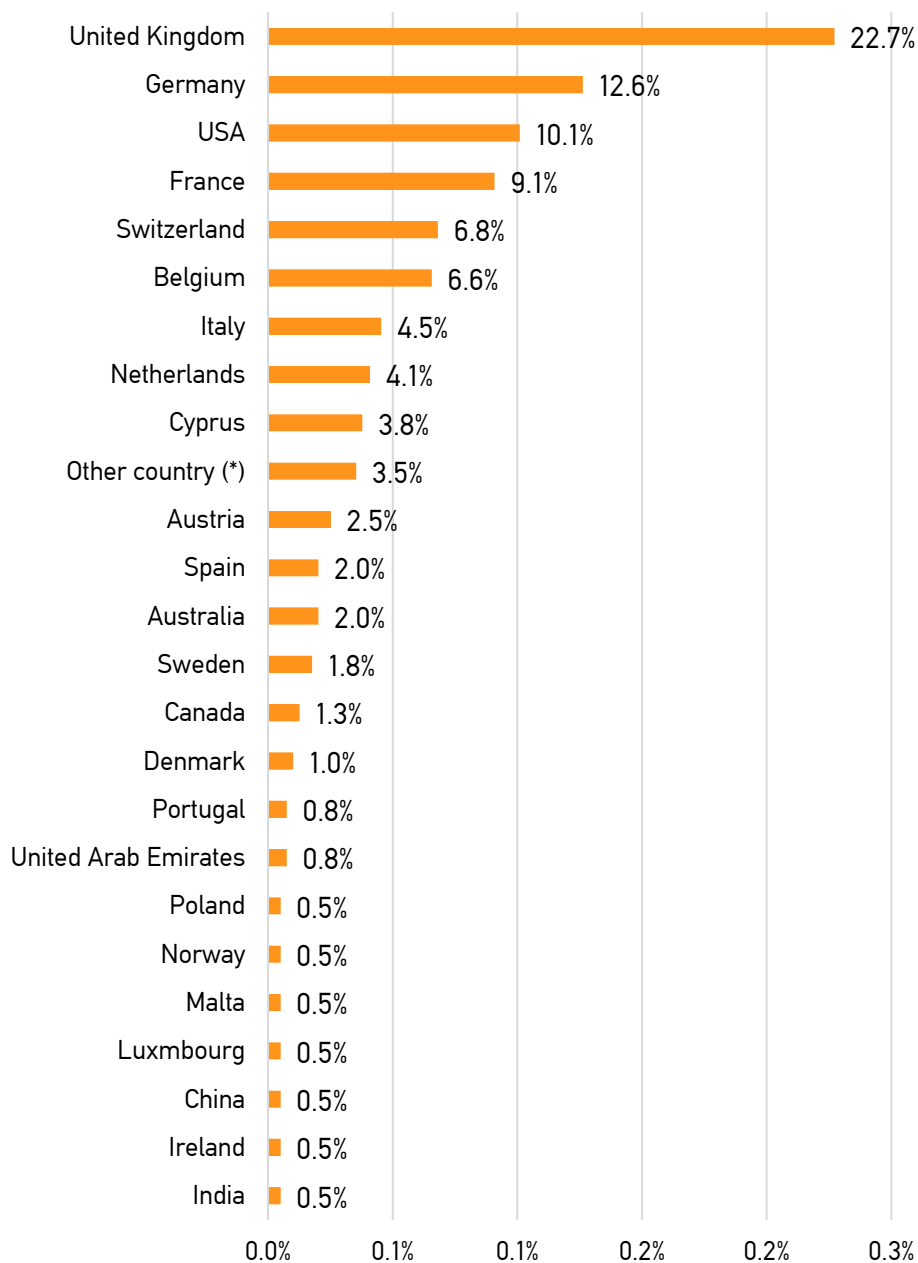
56.2% of those who are considering going abroad again, stated that they will leave within the next 1-2 years (Figure 4.3.4.2).

FIGURE 4.3.4.2: If you are considering leaving again, when will this be?



As for the country to which they intend to emigrate, the largest percentage answered United Kingdom (22.7%), while 12.6% said Germany and 10.1% USA (Figure 4.3.4.3).

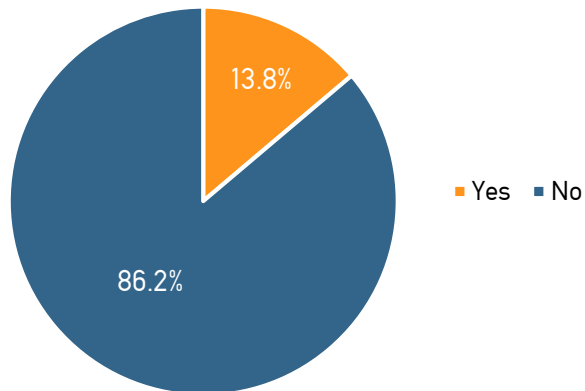
FIGURE 4.3.4.3: If you intend to go abroad again, which country will you go to?



(\*) Namely: Haiti, Ivory Coast, Albania, Argentina, Vanuatu, French Polynesia, United Arab Emirates, Malaysia, Mexico, New Zealand, Northern Macedonia, Singapore, Finland and Chile.

86.2% of the doctors who are thinking of going abroad again to work, answered that they have not found a job abroad (Figure 4.3.4.4).

FIGURE 4.3.4.4: Have you found a job abroad?





## 5 Those who live abroad

73.8% of the doctorate holders who live and work abroad had worked in Greece prior to moving abroad. 52.6% of them had secure employment and/or even a good salary and/or worked in a field related to their studies.

Most left Greece after 2011 (72.8%). They left for reasons directly related to work (professional development, better working conditions, better financial earnings and work in their field), while for the same reasons they chose the specific country in which they settled.

They have lived in more than 50 countries, but mainly in the United Kingdom, the United States, Germany and France. 30.8% of them have lived in more than one countries. They have also lived in more than 500 cities but mainly in London, Paris, Boston, Nicosia and New York.

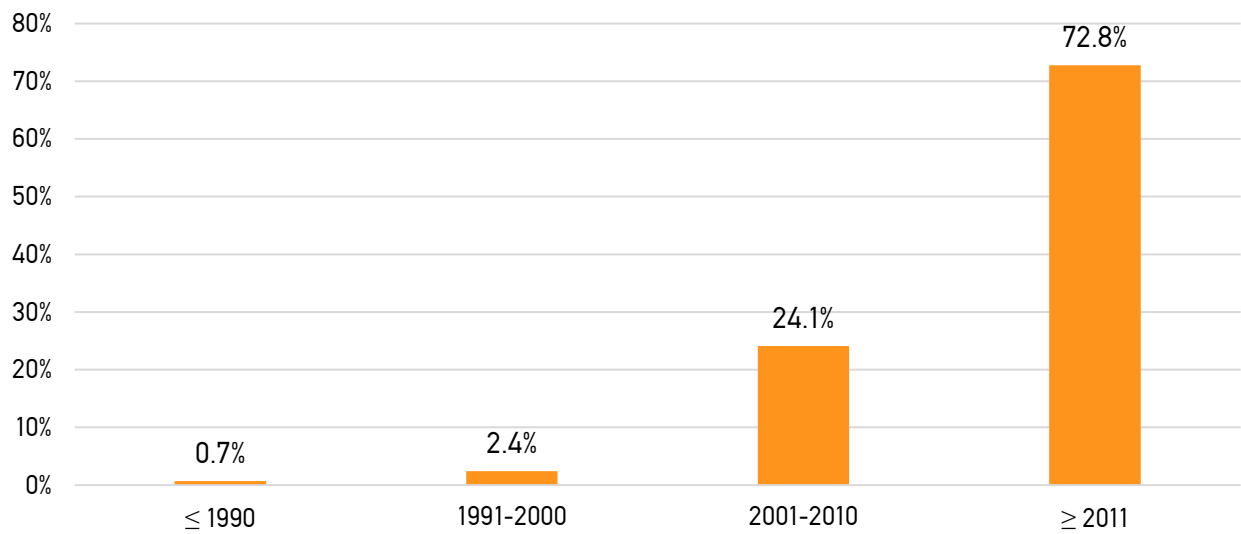
They found their first job abroad through conventional job search methods. 93.6% work full time. 55.3% are senior teaching staff and researchers. Most (65.7%) describe their professional position as "senior and/or with high social status". 95.2% expressed a high degree of satisfaction with their life abroad.

They also maintain strong ties with Greece: almost everyone comes to Greece at least once a year (95%). 74.1% have very regular contact with a friend/relative in Greece. 63% regularly follow Greek media. 46.3% stated that they will return to Greece in the coming years. The conditions and reasons for returning to Greece depend mainly on the possibility of finding a job: 60.7% stated that a sufficient condition is "making available positions in HEIs and Research Centres", 58.4% improvement in the general conditions of the country (social infrastructure, improving the economy etc.), 37.2% improving the interconnectivity of those working abroad with Greece. In terms of residence upon return, most intend to settle in the wider Attica regional unit (56.2%) and in the prefecture of Thessaloniki (19.8%).

## 5.1 Before moving abroad

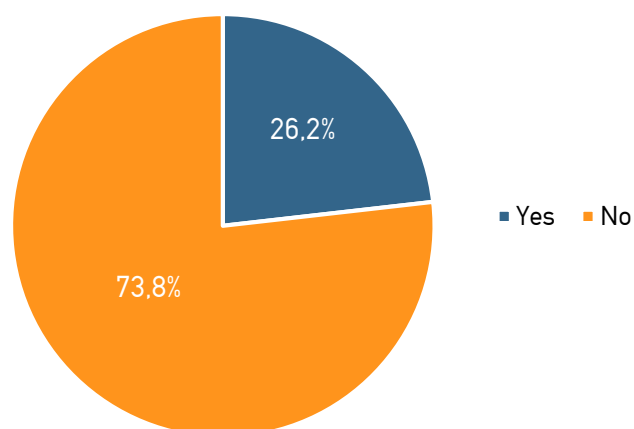
Most of those currently living abroad left after 2011 (72.8%) (Figure 5.1.1).

FIGURE 5.1.1: Since when have you lived abroad?



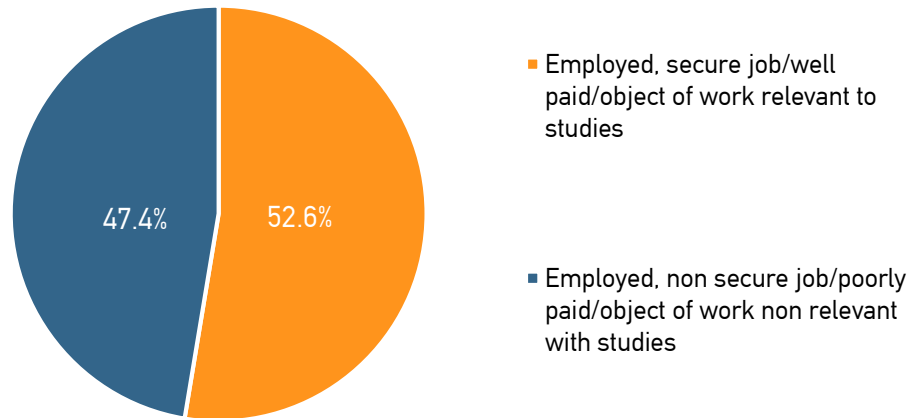
Most stated that they had worked in Greece prior to going abroad (73.8%) (Figure 5.1.2)

FIGURE 5.1.2: Did you work in Greece before going abroad?



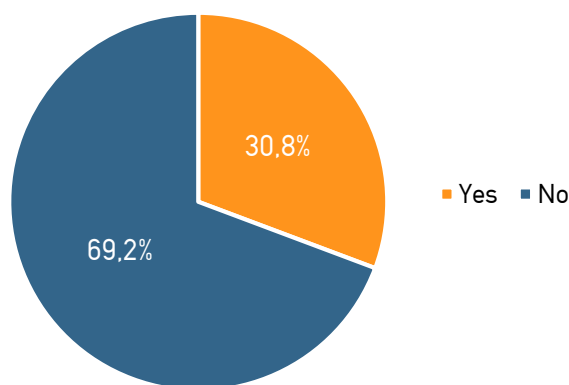
Those who answered yes to the above question were asked to clarify their professional status prior to going abroad. 52.6% answered that they had either secure employment, a good salary or in a subject related to their studies (Figure 5.1.3).

FIGURE 5.1.3: If yes, what was your professional status in the period prior to going abroad?



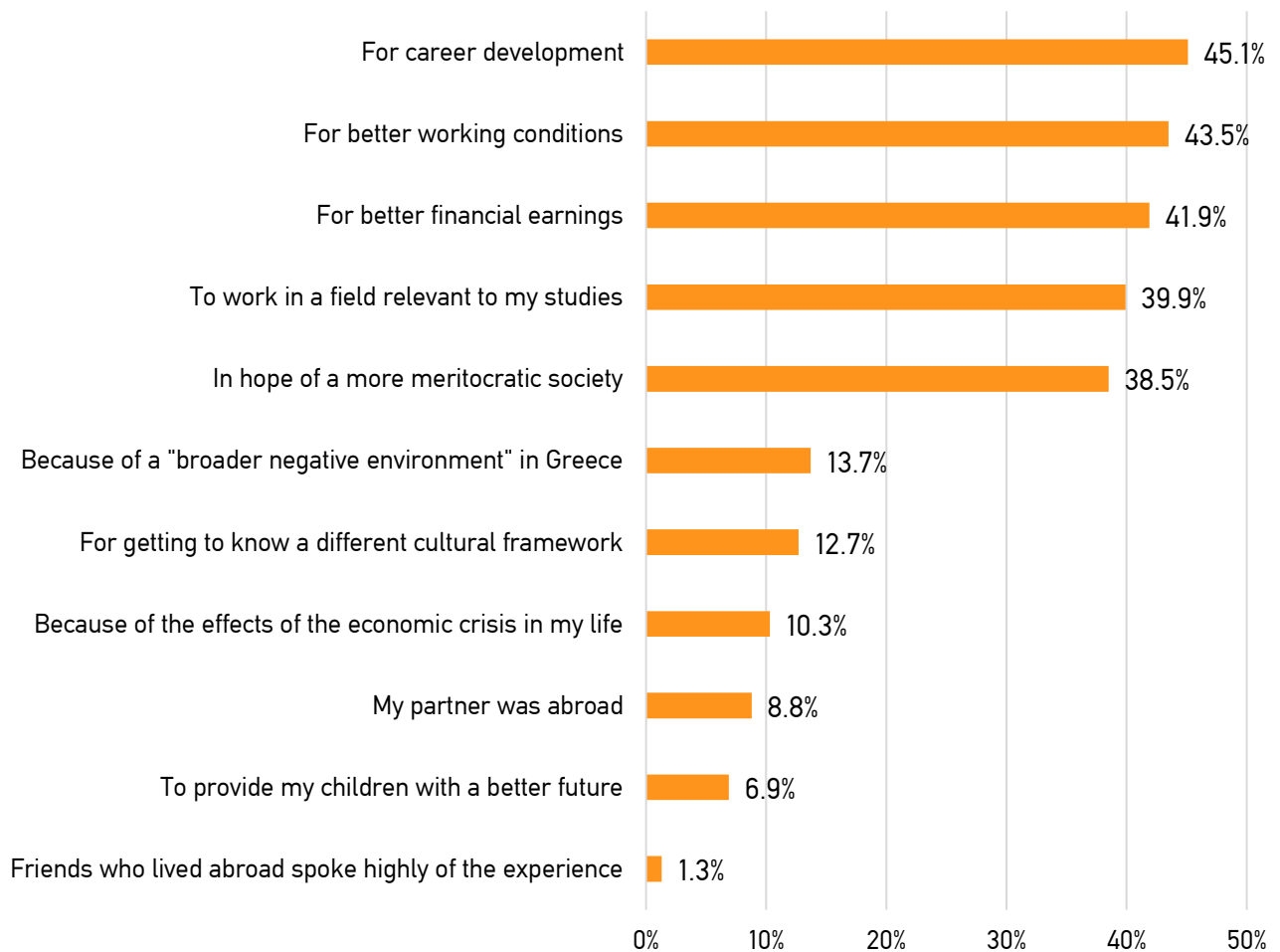
Those who did not have a job were asked if they had sought work in Greece prior to leaving. 69.2% answered negatively (Figure 5.1.4).

FIGURE 5.1.4: If no, did you look for a job in Greece prior to leaving?



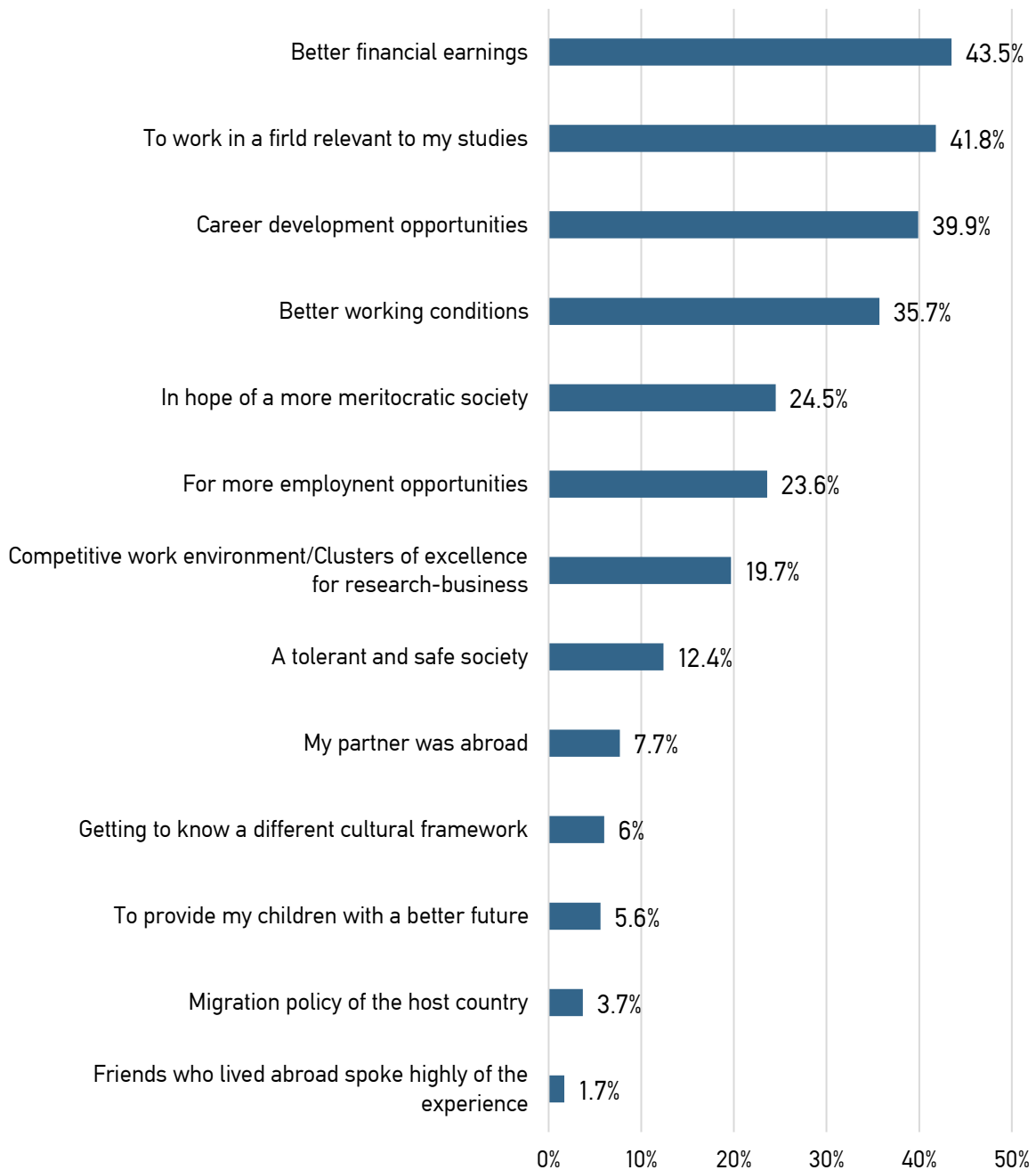
In terms of the reasons that led to relocation, there were higher percentages for reasons directly related to work, namely: “professional development” (45.1%), “better working conditions”,(43.5%), “better financial earnings”(41.9%) and “work in my field” (39.9%) (Figure 5.1.5).

FIGURE 5.1.5: Why did you leave Greece?



Among the reasons why they chose the countries to which they moved, the highest percentages were related to work, particularly the "best financial earnings" (43.5%). This was followed by the "possibility of working in my field" (41.8%), the "possibility of professional development" (39.9%) and the "best working conditions" (35.7%). Finally, 24.5% stated that they left in search of a "more meritocratic society" (Figure 5.1.6).

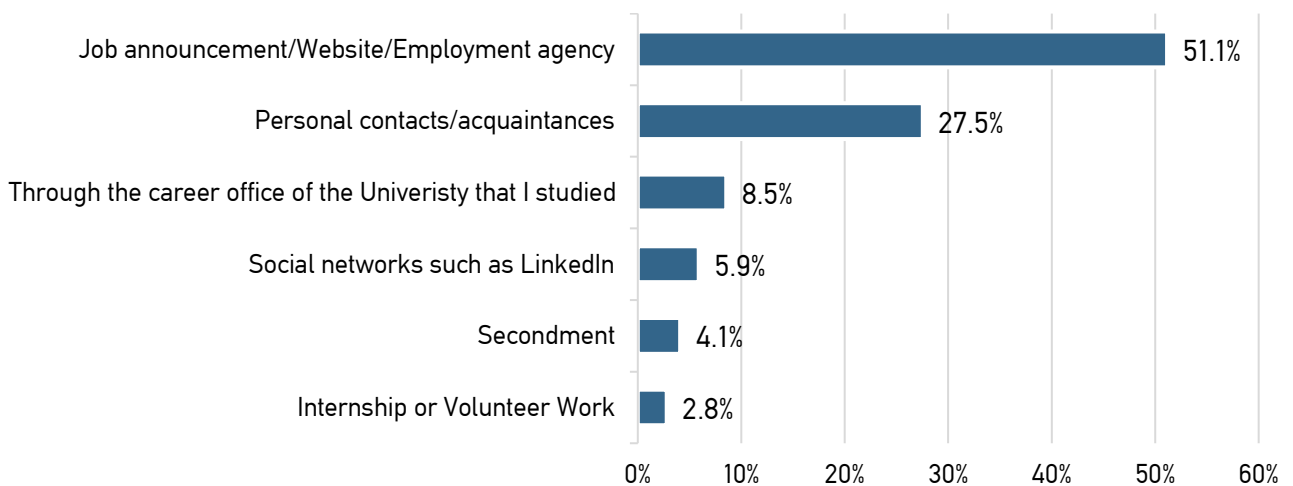
FIGURE 5.1.6: For what reasons did you choose the country where you moved to?



The majority found their first job abroad through conventional job search methods (e.g. 51.1% through an “application in response to an announcement on an employment website”). 27.5% used “personal contacts” (Figure 5.1.7).

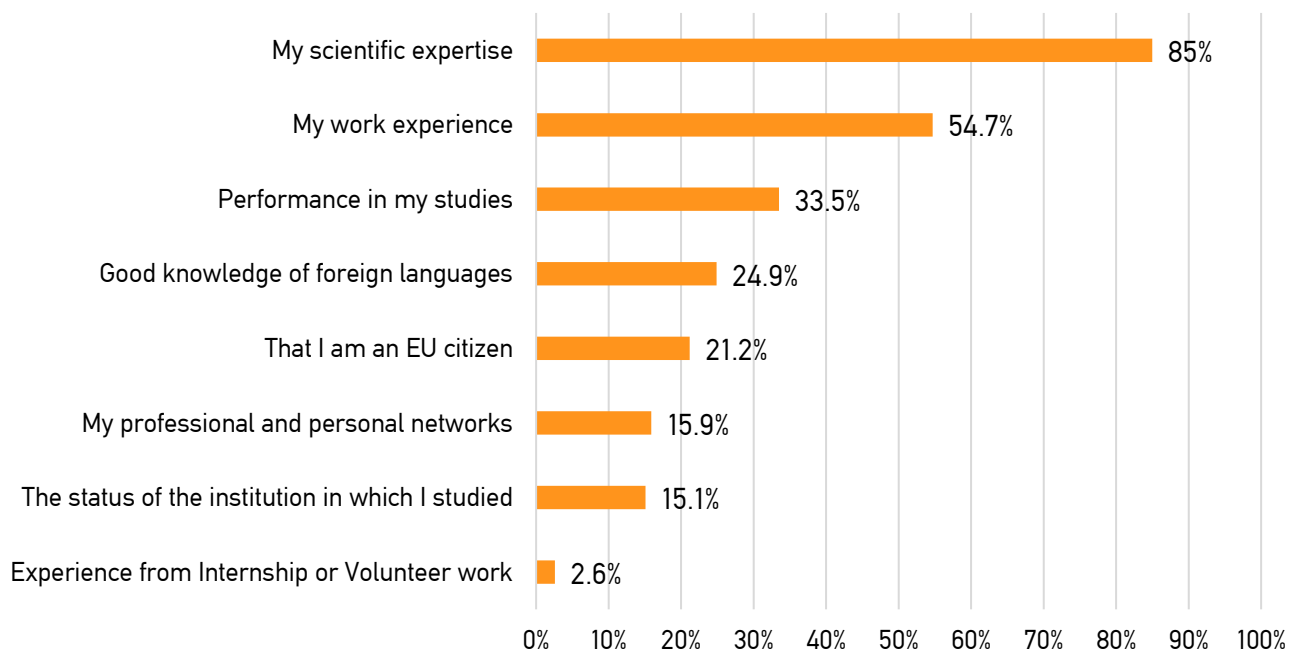


FIGURE 5.1.7: How did you find your first job abroad?



To a large extent, doctorate holders believe that their qualifications were what helped them find work. 85% stated that finding a job was influenced by the “scientific field”, followed by “professional experience” (54.7%) and “performance in studies” (33.5%) (Figure 5.1.8).

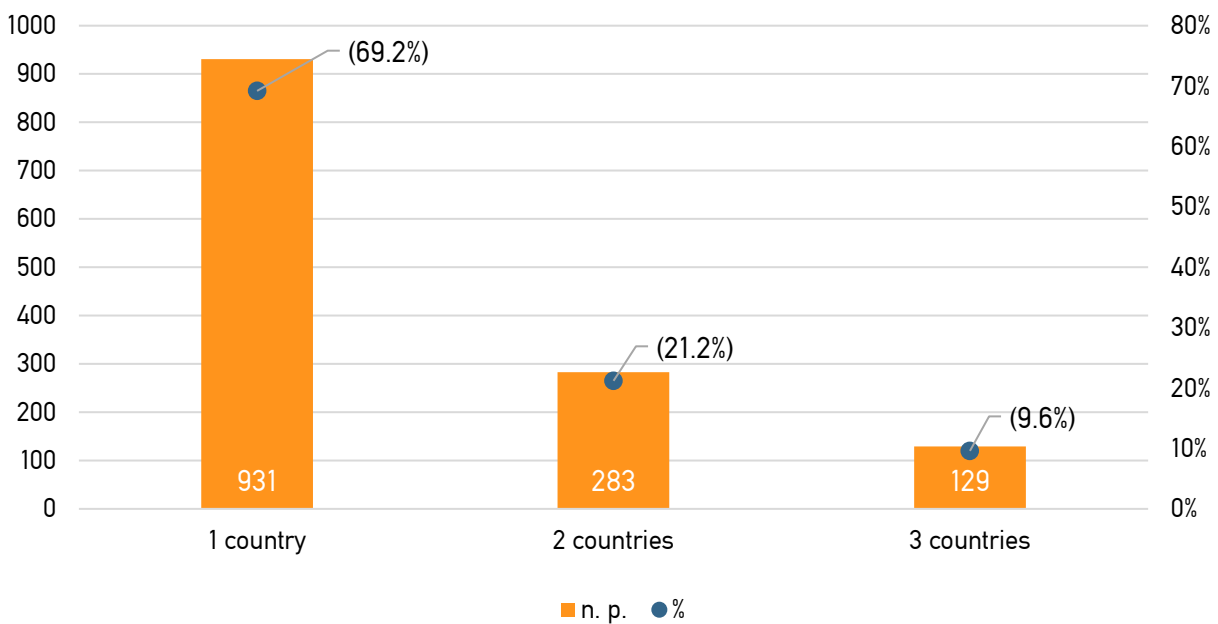
FIGURE 5.1.8: What helped you find your first job abroad?



## 5.2 Countries of residence

During their time abroad, 30.8% of doctorate holders (412 people), lived in more than one country (Figure 5.2.1)

FIGURE 5.2.1 Number of countries where doctorate holders resided during their time abroad in number of people (left axis) and % (right axis).

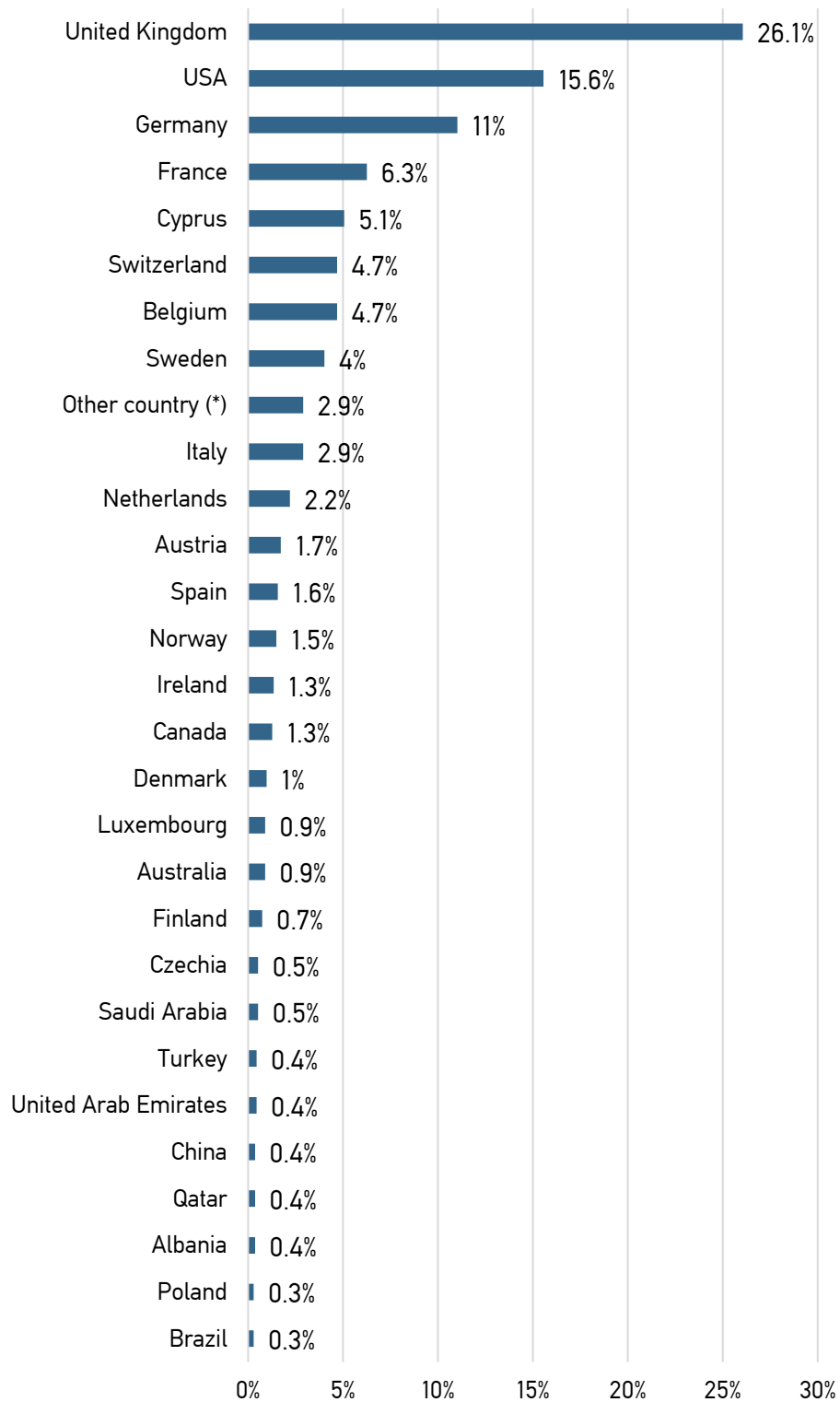


For those doctorate holders who have lived in more than one foreign country, the following figures present the distributions.

Of those who lived abroad, their first country of residence was mainly the United Kingdom with 26.1%, the USA with 15.6%, Germany with 11%, followed by France and Cyprus with 6.3% and 5.1% respectively (Figure 5.2.2).

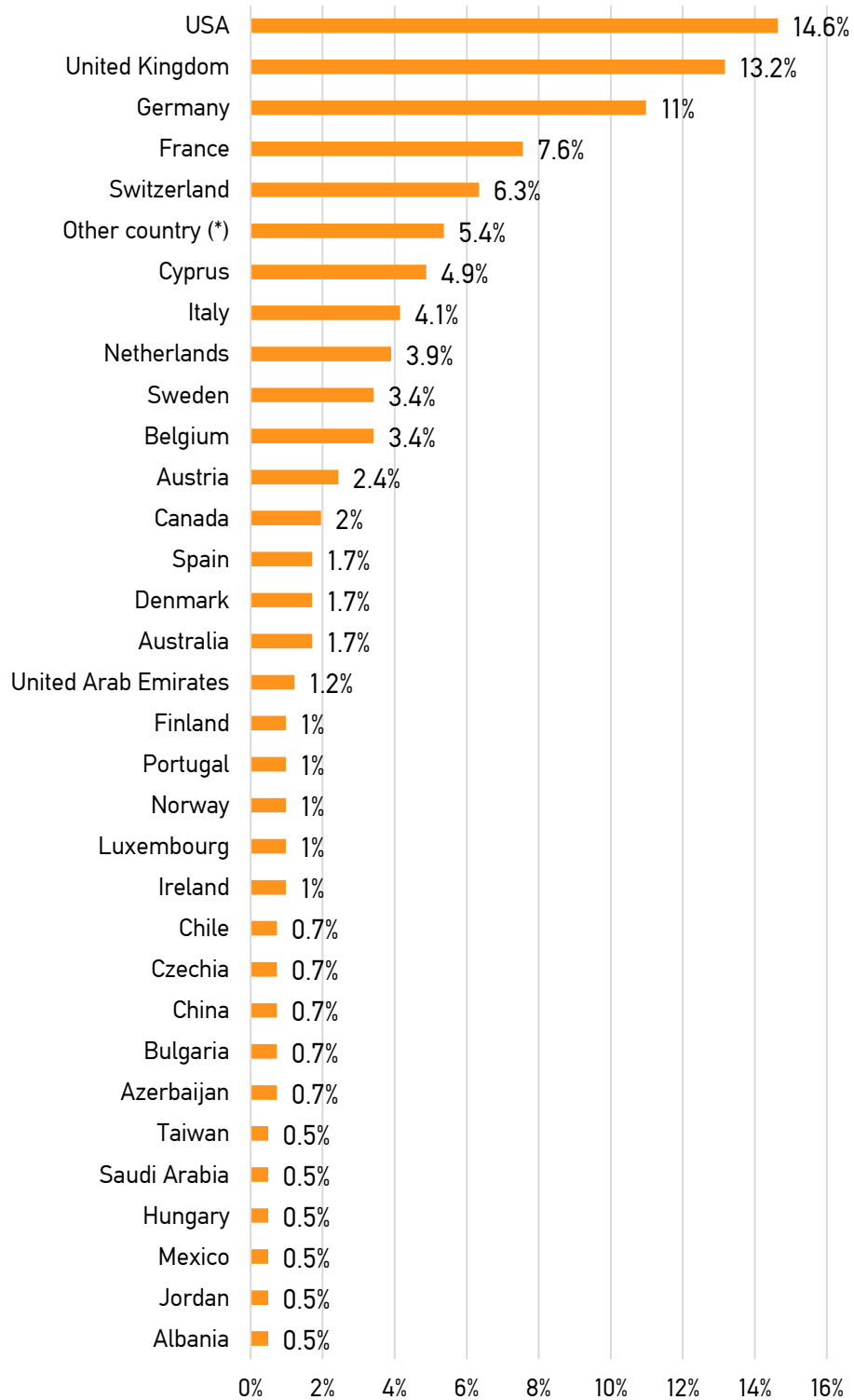
The 2nd country of residence was mainly the USA with 14.6%, the United Kingdom with 13.2%, Germany with 11%, followed by France and Switzerland with 7.6% and 6.3% respectively (Figure 5.2.3)

The 3rd country of residence was mainly the USA with 12.2%, the United Kingdom with 9.9%, Switzerland with 7.6%, followed by France and Germany with 6.9% and 6.1% respectively (Figure 5.2.4).

FIGURE 5.2.2: 1<sup>st</sup> Country of residence

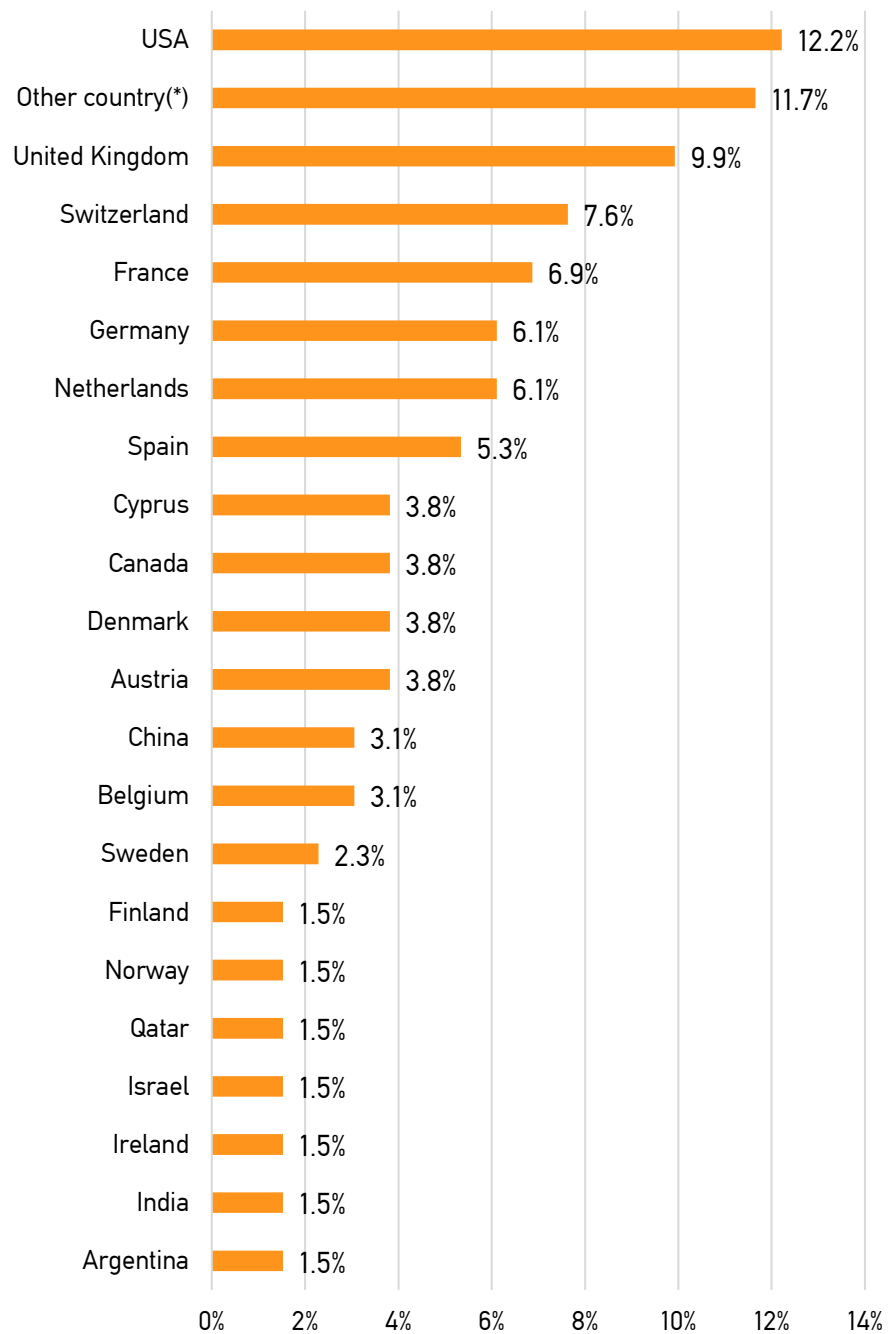
(\*) Namely: Argentina, Bulgaria, Grenada, Japan, Kenya, Croatia, Latvia, Lebanon, Mexico, Hungary, Palestine, Puerto Rico, Syria, Israel, Kazakhstan, South Africa, Russia, Serbia, Singapore, Chile, Kuwait, Dutch Antilles, Portugal and Romania.

FIGURE 5.2.3: 2nd Country of residence



(\*) Namely: Argentina, Brazil, Japan, Israel, Cambodia, Qatar, Kuwait, Democratic Republic of the Congo, Lebanon, Macao, Malaysia, Mozambique, Bahrain, New Zealand, Nigeria, South Korea, Palestine, Palestine, Singapore and the Philippines.

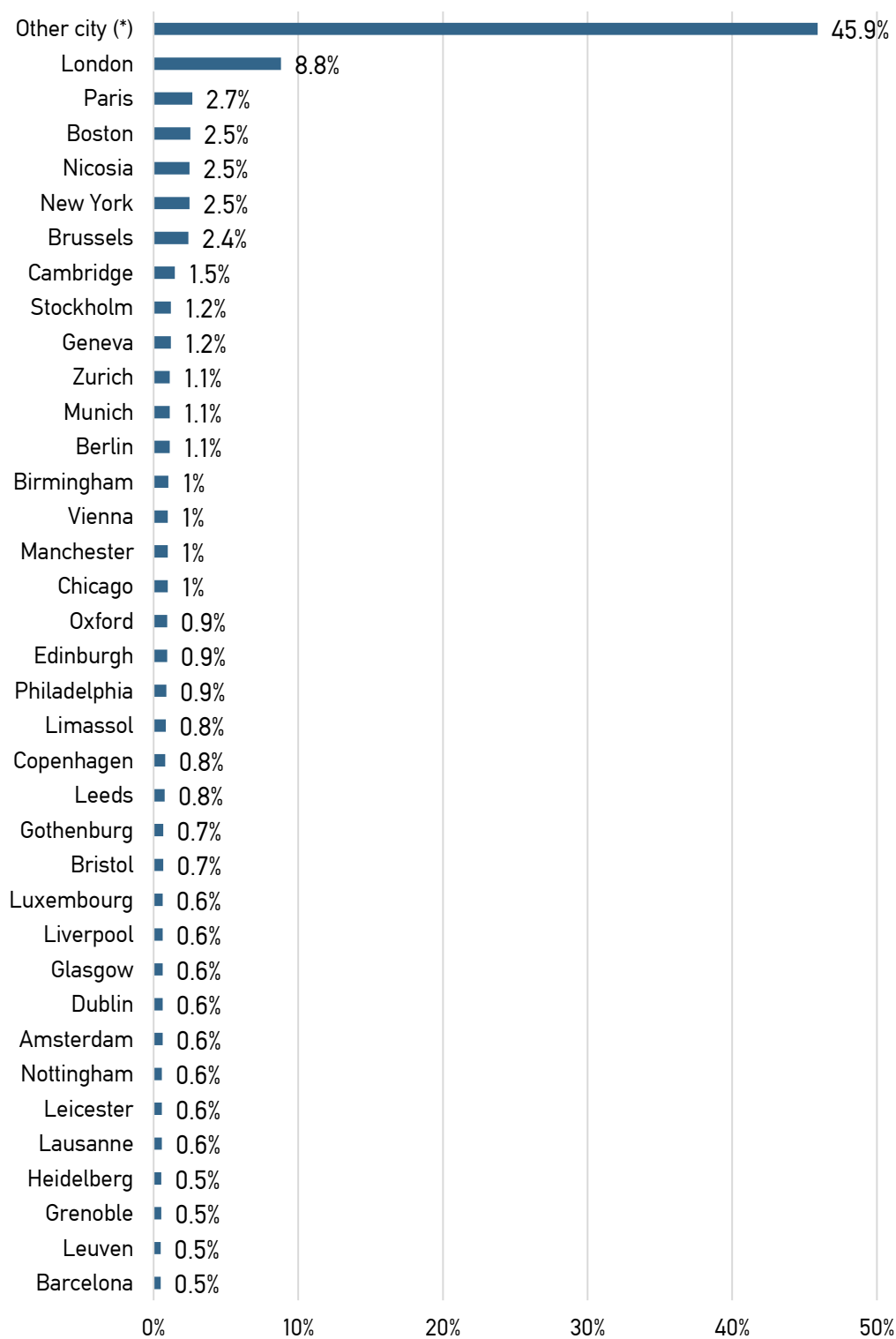
FIGURE 5.2.4: 3rd country of residence



(\*) Namely: Ethiopia, Albania, Brazil, Zimbabwe, United Arab Emirates, Japan, Italy, Colombia, Luxembourg, Portugal, Saudi Arabia, Serbia, Singapore, Tanzania and Chile

When asked in which city they lived, 8.8% stated London, while 2.7% Paris and 2.5% Boston, Nicosia and New York (Figure 5.2.5).

FIGURE 5.2.5: In which town/city did you live?

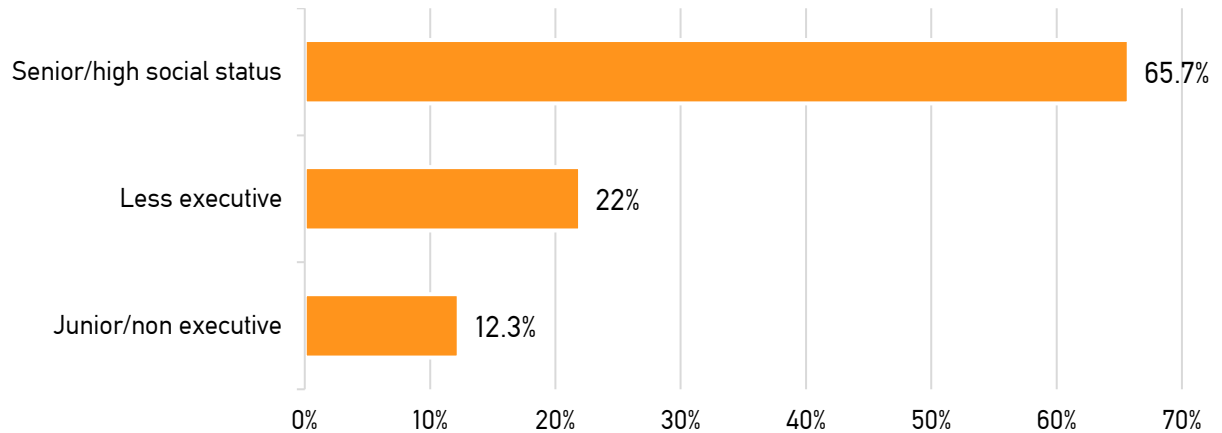


(\*) Namely, in 458 other cities, each showing a percentage of less than 0.5%.

## 5.3 Employment data

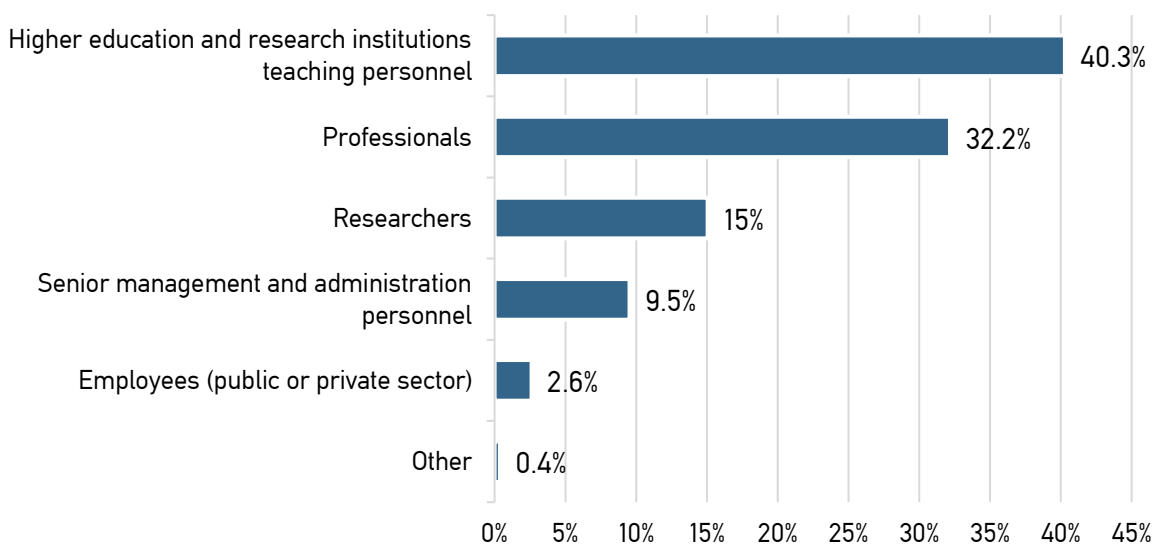
Most of the doctorate holders living abroad (65.7%) describe their professional position as “senior and/or with high social status” and only 12.3% as “non-executive” (Figure 5.3.1).

FIGURE 5.3.1: Professional position



40.3% stated that they are “teaching staff at higher education and research institutions”, 32.2% “professionals” and 15% “researchers” (Figure 5.3.2).

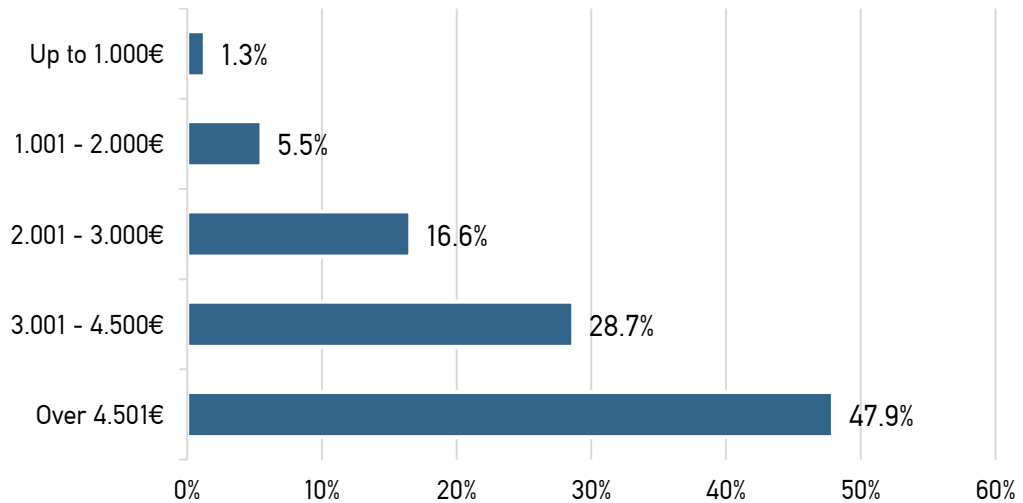
FIGURE 5.3.2: Professional field



Note: See Appendix on the ‘Other’ category.

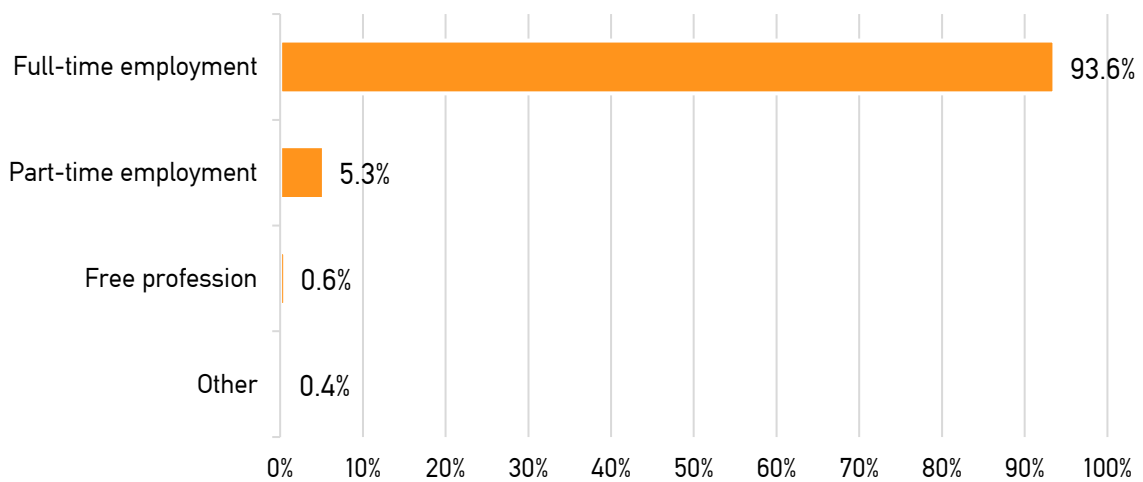
93.2% stated that the gross monthly salary they receive is over € 2,000. In fact, for 47.9% it is over € 4,500 (Figure 5.3.3).

FIGURE 5.3.3: Gross monthly salary



93.6% work full time (Figure 5.3.4).

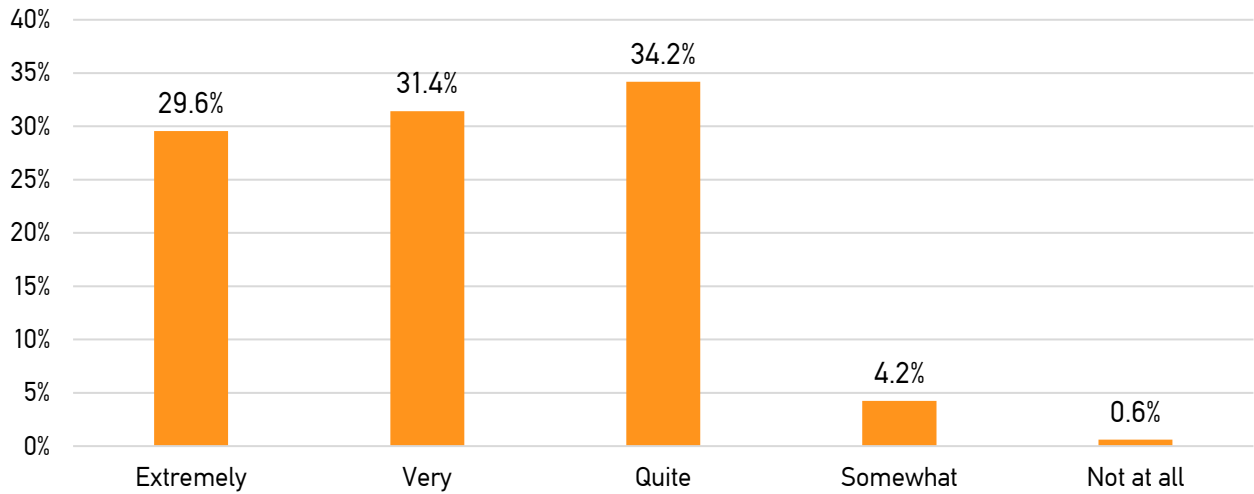
FIGURE 5.3.4: Employment status



95.2% expressed a high degree of satisfaction with life abroad. 29.6% were “extremely satisfied” 31.4% “very”, and 34.2% “quite” (Figure 5.3.5).

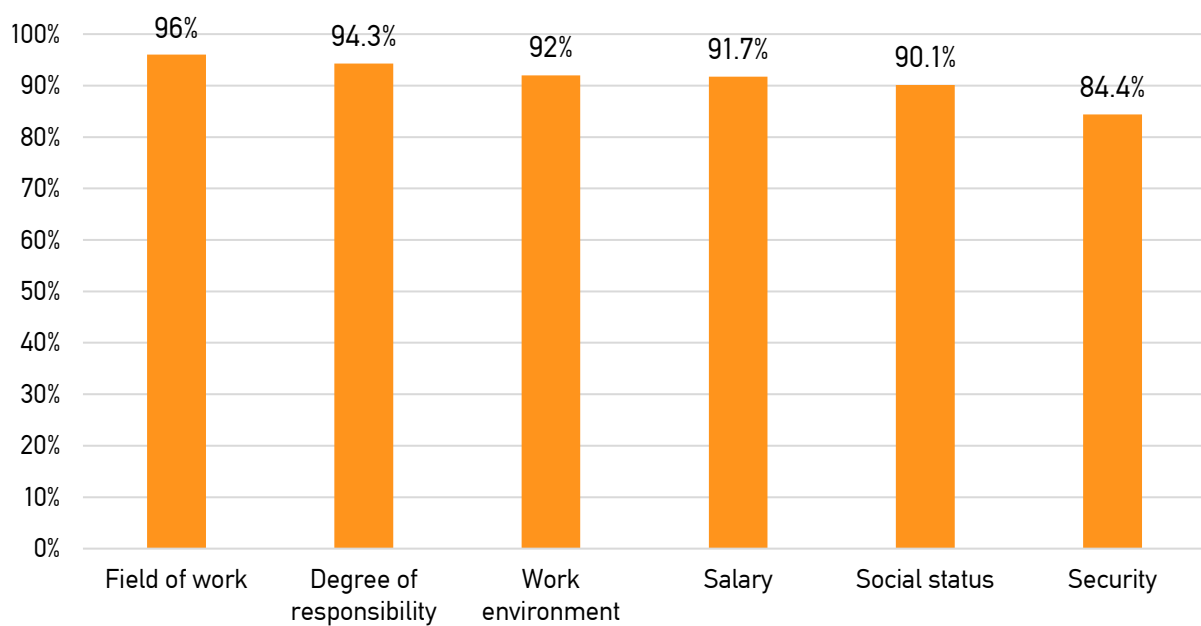


FIGURE 5.3.5: Degree of satisfaction with the quality of life abroad



In terms of satisfaction with working conditions abroad, the answers show high levels of satisfaction. 96% expressed satisfaction with the “field of work”, which was followed by satisfaction with the “degree of responsibility of the job”(94.3%) and “satisfaction with the working environment” (92%) (Figure 5.3.6).

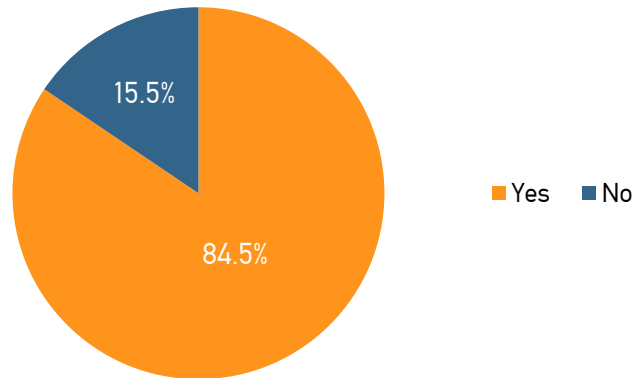
FIGURE 5.3.6: Are you satisfied with your current working conditions in terms of the following factors?



## 5.4 Family and social environment

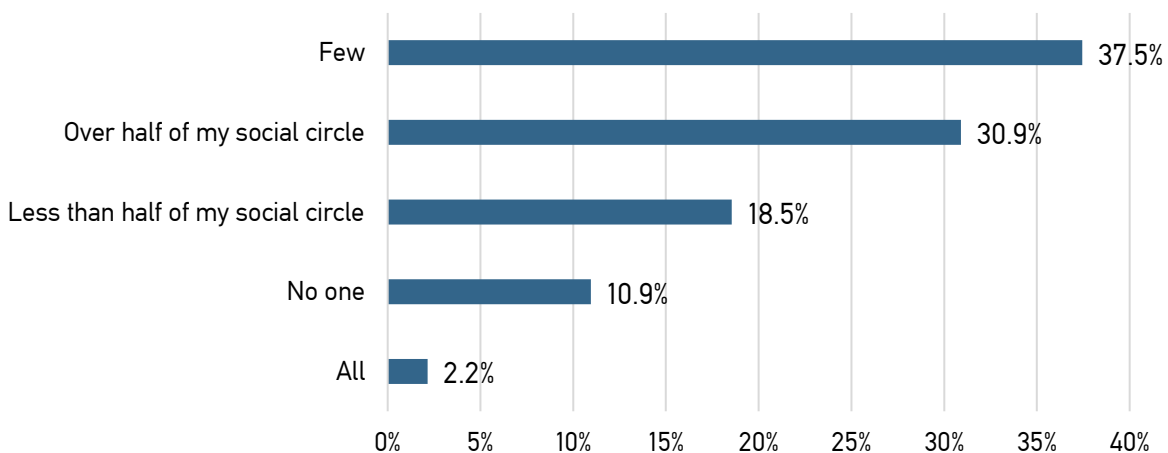
84.5% answered that they live with their partner (Figure 5.4.1).

FIGURE 5.4.1: Does your partner live abroad with you?



The vast majority (89.1%) stated that their social environment includes Greeks. In fact, 30.9% stated that “more than half are Greeks” (Figure 5.4.2).

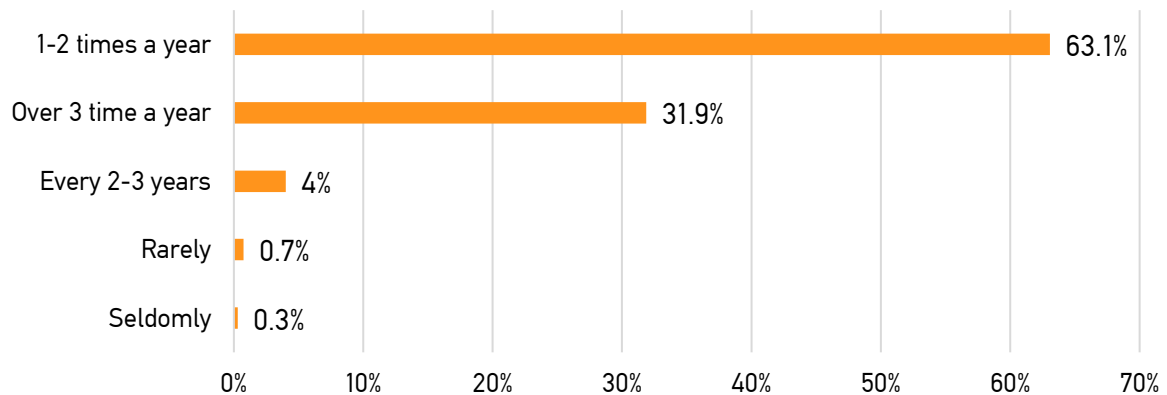
FIGURE 5.4.2: How many other Greeks are there in your social environment?



## 5.5 Professional and social ties with Greece

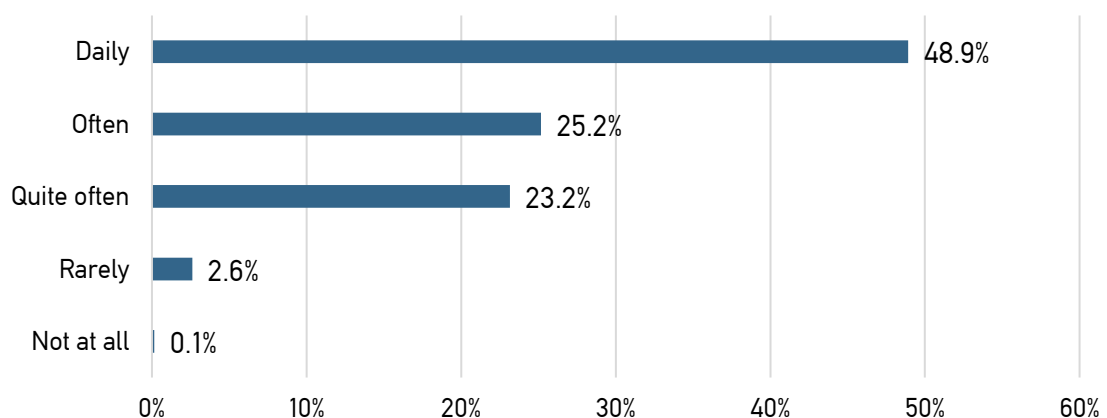
Almost everyone comes to Greece at least once a year (95%). 63.1% come 1-2 times a year, while 31.9% more than 3 times (Figure 5.5.1).

FIGURE 5.5.1: How often do you come to Greece?



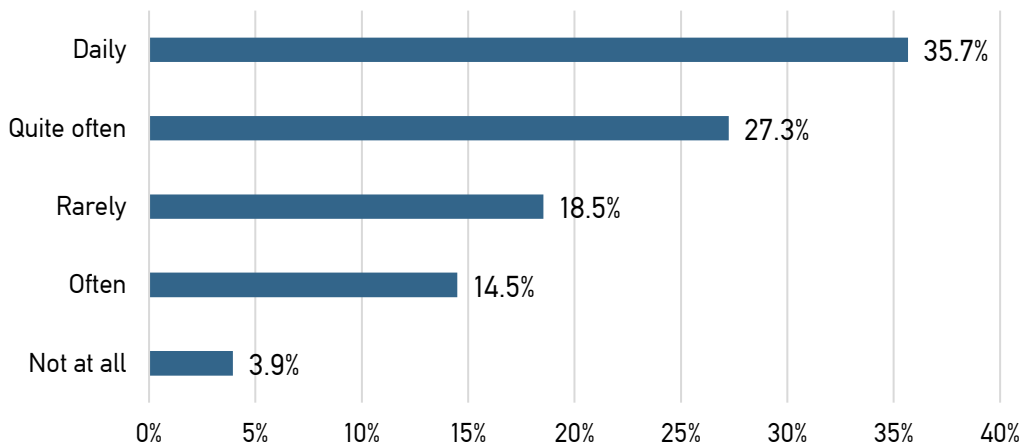
74.1% stated that they have very regular contact with friends/relatives in Greece. 48.9% stated that they communicate daily and 25.2% very often (Figure 5.5.2).

FIGURE 5.5.2: How often do you talk to friends/relatives in Greece?



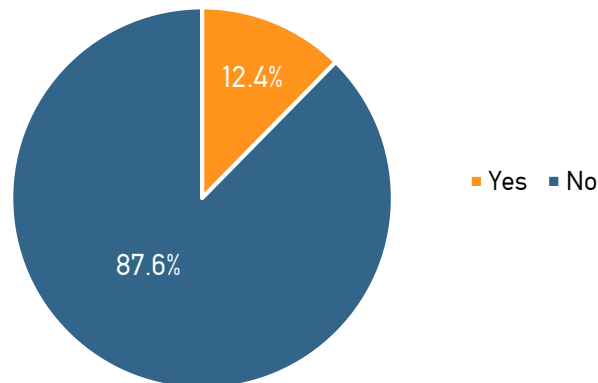
63% stated that they regularly follow Greek media: 35.7% daily and 27.3% quite often (Figure 5.5.3).

FIGURE 5.5.3: How often do you follow Greek media?



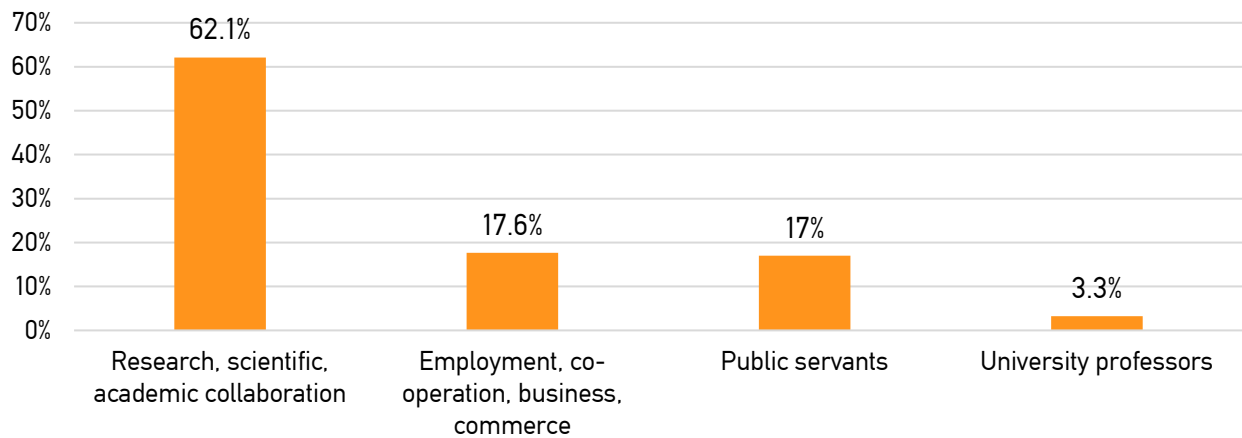
87.6% do not have a professional relationship with Greece (Figure 5.5.4).

FIGURE 5.5.4: Do you have a professional relationship with Greece



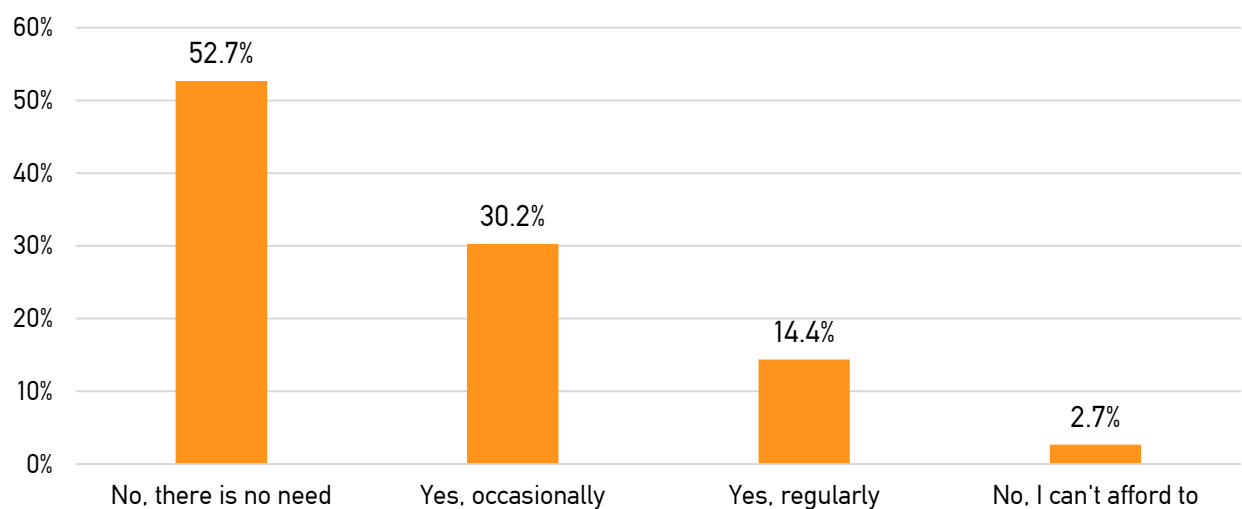
Of those who have a professional relationship with Greece, the largest percentage (79.7%) stated that it related to co-operation. Specifically, 62.1% reported research, scientific or academic collaboration, while 17.6% reported work and corporate or commercial collaboration (Figure 5.5.5).

FIGURE 5.5.5: What is this professional relationship with Greece?



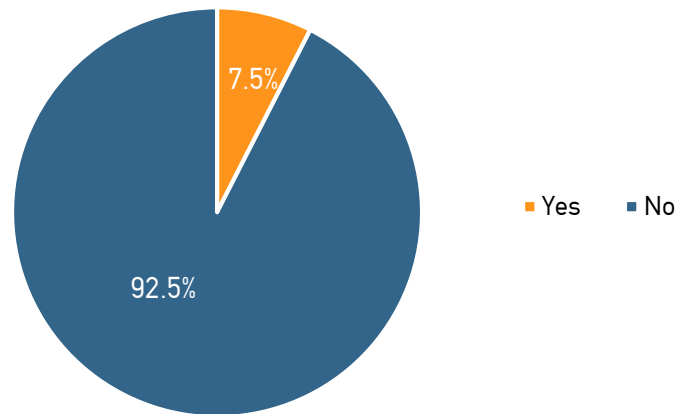
52.7% do not send financial aid to Greece because there is no need. 44.6% send either “occasionally” (30.2%) or “regularly” (14.4%) (Figure 5.5.6).

FIGURE 5.5.6: Do you send money or otherwise financially help relatives or friends in Greece?



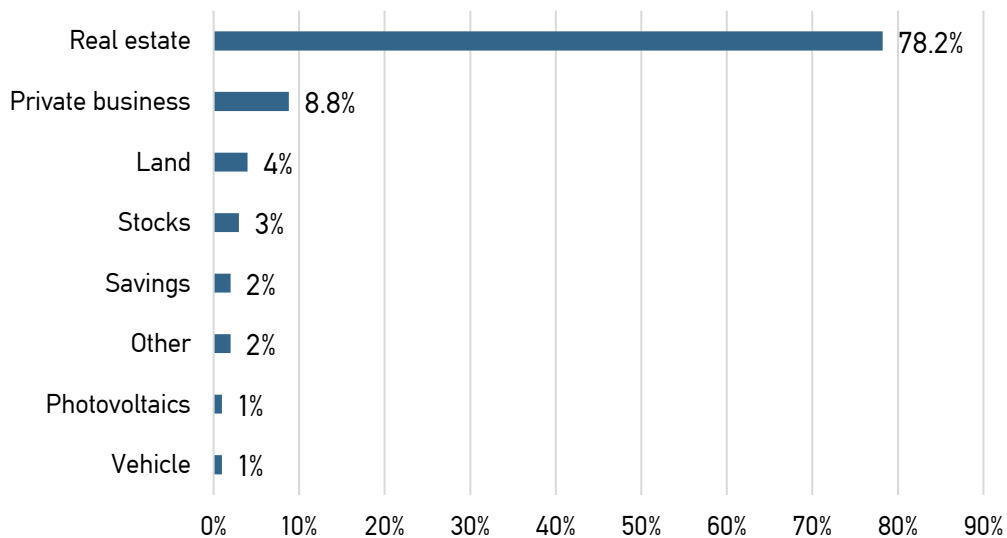
92.5% stated that they have not made any investment in Greece (Figure 5.5.7).

FIGURE 5.5.7: Have you made any investment in Greece while living abroad?



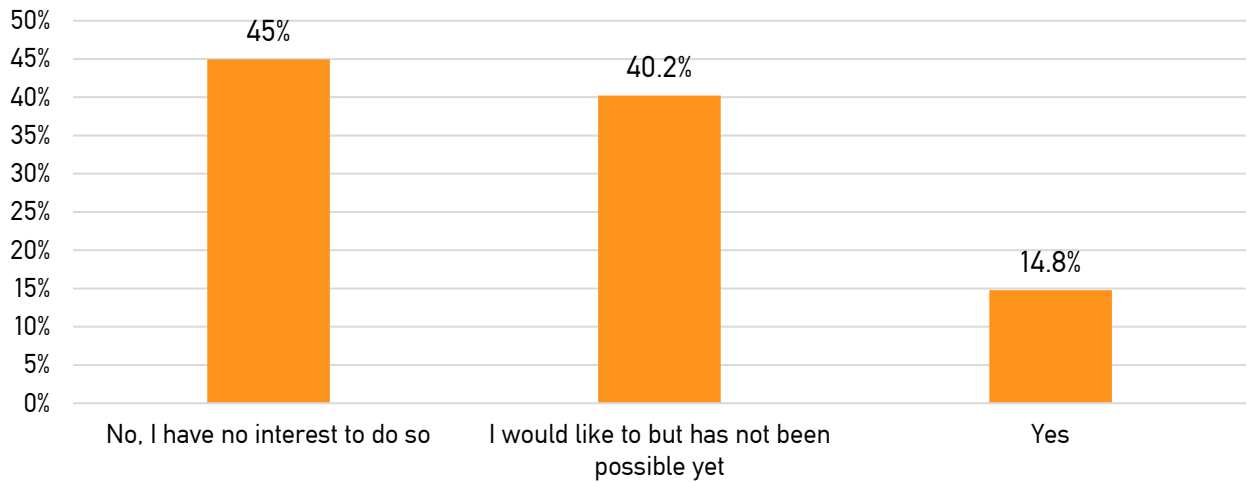
Of the doctorate holders who stated that they have made an investment in Greece, 78.2% have property in Greece, 8.8% have set up a private business, while 4% have bought a plot of land (Figure 5.5.8).

FIGURE 5.5.8: If you have made an investment, complete the type of investment.



Participants were asked if they give any type of assistance/guidance, professional or financial, in Greece. 14.8% stated that they already “offer some kind of help or guidance in Greece” and 40.2% that “they would like to but so far it is not possible” (Figure 5.5.9).

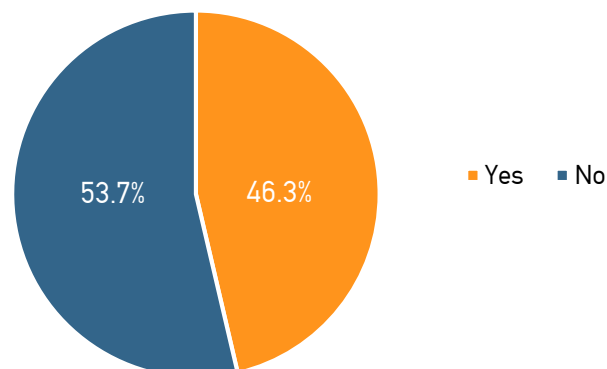
FIGURE 5.5.9: Do you give any type of financial or non-financial assistance in Greece? (for example: professional guidance [mentoring] to organisations or professionals in Greece, awareness actions, fundraising actions)



## 5.6 Intention of returning to Greece

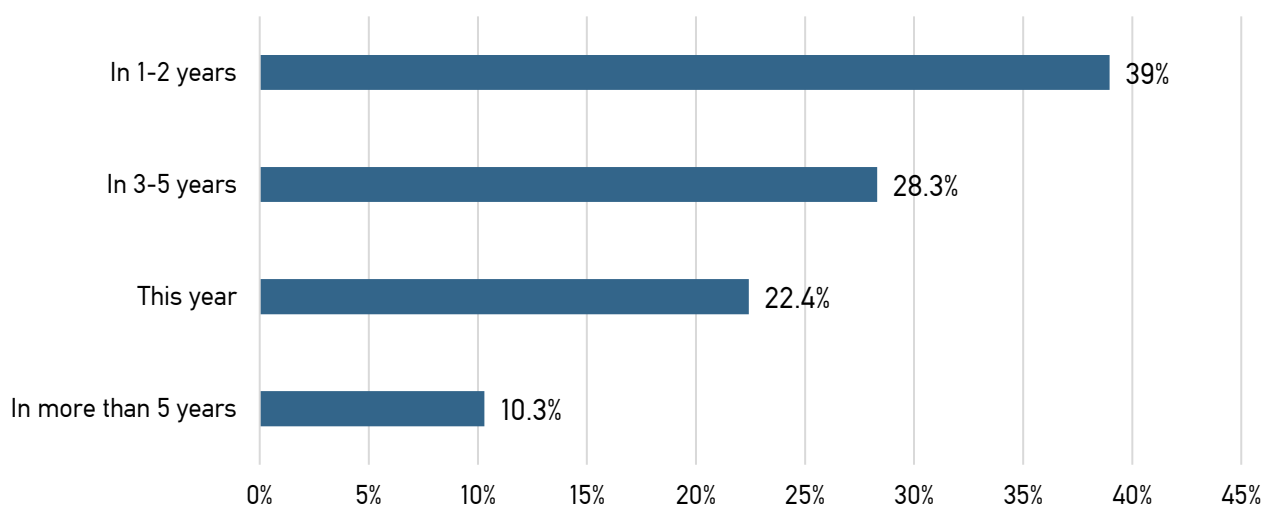
46.3% of Greek doctorate holders living abroad stated that they will return to Greece in the coming years, while 53.7% that they have no such intention (Figure 5.6.1).

FIGURE 5.6.1: Do you plan to return to Greece in the coming years?



Of the population that answered the above question positively, 61.4% are considering returning immediately, that is 39% intend to return in “1-2 years” and 22.4% “this year” (Figure 5.6.2).

FIGURE 5.6.2: If yes, when?



The conditions and reasons for returning to Greece depend mainly on the possibility of finding a job. 69.7% stated that they would return if they found “a job commensurate with [their] qualifications in Greece” and 35.6% if “one of the two partners found a job in Greece that was financially satisfactory”. 43% would return for “family reasons” (Figure 5.6.3).

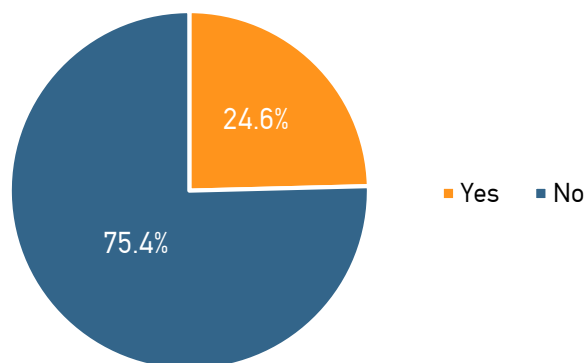


FIGURE 5.6.3: Under what conditions and for what reasons would you return to Greece?



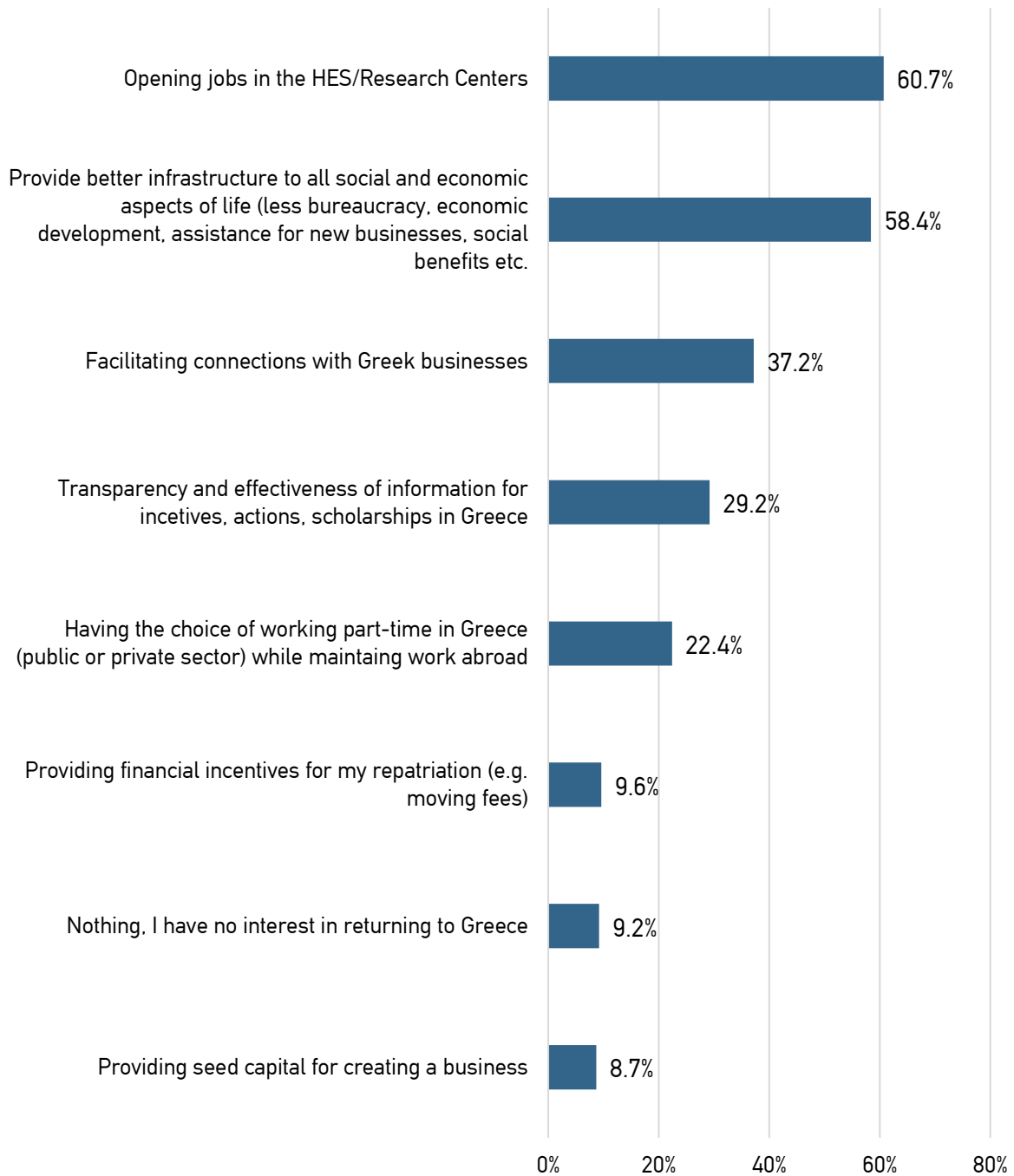
For 24.6%, the problems associated with the COVID-19 pandemic prompted them to consider a possible return to Greece (Figure 5.6.4).

FIGURE 5.6.4: Did the problems caused by COVID-19 cause you to consider returning to Greece?



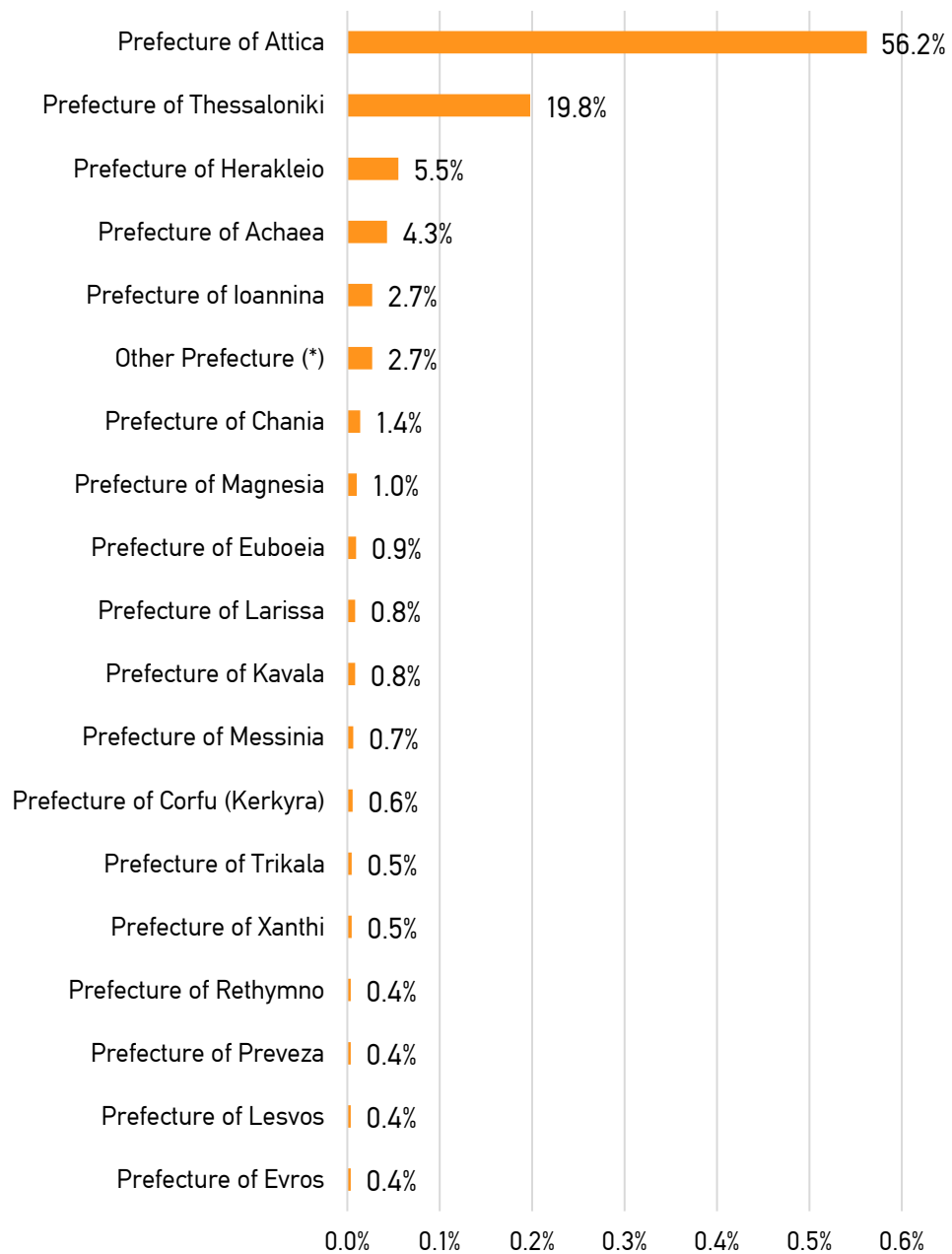
Doctorate holders living abroad were also asked what the state could do to help them return. 60.7% stated that a sufficient condition is to offer new jobs in universities/research centres. The demand for the improvement of the general conditions of the country (social infrastructure, improvement of the economy, etc.) is also very high at 58.4%. A significant number of them stated that the interconnectivity of those working abroad with Greece must be improved. Specifically, 37.2% believe that “the possibilities of their connection with the Greek research community should be improved” and 29.2% that there should be “transparency and effectiveness in the information on incentives-scholarships” offered in Greece. Only 9.2% stated that they are not interested in returning at all (Figure 5.6.5).

FIGURE 5.6.5: What can the state do to help your return?



In terms of residence upon return, most intend to settle in the Attica regional Unit (56.2%) and in the prefecture of Thessaloniki (9.8%) (Figure 5.6.6).

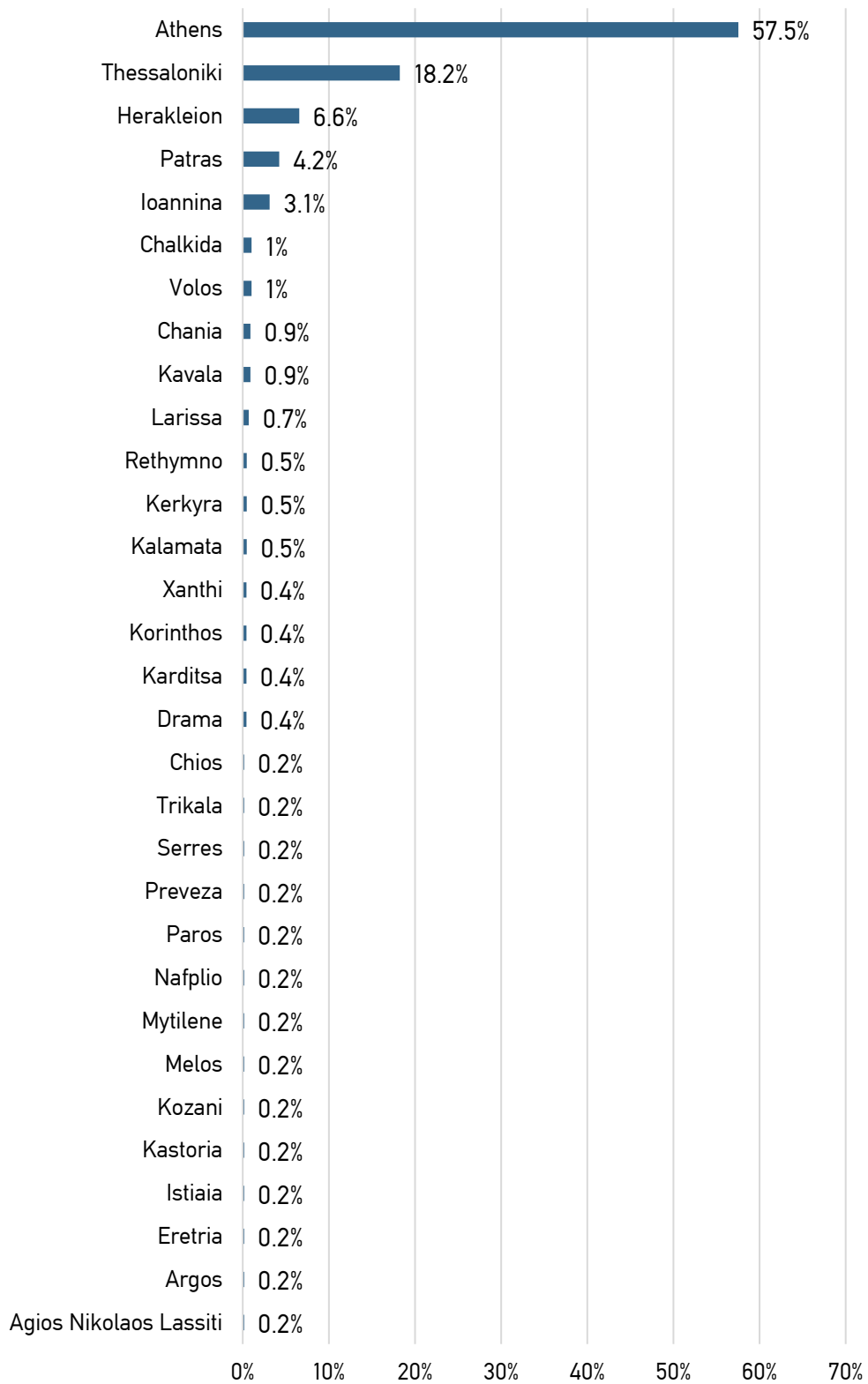
FIGURE 5.6.6: To which prefecture would you return?



(\*) Namely Prefectures of: Argolis, Kastoria, Cyclades, Boeotia, Cephallonia, Laconia, Pieria, Rodopi, Drama, Dodecanese, Karditsa, Kozani, Corinth, Lassithi, Serres and Chios.

Of the doctorate holders who noted the town/city to which they would return, 57.5% stated Athens and 18.2% Thessaloniki (Figure 5.6.7)

FIGURE 5.6.7: To which town/city would you return?





## 6

# Those who worked abroad, returned to Greece, but now live and work abroad again

77.5% of this group of doctorate holders moved abroad for the first time after 2001. 54.2% returned to Greece after 2011. They returned to Greece mainly due to nostalgia for the home country and its way of life, as well as for family reasons.

They settled mainly in Athens (50.4%) and Thessaloniki (22.7%). 62.5% worked in the public sector upon their return to Greece, 49.1% at a University or research centre. 64.1% were employed full time. A high percentage (33.8%) were slightly and/or not at all satisfied with their quality of life in Greece. Less than half said they were satisfied with the social recognition, responsibility and work environment, while a very low percentage were satisfied with the security and salary they were offered.

They went abroad again, both because they found job opportunities there (56.3%) and because they could not find a job commensurate with their qualifications in Greece (47.9%). They chose the country of destination for work-related reasons (possibility of scientific development, better economic benefits, better working conditions, possibility of finding work in their field). 50.7% returned to the country in which had they lived before returning to Greece. 52.8% are teaching staff of higher education institutions or researchers at research centres.

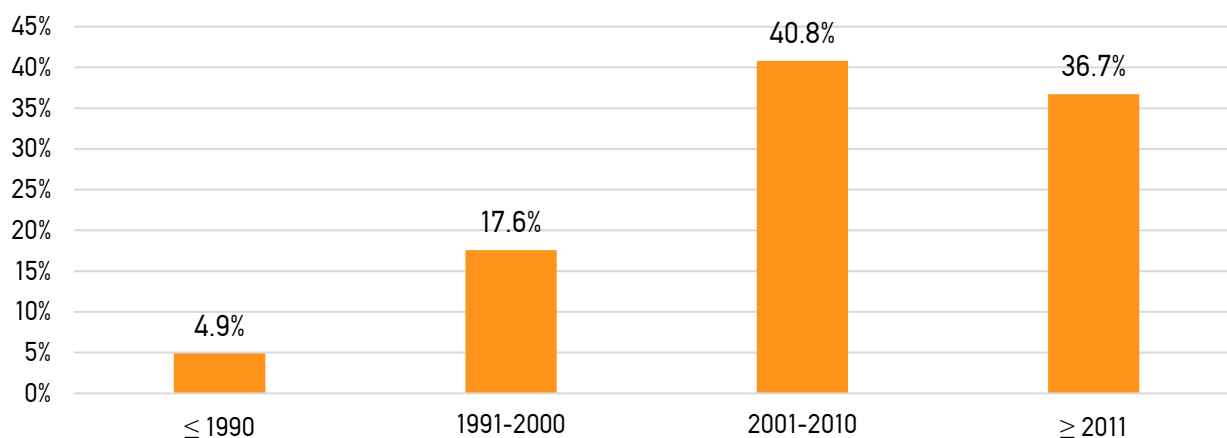
95.1% stated that they visit Greece at least once a year. 59.3% stated that they intend to return to Greece, while 71.8% would return if they found a job commensurate with their qualifications. When asked what incentives the state should provide to help their return, the largest percentage (70.4%) favour an improvement of the general conditions in the country (social infrastructure, improvement of the economy, etc.), while 52.1% said that there is a need to "improve the possibilities of interconnectivity with the Greek research-university community".

## 6.1 Return to Greece

### 6.1.1 Time of return and mobility

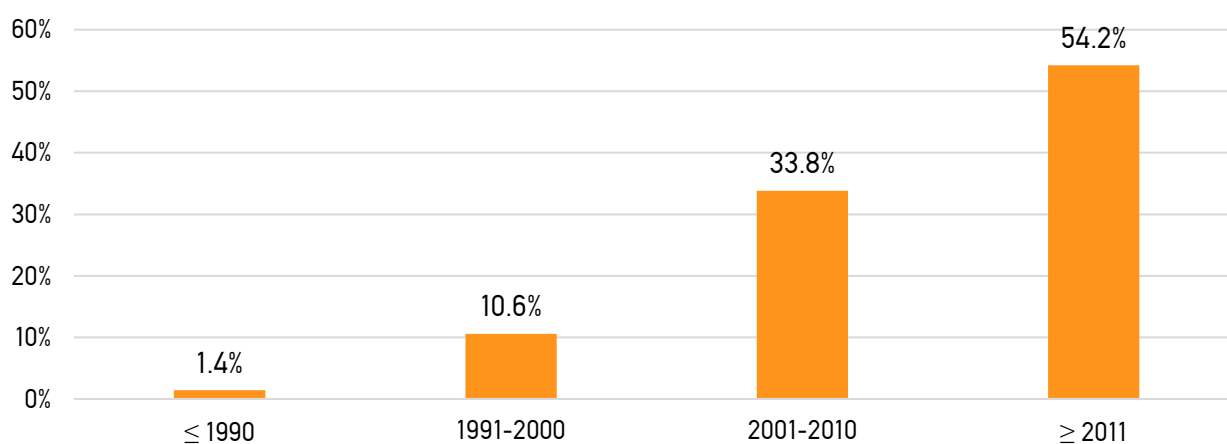
77.5% of this group of doctorate holders moved abroad for the first time after 2001. Specifically, 40.8% left between 2001-2010 (40.8%) and 36.7% after 2011 (Figure 6.1.1.1).

FIGURE 6.1.1.1: When did you first move abroad?



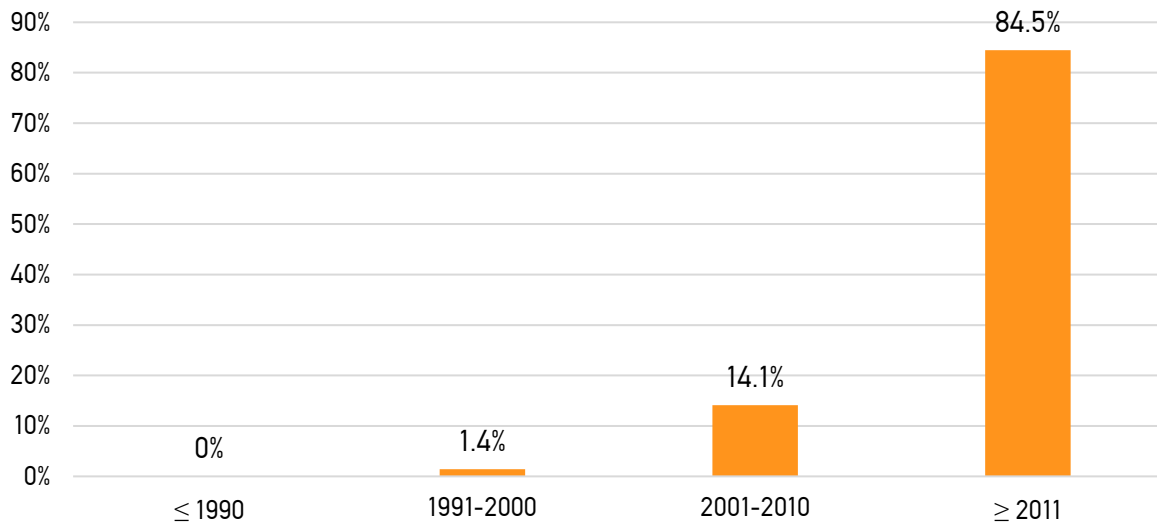
54.2% of the respondents returned to Greece for the first time after 2011, while 33.8% did so during the period between 2001-2010 (Figure 6.1.1.2).

FIGURE 6.1.1.2: When did you return to Greece for the first time?



84.5% of doctorate holders returned from abroad after 2011, while 14.1% did so between 2001-2010 (Figure 6.1.1.3).

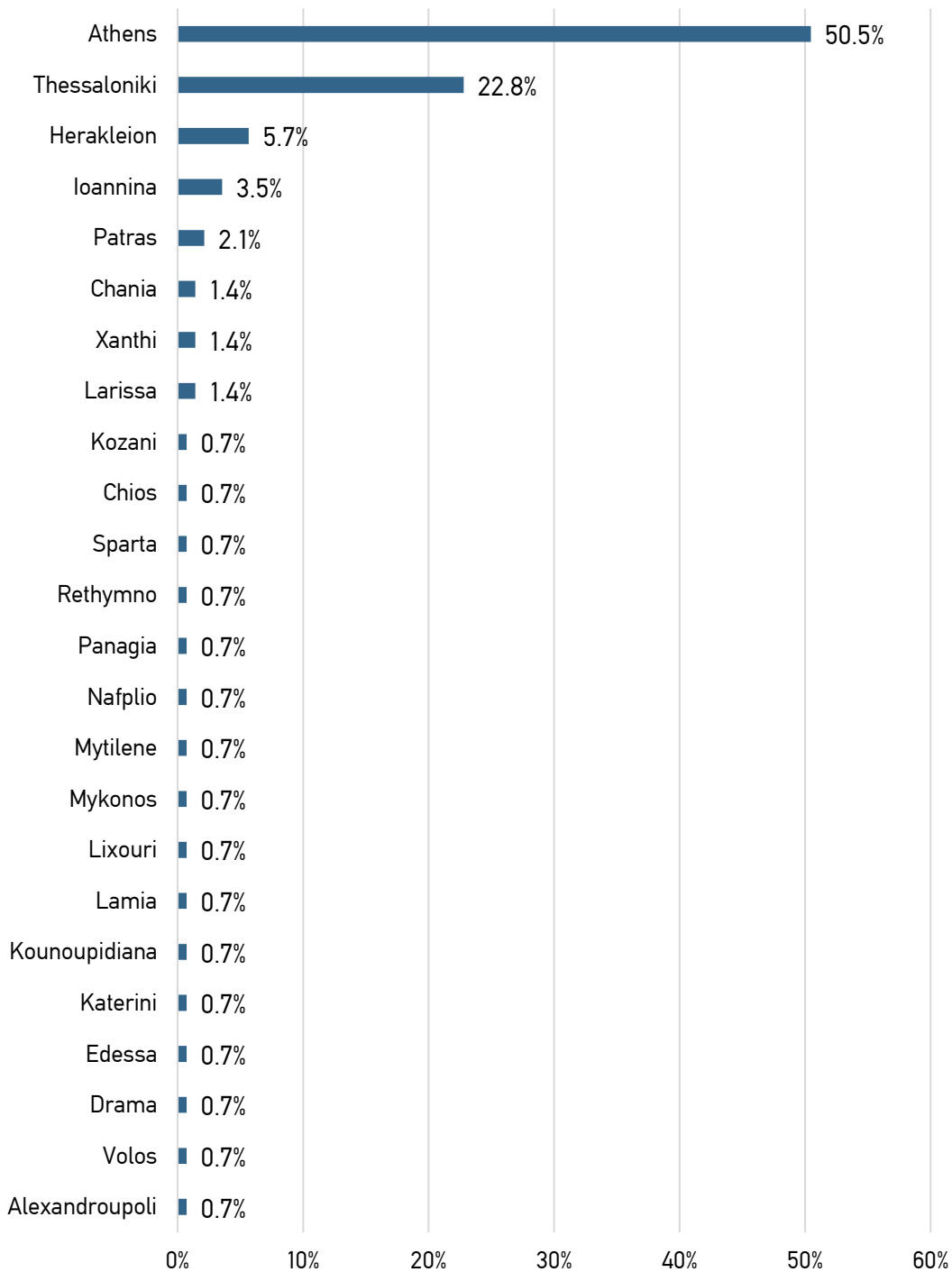
FIGURE 6.1.1.3: When did you go abroad again?



## 6.2 Place of residence

To the question “in which town/city did you live in Greece when you returned”, 50.4% answered Athens, while 22.7% Thessaloniki (Figure 6.1.4)

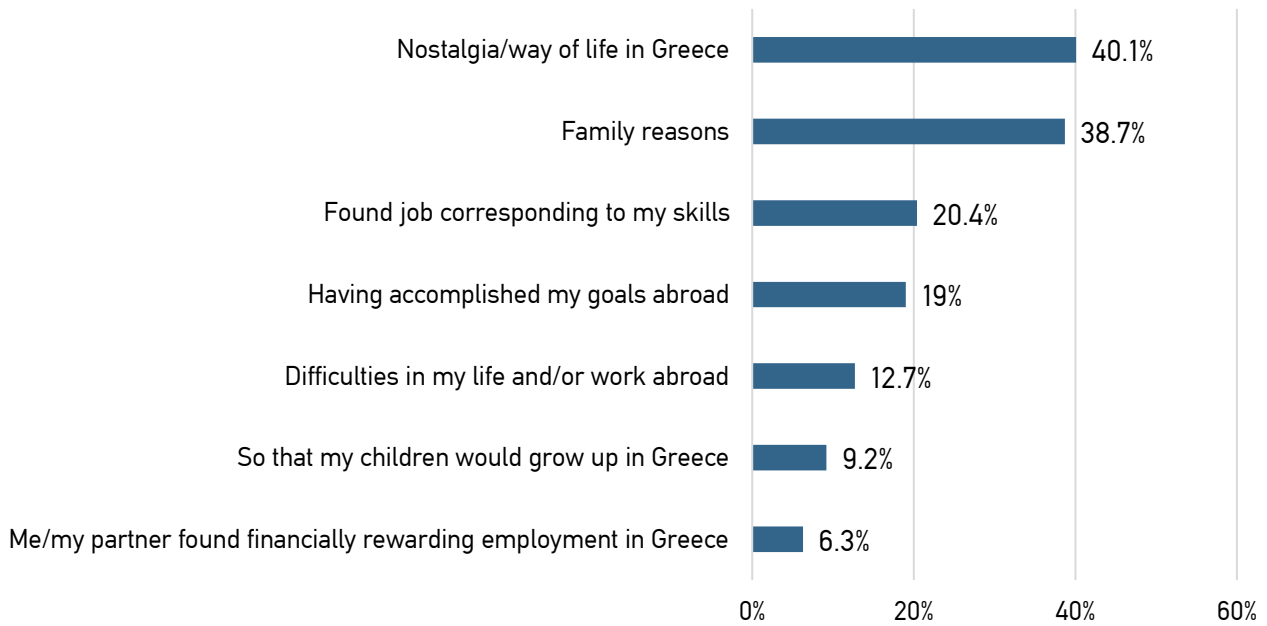
FIGURE 6.2.1: In which town/city did you live in Greece when you returned?



Regarding the reasons for their return to Greece, the highest percentage chose the answer “nostalgia for the home country/lifestyle” (40.1%), followed by “family reasons” (38.7%) and finding “work commensurate with their qualifications in Greece” (20.4%) (Figure 6.1.5).



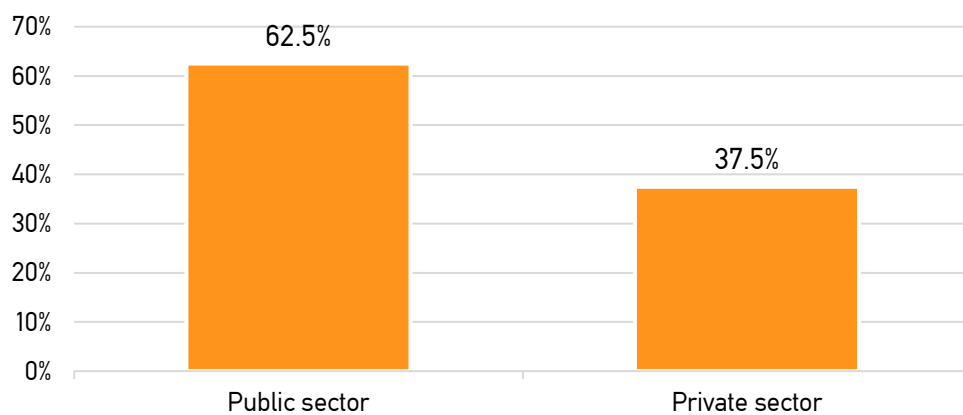
FIGURE 6.2.2: Why did you first return to Greece?



### 6.3 Employment data

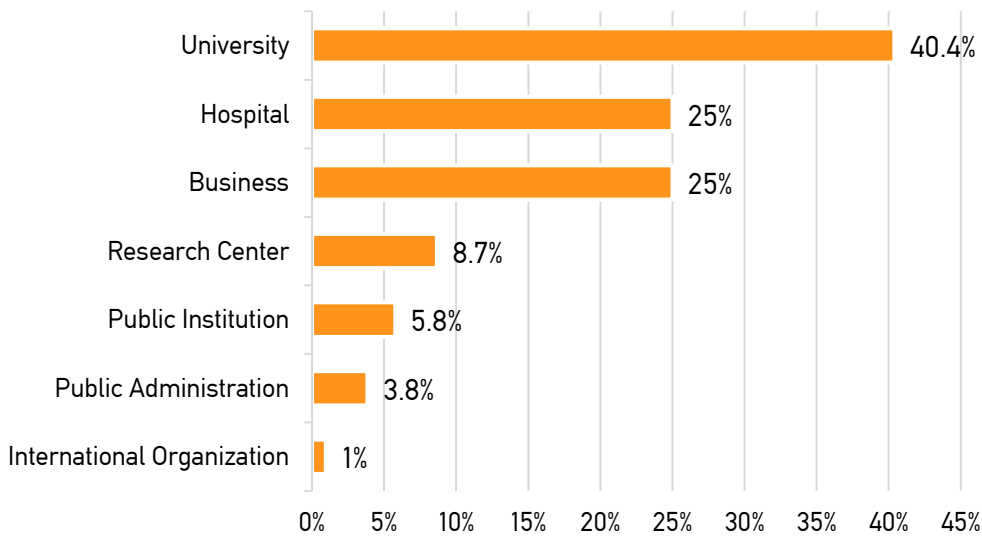
62.5% of the participants stated that upon their return to Greece they worked in the public sector, and 37.5% in the private sector (Figure 6.1.6).

FIGURE 6.3.1: In what field did you work when you returned?



40.4% of the respondents stated that they worked at a University and 25% at a Hospital (Figure 6.1.7).

FIGURE 6.3.2: Sector subcategory (private and public sector in Greece)



During their stay in Greece, a very significant percentage had work experience in both the private and public sectors.

More specifically, of those who stated that they work or have worked in the public sector, 41.1% stated that they have also worked in the private sector. Respectively, of those who stated that they work or have worked in the Private sector, 34.1% stated that they have also worked in the public sector (Figure 6.1.8 and Figure 6.1.9)

FIGURE 6.3.3: If you chose the public sector, have you ever worked in the private sector?

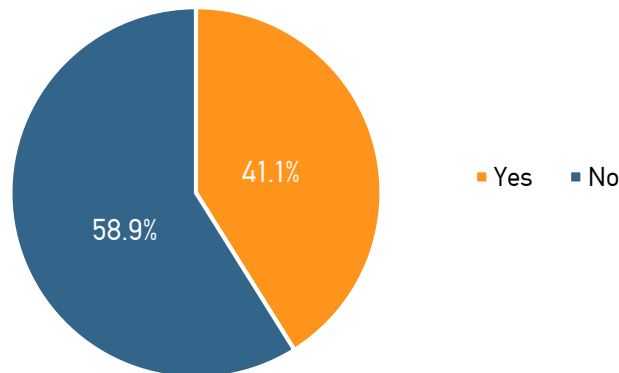
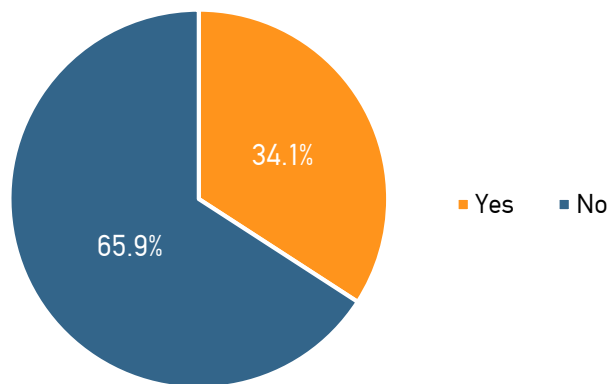
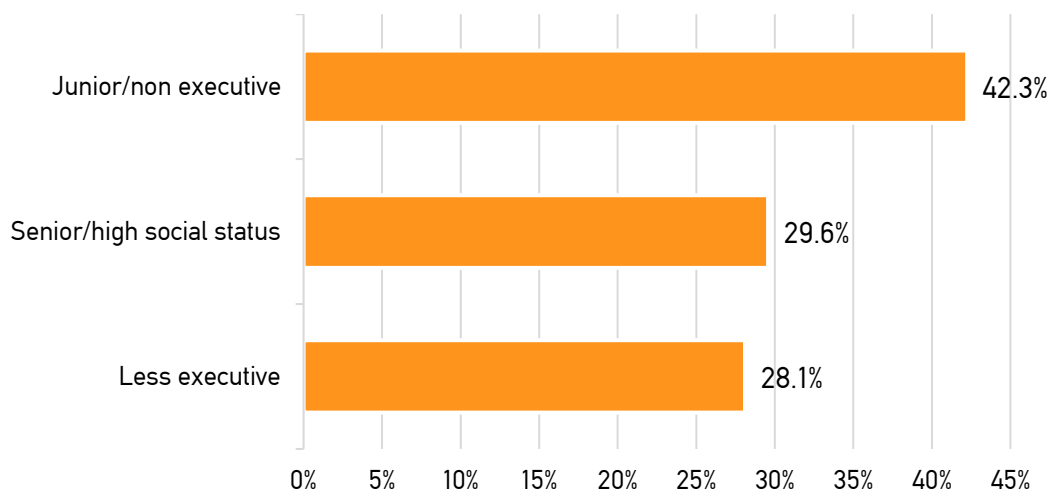


FIGURE 6.3.4: If you chose the private sector, have you ever worked in the public sector?



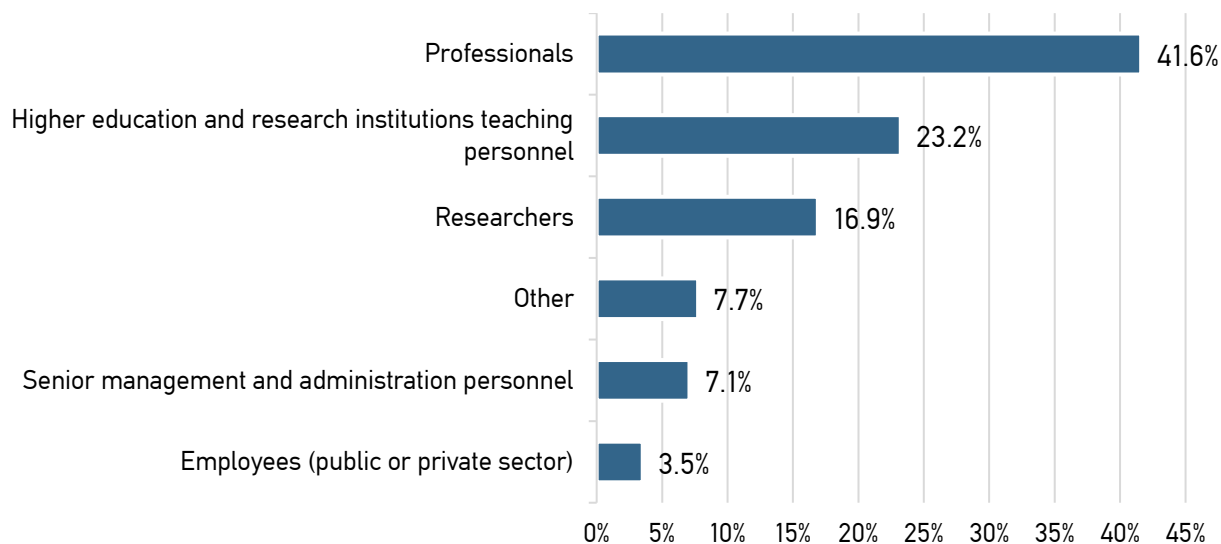
42.3% stated that the position they held when they returned to Greece was non-executive (Figure 6.3.5).

FIGURE 6.3.5: How would you describe the position you had when you returned to Greece?



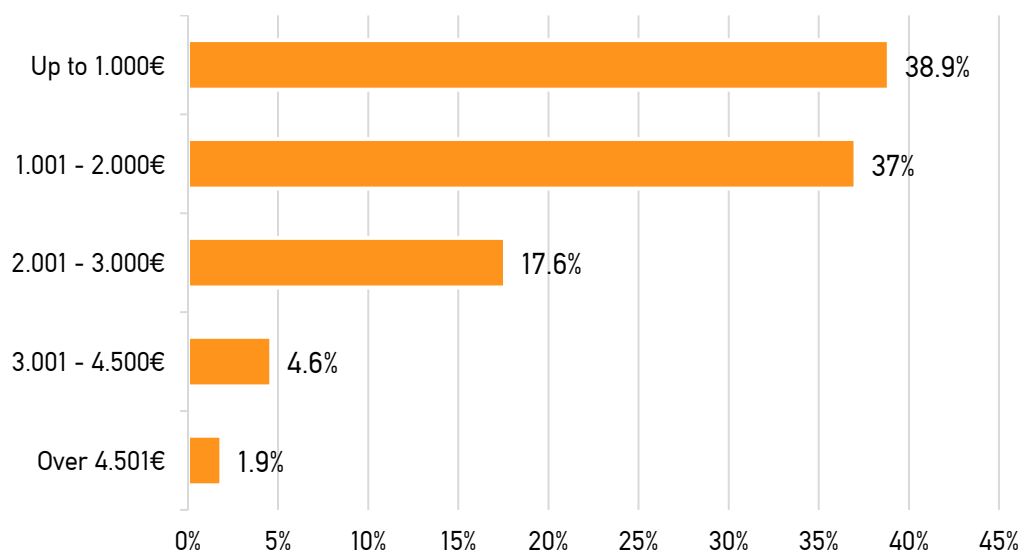
In terms of the professional field in which they were active when they returned to Greece, 41.6% stated that they were “professionals”, 23.2% “teaching staff of higher education and research Institutions”, and 16.9% “researchers” (Figure 6.3.6).

FIGURE 6.3.6: Choose your professional field when you returned to Greece



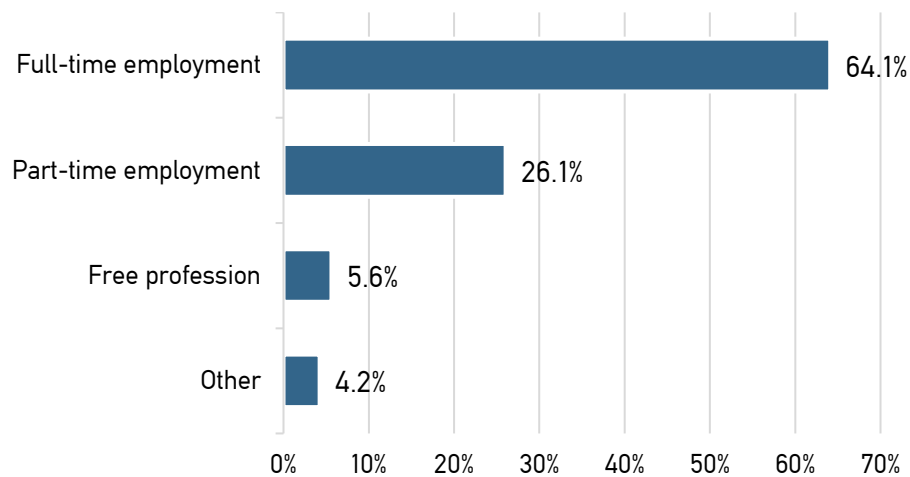
38.9% stated that during the time they worked when they first returned to Greece the gross monthly salary was up to € 1,000 and 37% up to € 2,000 (Figure 6.3.7).

FIGURE 6.3.7: How much was your gross monthly salary in Greece?



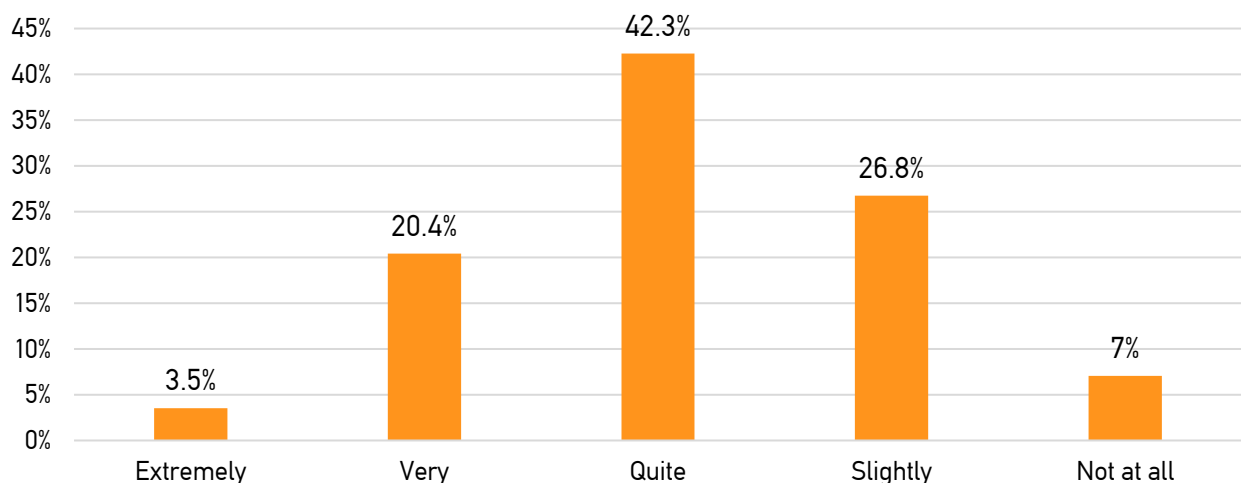
With regard to employment status, 64.1% stated that they were “full time” and 26.1% “part time” (Figure 6.3.8).

FIGURE 6.3.8: What was your employment status then?



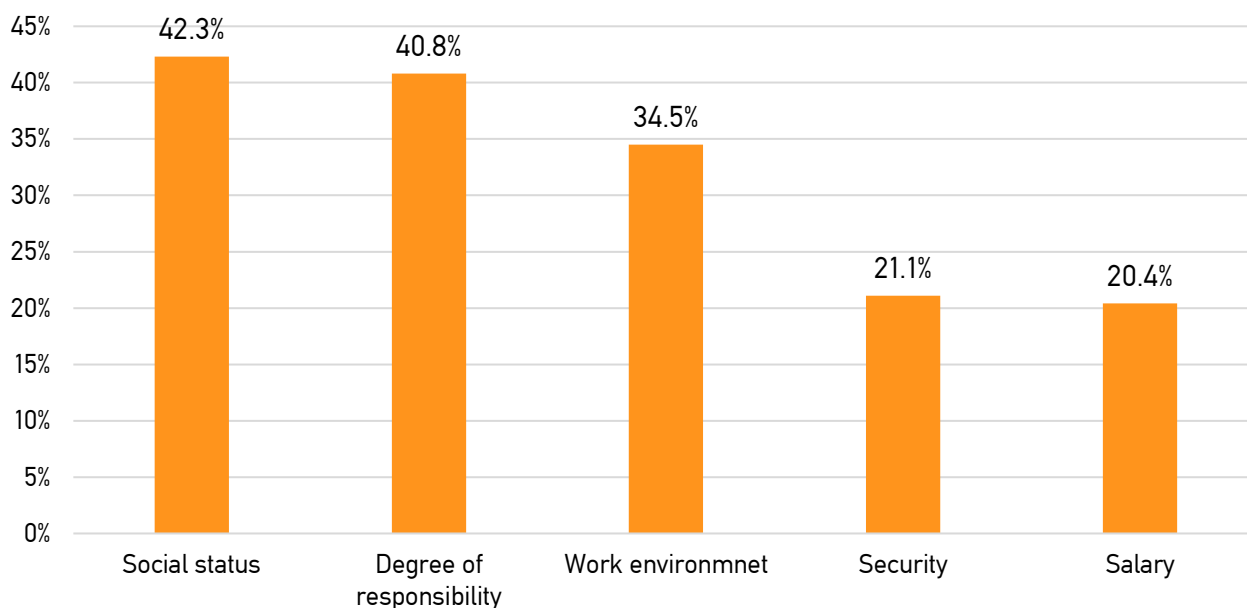
23.9% stated that they were “very”/ “extremely” satisfied with their quality of life in Greece, while a high percentage of 33.8% were “slightly”/ “not at all” satisfied (Figure 6.3.9).

FIGURE 6.3.9: Were you satisfied with your quality of life in Greece?



Less than half said they were satisfied with their social recognition, responsibility and work environment when they returned to Greece, while a very low percentage were satisfied with the security and salary they were offered (Figure 6.3.10).

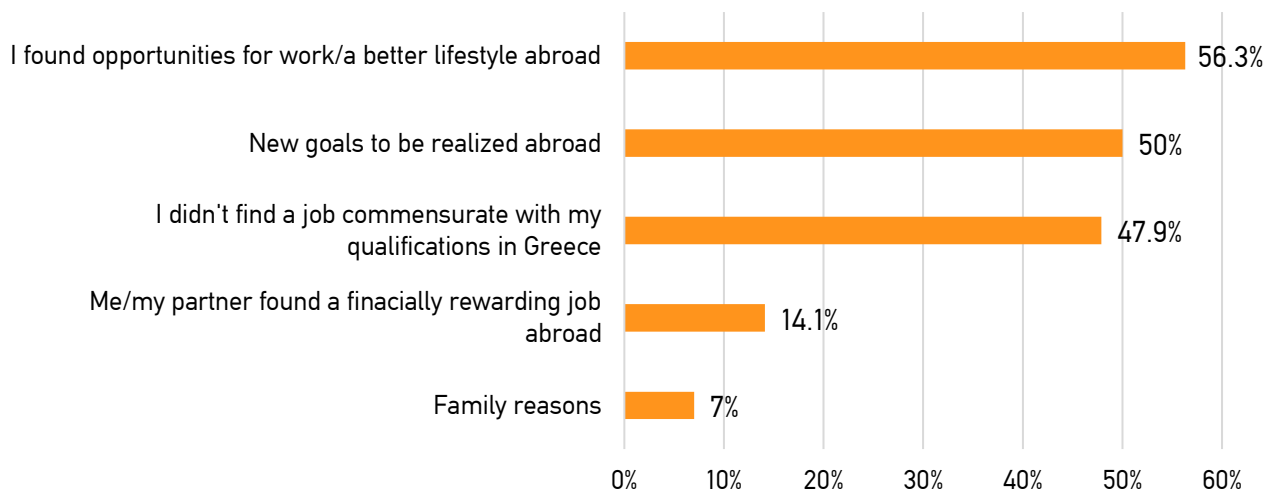
FIGURE 6.3.10: Were you satisfied with your working conditions in Greece in terms of the following factors?



### 6.3.1 Reasons for moving abroad

The reasons why the doctorate holders of this group left Greece again are related to work. 56.3% of the respondents stated that they left Greece again because they found “opportunities for work and/or living abroad”, 50% because they had “new goals that could be met abroad” and 47.9% because they did not find a “job commensurate with their qualifications” in Greece (Figure 6.3.1.1).

FIGURE 6.3.1.1: Why did you leave Greece again?

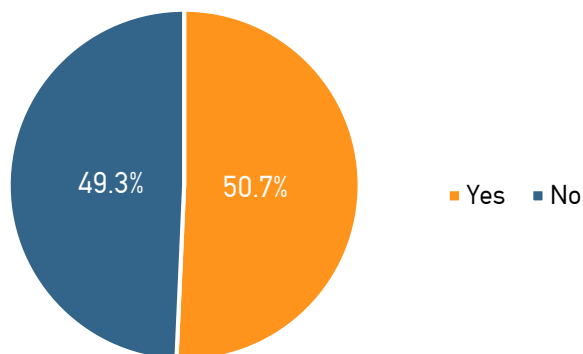


## 6.4 Return abroad

### 6.4.1 Country of residence

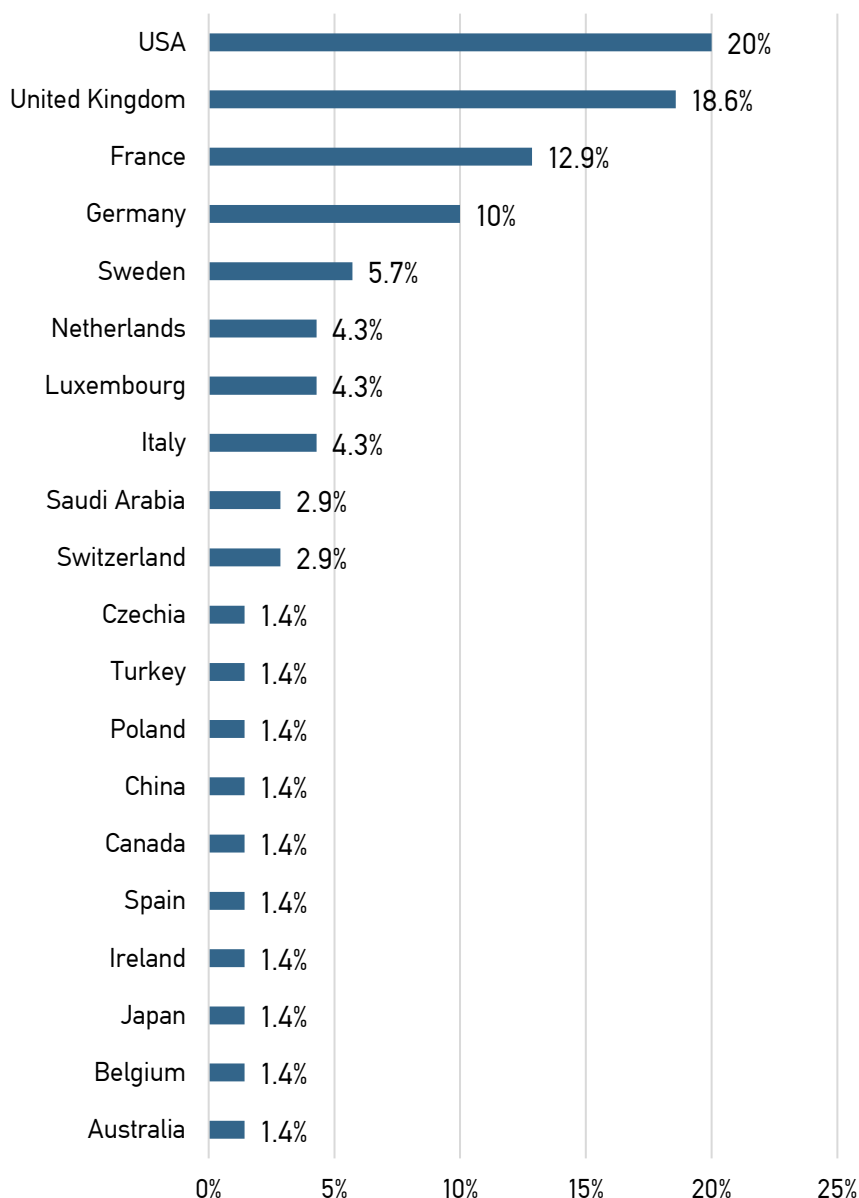
50.7% of the participants returned to the country in which they had lived before returning to Greece (Figure 6.4.1.1)

FIGURE 6.4.1.1: Did you go back to the country from which you had returned to Greece



Of the 49.3% of those who did not return to the same country where they had lived before coming back to Greece, 20% had lived in the US, 18.6% in the United Kingdom, 12.9% in France and 10% in Germany (Figure 6.4.1.2).

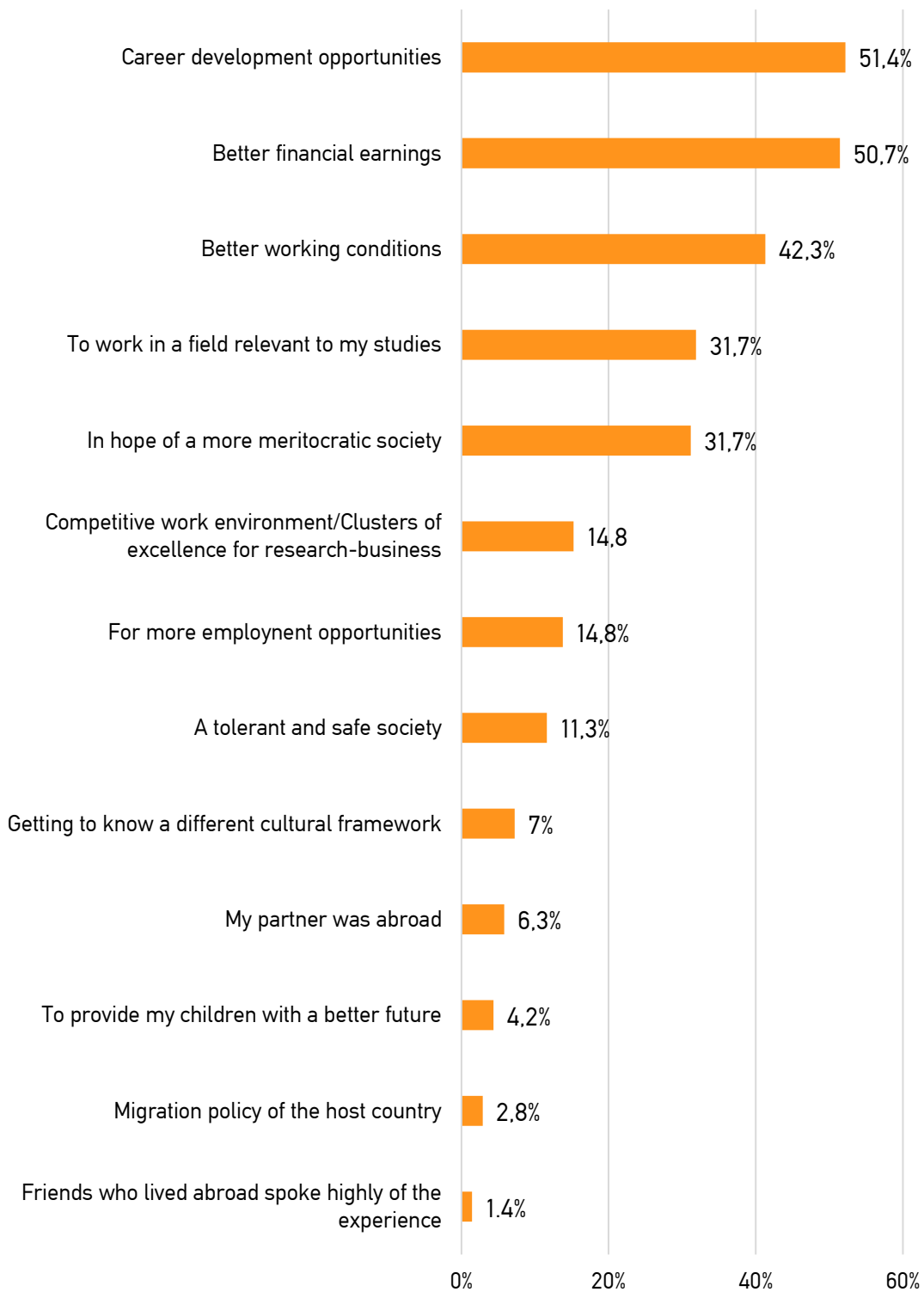
FIGURE 6.4.1.2: If not, which country did you live in before?



The doctorate holders chose the country to which they migrated again based on criteria that are mainly related to work. 51.4% said that the “possibility of scientific development” attracted them to the country they chose to relocate in, 50.7% found the “best financial earnings” attractive, 42.3% the “best working conditions” and 31.7% the “possibility of finding work in their field” (Figure 6.4.1.3).



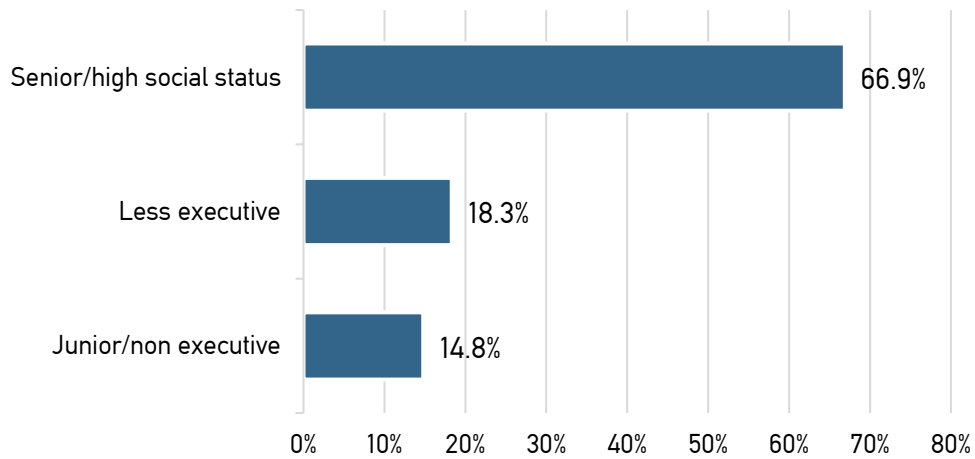
FIGURE 6.4.1.3: What attracted you to the country you went to?



## 6.4.2 Employment data

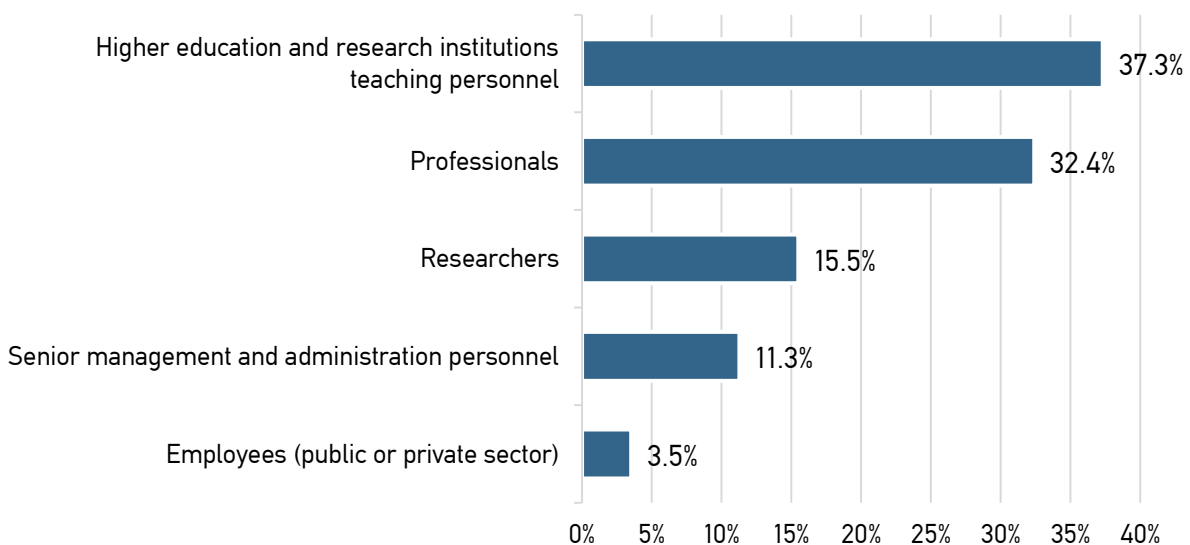
66.9% of PhD holders described their current professional position as “senior/with high social status” (Figure 6.4.2.1).

FIGURE 6.4.2.1: How would you describe your current professional position?



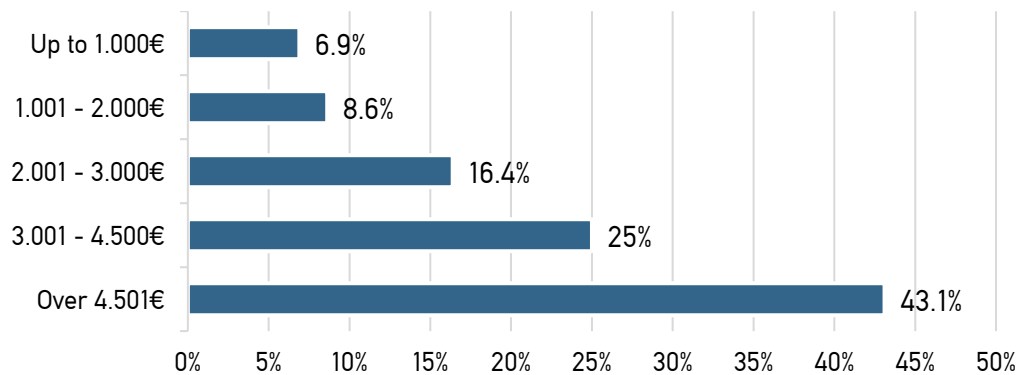
37.3% stated that they are “teaching staff of higher education institutions and research centers” and 32.4% “professionals” (Figure 6.4.2.2).

FIGURE 6.4.2.2: Professional field



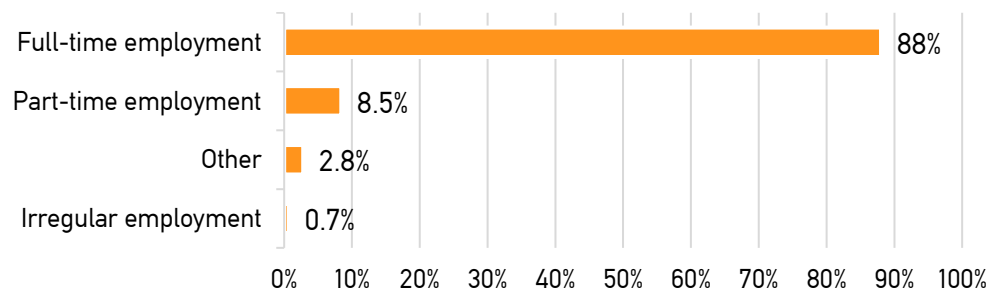
43.1% of the participants stated that their gross salary exceeds € 4,501, while 25% that it ranges between €3,001 and € 4,500 (Figure 6.4.2.3).

FIGURE 6.4.2.3: What is your gross monthly salary?



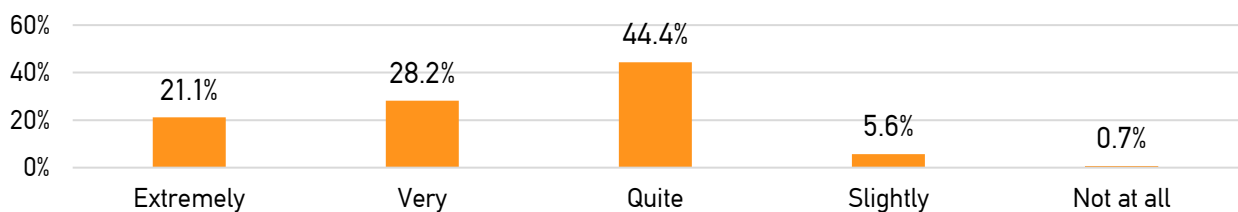
88% stated that they work full time (Figure 6.4.2.4).

FIGURE 6.4.2.4: What is your employment status?



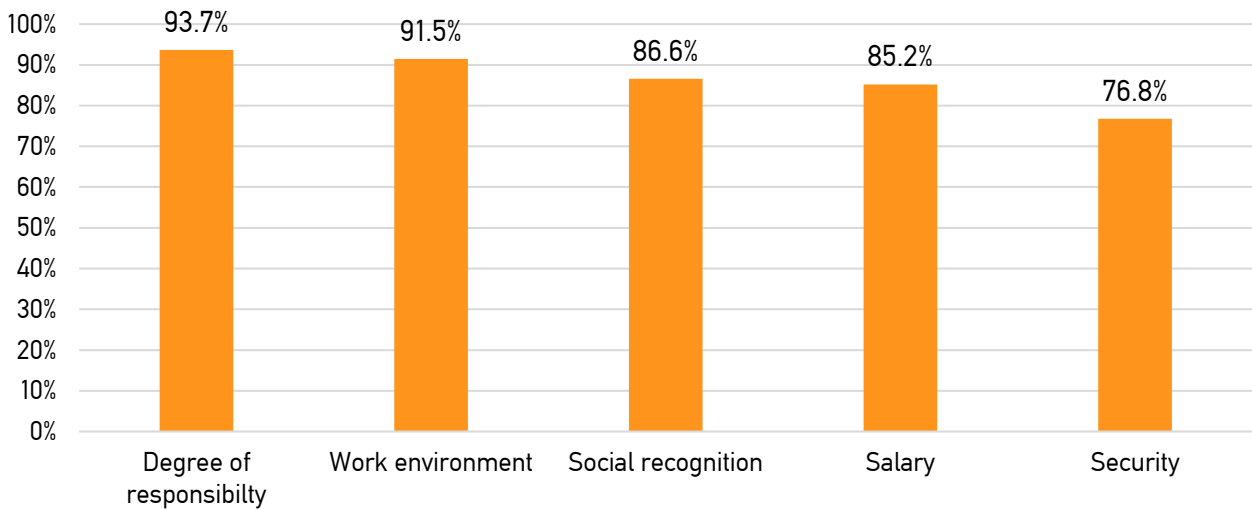
49.3% said they are “very”/“extremely” satisfied with their quality of life abroad, while only 6.3% say “slightly”/“not at all” happy (Figure 6.4.2.5).

FIGURE 6.4.2.5: Are you satisfied with the quality of your life abroad?



Doctorate holders said they were very happy with their working conditions (Figure 6.4.2.6).

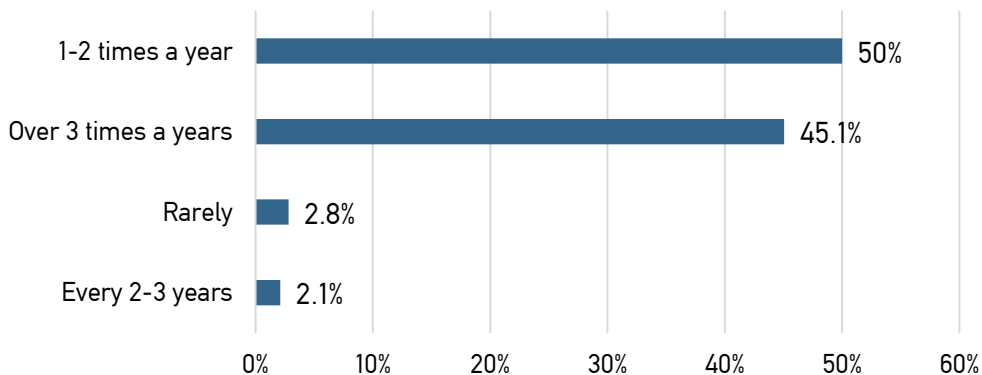
FIGURE 6.4.2.6: Are you satisfied with your working conditions in terms of the following factors?



## 6.5 Professional and social ties with Greece

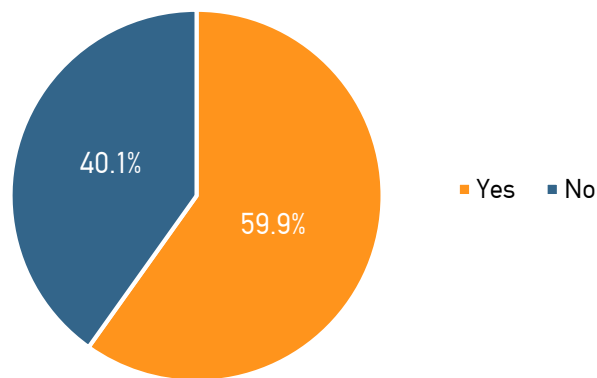
95.1% stated that they visit Greece at least once a year. 50% said “once or twice a year”, while 45.1% ‘more than three times” (Figure 6.5.1).

FIGURE 6.5.1: How often do you come to Greece?



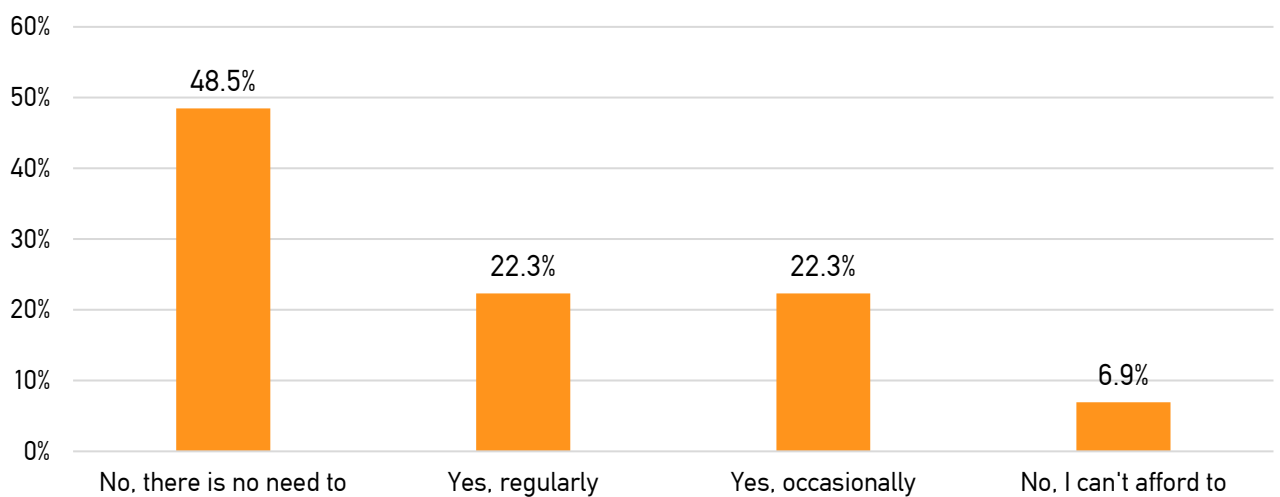
59.9% have maintained professional ties with Greece (Figure 6.5.2).

FIGURE 6.5.2: Have you maintained professional ties with Greece?



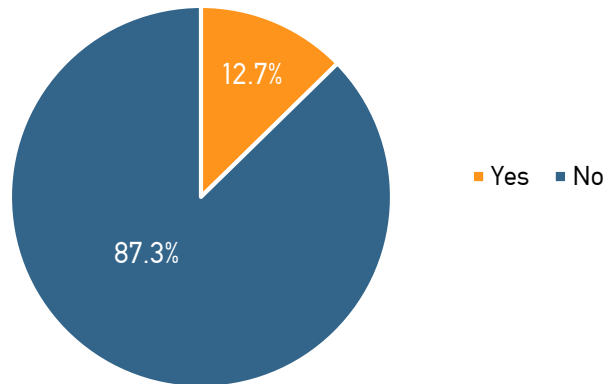
48.5% stated that they do not provide financial or other assistance to relatives and friends in Greece, as “there is no need”, whereas 44.6% send money “regularly” or “occasionally” (Figure 6.5.3).

FIGURE 6.5.3: Do you send money or otherwise help relatives or friends in Greece?



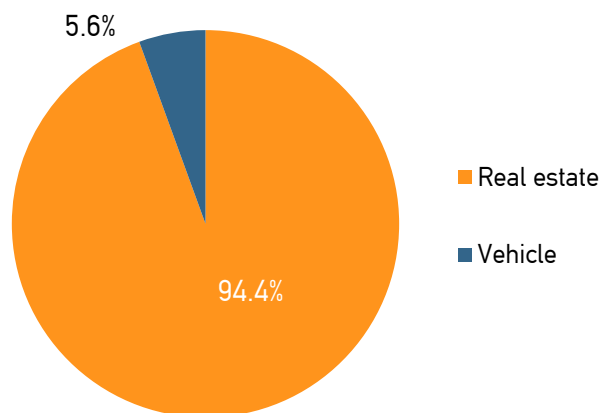
87.3% stated that they have not made any investment in Greece while living abroad (Figure 6.5.4).

FIGURE 6.5.4: Have you made any investment in Greece while living abroad?



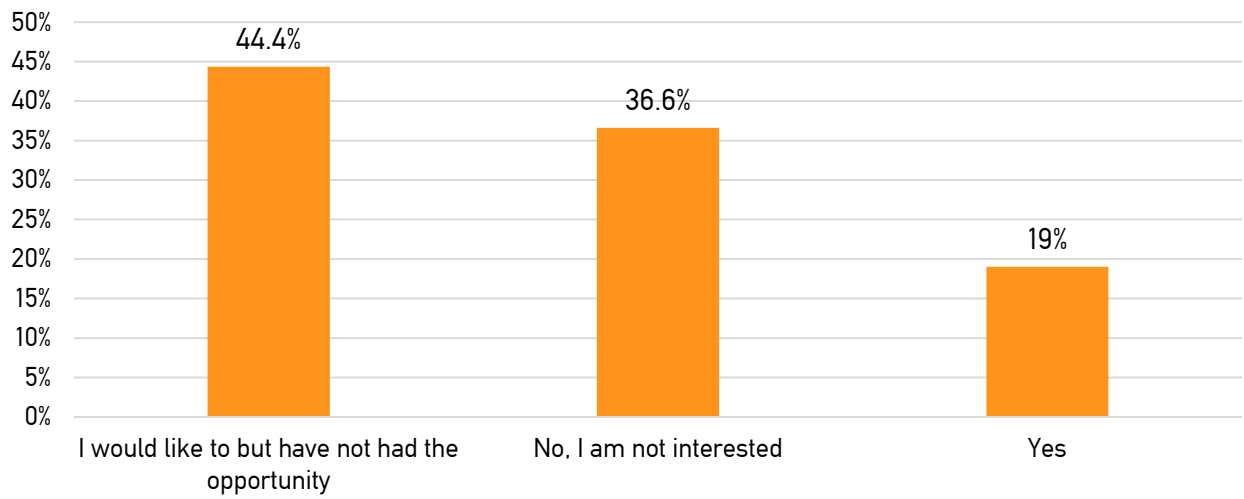
Of the doctorate holders who stated that they have made an investment in Greece, 94.4% have purchased real estate in Greece, while the remaining 5.6% have purchased a car (Figure 6.5.5).

FIGURE 6.5.5: If you have made an investment, complete the type of investment:



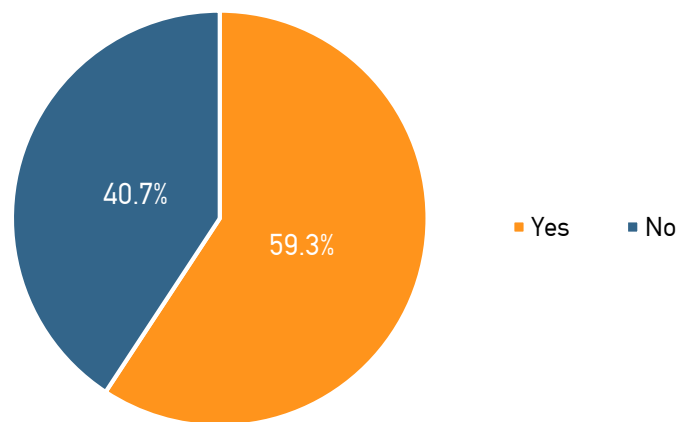
63.4% stated either that they would like to give some kind of help/guidance in Greece but so far it has not been possible (44.4%) or that they are already doing so (19%) (Figure 6.5.6).

FIGURE 6.5.6: Do you give any type of financial or non-financial professional guidance?



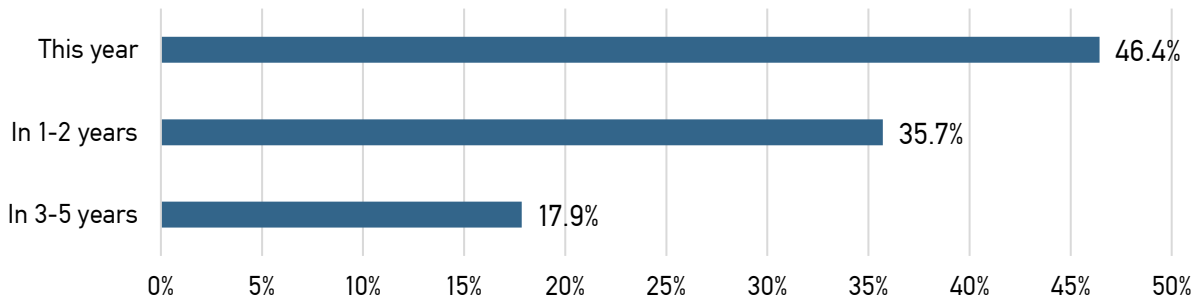
### 6.5.1 Intention of returning again to Greece

FIGURE 6.5.1.1: Do you plan to return to Greece in the coming years?



Of those who said they would return to Greece, 82.1% intend to do so immediately or at most in “1-2 years” (Figure 6.5.1.2).

FIGURE 6.5.1.2: When do you intend to return to Greece?



71.8% stated that they would return if they found “work commensurate with their qualifications in Greece” while 38.7% would return for “family reasons” (Figure 6.5.1.3).

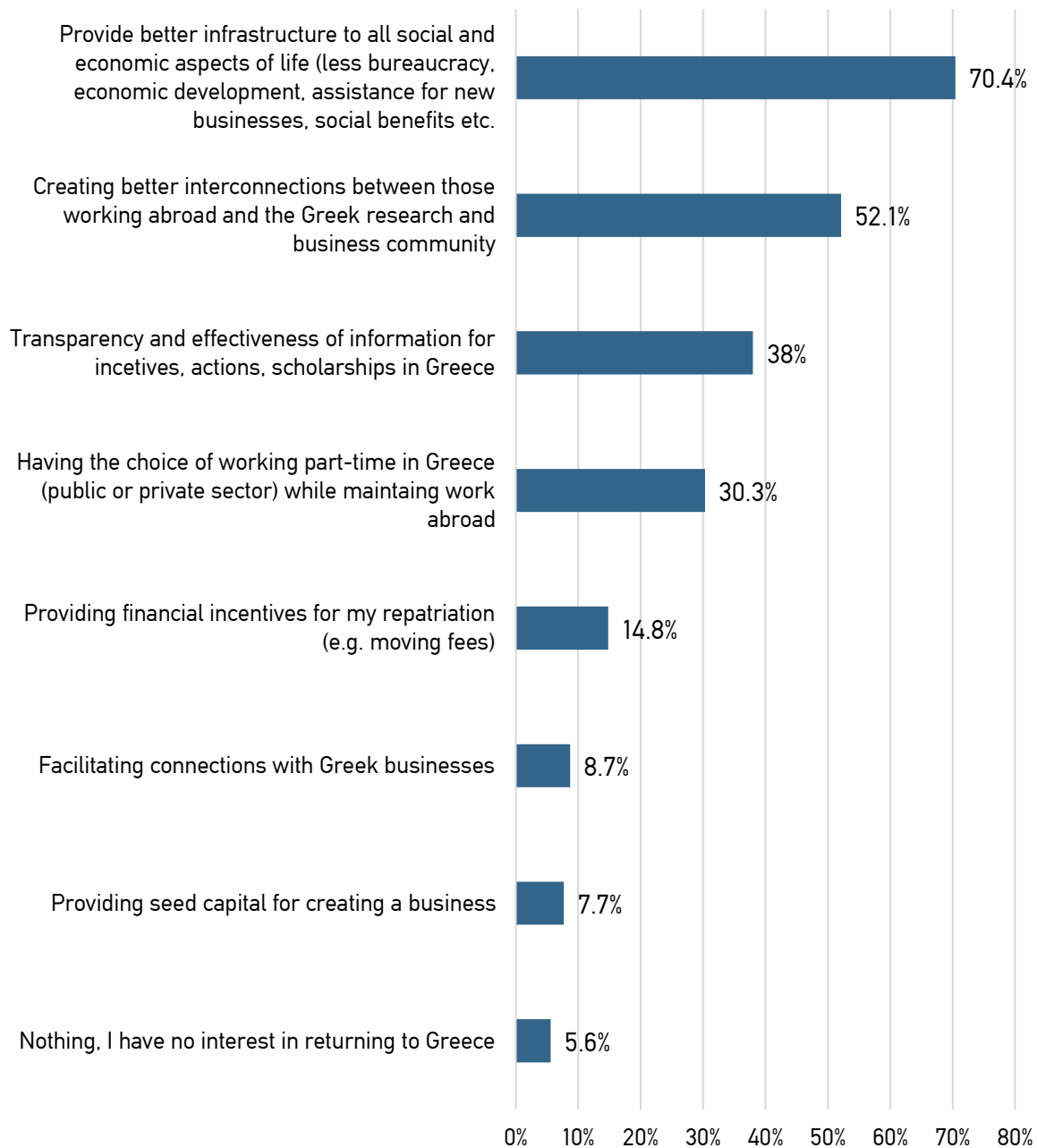
FIGURE 6.5.1.3: Under what conditions and for what reasons would you return?



Regarding the incentives that the state can give for their return, the largest percentage (70.4%) stated, “improving the general conditions in the country (social infrastructure, economic improvement, etc.)”, while by 52.1% stated “improving the possibilities of interconnectivity with the Greek research-university community”. Only 5.6% stated that they do not intend to return (Figure 6.5.1.4).

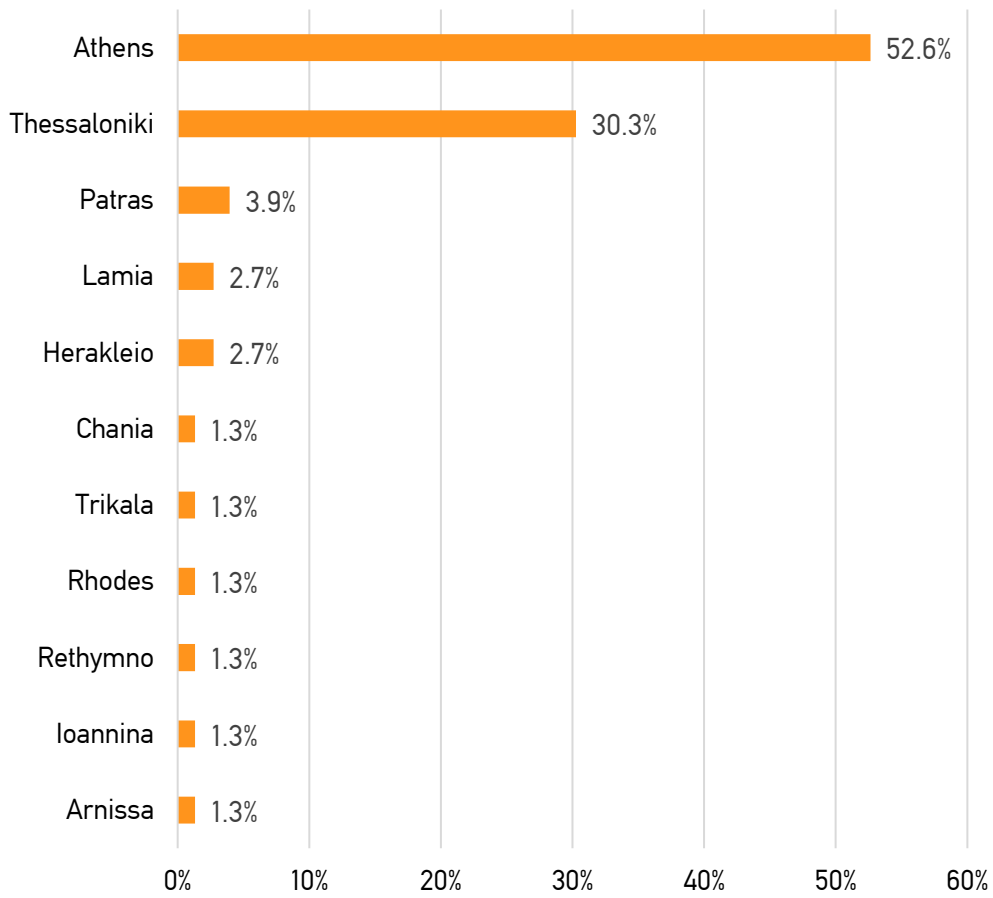


FIGURE 6.5.1.4: What can the state do to help your return?



To the question “to which town/city would you return”, 52.6% stated Athens, while 30.3% Thessaloniki (Figure 6.5.1.5).

FIGURE 6.5.1.5: To which town/city would you return?





7

## Appendix - Methodological notes

### 7.1 Study context and objective

The objective of the statistical survey, the results of which are presented in this publication, was to record the scientific, professional and geographical mobility of Greek doctorate holders.

The survey was carried out over the period May-July 2020 within the framework of EKT's activities as a National Authority<sup>12</sup> and agency<sup>13</sup> of the Hellenic Statistical System, with responsibility for the broader areas of research, development, innovation and digital transformation. As part of these activities, EKT annually compiles the official national "statistics on doctoral degree holders", with data drawn from the National Archive of PhD Theses (NAPhD) and the questionnaires completed by doctorate holders.

Based on these statistics, and recognising the importance and role of scientific personnel in the national research and innovation system, EKT, in collaboration with the Regional Development and Policy Research Unit (RUDPR) of the University of Macedonia<sup>14</sup>, carried out an extensive survey focused on all Greek doctorate holders. Its aim was to capture the cognitive (scientific and technological), professional and geographical characteristics of Greek doctorate holders.

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<sup>12</sup> In accordance with Decision 7304/B2-576/25-9-2017 (Government Gazette B 3482), as amended periodically, by the President of ELSTAT, which designates EKT as the "National Authority" of the Hellenic Statistical System responsible for the development, production and dissemination of European statistics.

<sup>13</sup> In accordance with Decision 7303/B2-577/25-9-2017 (Government Gazette B 3482), as amended periodically, by the President of ELSTAT, which designates EKT as an "Agency of the Hellenic Statistical System" responsible for data collection

<sup>14</sup> See the RDPRU website: <http://rdpru.uom.gr/home>

## 7.2 Register of doctorate holders – Survey population

The population of the present study is drawn from EKT's register of doctorate holders, which includes those doctorate holders whose doctoral dissertations, were awarded during the period 1985-2018 and have been submitted to the National Archive of PhD Theses (NAPhD).

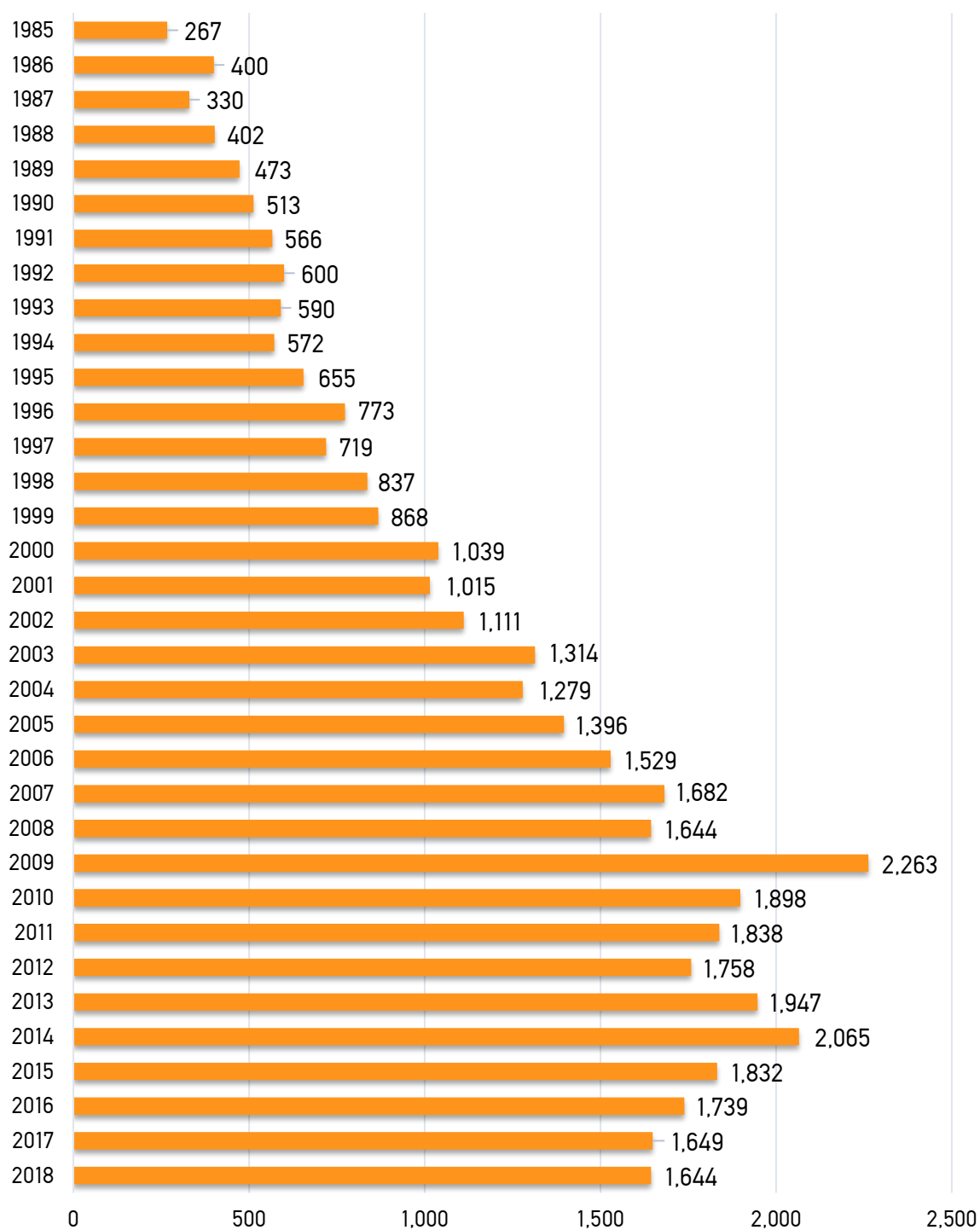
The NAPhD established, maintained and made available by law 1566/1985 by EKT, collects in digital form the doctoral dissertations prepared at Greek Universities, by Greek and non-Greek nationals, as well as those prepared by Greeks at universities abroad and recognised by the competent national body (NARIC).

The following Figure 7.2.1 presents, the number of doctorate holders in EKT's register per year, based on the doctoral dissertations awarded during the period 1985-2018. The total number amounts to 39,207.<sup>15</sup>

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<sup>15</sup> Date of data collection from the NAPhD: December 2019.

FIGURE 7.2.1: Number of doctorate holders per year doctoral dissertations were awarded



Source: NAPhD, 12/2019 data

The survey, conducted in the form of a census, included all the doctorate holders registered in the NAPhD. An important goal and initial step for conducting it was locating contact details for doctorate holders in order to send out the questionnaire. Given the extensive period being covered, this required considerable data clearing, which was carried out in stages as follows:

### 1. Collection of available data from the National Archive of PhD Theses database

Doctorate holder data available in the NAPhD<sup>16</sup> include names, email addresses<sup>17</sup>, date of birth and the date of submission/defence of their doctoral dissertation.

The first objective was to confirm contact details (personal email) that the doctorate holders themselves had provided during the submission process of their dissertation. Indicative of the difficulties encountered in verifying personal emails is the fact that, out of a total of 30,642 registered doctorate holders from 2000 to 2018, only 15,392 persons were confirmed by the emails they completed themselves.

In order to optimise the process of searching for doctoral contact information, a parallel attempt was made to match a custom-made database developed by EKT personnel. The cleaning procedures included the correction of registration errors (errors in domain names) and especially the identification of as many doctorate holders as possible for which no email was available or was no longer valid. For this purpose, open sources as well as bibliographic databases were used, as described below in steps 2-3, and, through the platform of EKT's Knowledge and Partnership Bridges initiative, there were posts designed to attract the attention of doctorate holders who were not registered with the NAPhD.

Note that correction procedures of e-mail addresses were also carried out for the duration of the active survey on those that ended to be a hard bounce back.

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<sup>16</sup> The data are collected under strict conditions of personal data protection and are not transmitted to third parties, nor will they ever be published in a format that allows the identification of natural persons. The data are registered in a special register of EKT, which has the sole purpose of recording new scientific personnel, in order to facilitate their professional career, their mobility and the support/promotion of their work in the wider Greek research community, as well as for the production of indicators documenting the national strategy in the areas of growth and innovation.

<sup>17</sup> From the year 2000 onwards.

## 2. Locating email addresses through the Web of Science bibliometric database

In cases where an email was not available, the international Web of Science (WoS) bibliometric database was used to collect doctorate holder contact information.

The search was based on the Latinised name as well as data related to the doctoral dissertation (eg scientific subject). The conversion into Latin characters was in accordance with the standard used by the Greek Police in passports (<http://www.passport.gov.gr/passports/GrElotConverter/GrElotConverter.html>). In order to ensure the validity of the identification of this English version of the name, random searches of the internet profile of the researchers were made to determine if they match the accompanying characteristics that already existed (scientific subject, institutions, etc.).

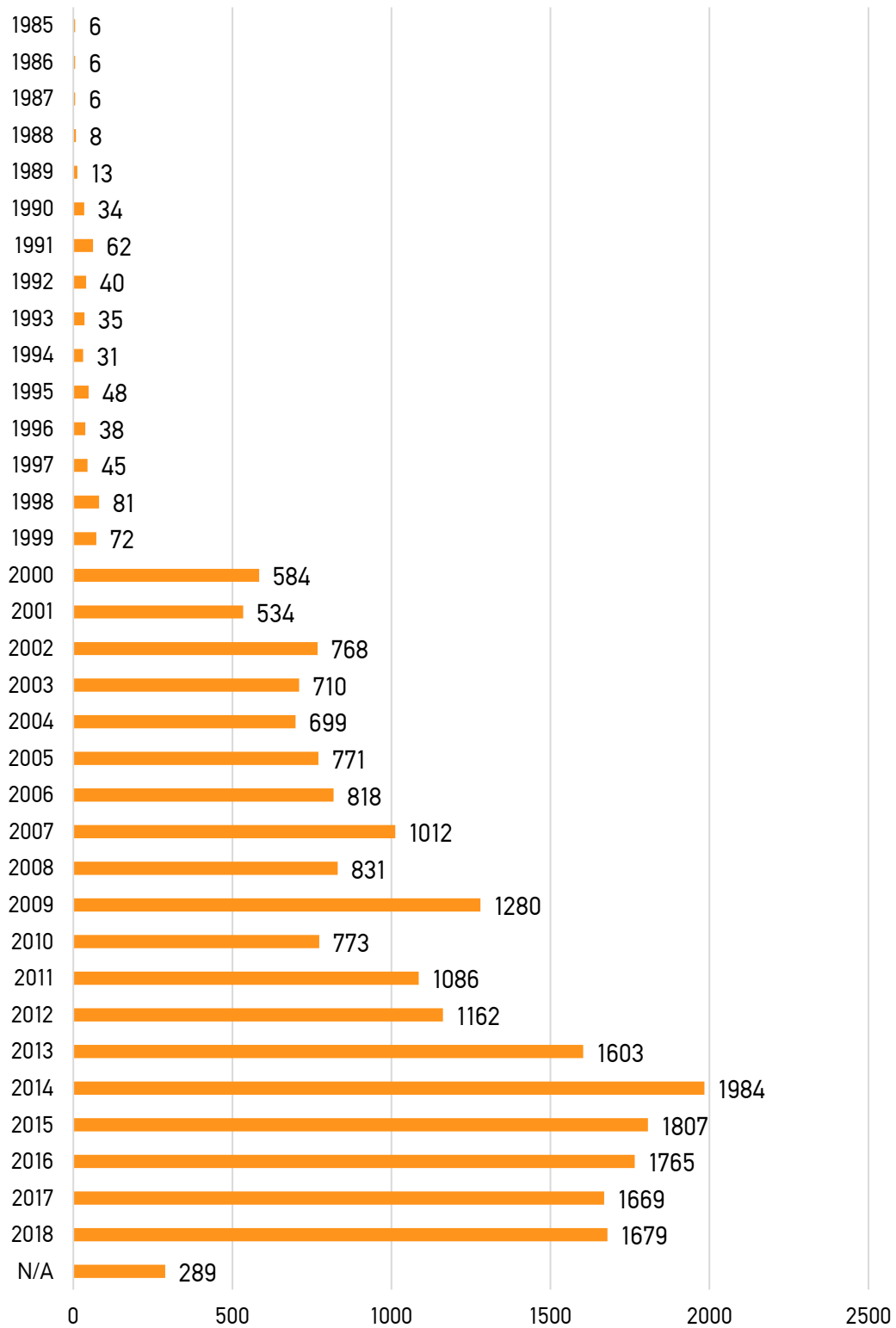
## 3. Advanced search on the internet and on the LinkedIn social networking platform

The next step was to manually search online platforms (Google, LinkedIn, Academia.edu) for the email addresses of the doctorate holders for whom the names were written in Latin characters. The procedure was as follows:

- Firstly, a search at LinkedIn.com and at Academia.edu was conducted for the names of the doctorate holders for whom there was no email address catalogued. The search functioned as a verification mechanism as well, since, based on the information provided by the profile and using the year of doctoral and scientific subject as the main means of identification, it was confirmed that the person in question is/was the person sought.
- The user's unique url was then saved. A combined search was conducted to locate the person in the google search engine or by using a "trace" of the last job given on LinkedIn or the postal address (affiliation) of the university/research centre as it was given in Academia. This made it easier to locate personal websites or in many cases CVs, where the emails sought after were usually available.

In total, after the clearing procedures and the completion of the contact details, the population of doctorate holders for whom it was possible to identify at least one valid email address was 22,350 people (Figure 7.2.2). This is the population to whom a request to complete the questionnaire was sent.

FIGURE 7.2.2: Number of doctorate holders to whom a request to complete a questionnaire was sent per year of completing doctoral dissertation





## 7.3 Questionnaire design – Basic concepts and variables

The survey questionnaire was an original compilation by the EKT and RDPRU team. Its purpose was to collect data on variables commonly found in relevant studies by international organisations such as the National Science Foundation (Survey of Doctorate Recipients) in the US and the European Science Foundation (Career of Doctorate Holders), as well as the “International Survey on Careers of Doctorate Holders-CDH”, conducted for a number of years by the Organisation for Economic Co-operation and Development (OECD), in the last survey of which EKT also<sup>18</sup> participated.

Given the intense mobility of Greeks studying abroad and the traditional mobility for better employment opportunities as well as from the perspective of “brain drain/brain circulation”, it was considered crucial to highlight this dimension in the survey. For this purpose, variables were added that clearly relate to Greek doctorate holders such as place of residence before and after repatriation, maintaining ties with Greece, intention and incentives to return to Greece.

Finally, the variables were configured to reflect the specifics of the Greek population. In particular, they were adapted appropriately in terms of the following dimensions: employment relationships (such as employment relationships having to do with multiple employers, partnerships with unpaid parties, etc.), working conditions (such as underemployment), economic or professional relationship with the country of origin, salary scale and so on.

### 7.3.1 Questionnaire structure

The questionnaire included an introductory section, which collected demographic data and data on scientific specialisation and employment. Doctorate holders were asked to answer questions about their nationality, date and place of birth, country of residence, scientific specialty, employment status, country and university where they received their degrees.

This section also served as a “guide” for further completion of the questionnaire. That is, doctorate holders chose the category in which they are classified according to their current place of residence (if they live in Greece or abroad) and their current working status (if they work, are unemployed or retired).

Then, based on the category to which they belonged, doctorate holders answered specific questions about their careers and mobility in one of the following sections:

---

<sup>18</sup> In December 2014, EKT participated in the global survey ‘International Survey on Careers of Doctorate Holders-CDH’ conducted by the Organisation for Economic Co-operation and Development (OECD). The CDH survey covered all doctorate holders residing in Greece in 2013 and the results were published in the EKT publication *Doctorate Holders in Greece: Careers and Mobility* (2015).

Section: “I worked abroad for some time but now I live and work (or am unemployed / retired) in Greece”

Section: “I live and work (or am unemployed / retired) abroad”

Section: “I worked abroad, I returned to Greece, but now I again live and work (or am unemployed / retired) abroad”

Section: “I never left Greece, I live and work (or am unemployed / retired) in Greece”

### 7.3.2 Types of questions - taxonomic schemes

In terms of the types of questions, multiple standards were followed as the aim was to cover as many aspects of the mobility and activity of the doctorate holders as possible. Therefore, the questionnaire included multiple-choice, single-choice questions from a default list, open-ended questions and satisfaction rating scales where required.

In many of these questions, the additional variable “Other” with room for a short text was adopted, as in matters concerning the personal experience of the doctorate holders, the given options were deemed insufficient for the complete (as far as possible) recording of potential answers. An additional reason for including the “Other” response was to try to understand and record the complex and changing conditions governing working conditions across the country, the diversity of working relationships, and the areas of specialisation within wider scientific areas according to the demands of the knowledge society. These dimensions are not easy to capture through strictly defined questions.

In cases where a checklist, multiple-choice or single-choice answers to questions concerning fixed characteristics mainly of a demographic nature, was given, the following taxonomic schemes were used

For the countries in the drop-down list, the official list of UNESCO countries was used.

For age groups, categorisation was by productive decade, i.e. “up to 29”, “30-39”, “40-49”, “50-59”, “60-69”, “over 70”.

Choices of answers about jobs were made based on the International Standard Classification of Occupations ISCO-08<sup>19</sup> list of the International Labour Organisation and the corresponding Greek version by ELSTAT.<sup>20</sup> From the 10 Major Groups of professional categories, the following three were selected for use: 1) Teaching staff of higher education and research institutions, 2) Professionals, 3) Senior managers and administrators. Selecting one of the three primary categories automatically led to the second level of analysis (major subgroups). Classification was completed with the “Other” option.

In order to record the salary of the participants, a typology of salary scale was followed: “up to 1,000 euros”, “1,001-2,000 euros”, “2,001-3,000 euros”, “3001-4,500 euros” and “>4,501 euros”.

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<sup>19</sup> See [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms\\_172572.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf).

<sup>20</sup> See <https://www.statistics.gr/el/occupation>.

The categorisation of scientific specialisation was based on the ISCED Fields of Education and Training 2013 (ISCED-F 2013)<sup>21</sup> classification and the corresponding Greek version by ELSTAT. The classification included the first level (F01 Education, F02 Arts and Humanities, F03 Social Sciences and Journalism, F04 Entrepreneurship, Administration and Law, F05 Natural Sciences, Mathematics and Statistics, F06 Informatics and Information Science, F07 Geology F, Science F07, Forestry, Fisheries and Veterinary Medicine, F09 Health, F10 Services).

For the purpose of aiding the doctorate holders and for a more accurate identification of the scientific specialisation, the selection of one of the ten primary categories automatically led not to the second, but to the third level of analysis.

The classification of employment status was based on international practices and included the categories: employed, unemployed and retired. The employment status in the last job was also recorded as follows: “full time”, “part time”, “shift work”, “self-employment”, “other form of employment” and “other” (e.g. suspension, termination of renewal of contract etc.).

Employment was categorised first as being in the public or private sectors. The second level of classification was based on the broader areas of employment in the public sector (University, Hospital, Research Centre, Business, Public Administration, Public Organisation, International Organisation) and in the private sector (University, Research Centre, Business, Hospital, International Organisation).

## 7.4 Data collection

### 7.4.1 Electronic collection system

Data collection was conducted using EKT’s current electronic data collection system for the statistical surveys it carries out as an agency and national authority of the HSS. More specifically, the data collection involved the sending and completing of questionnaires via the internet (web survey), and the Limesurvey platform was used for its implementation. (<https://www.limesurvey.org>).

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<sup>21</sup>See <http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-fields-of-educationand-training-2013-detailed-field-descriptions-2015-en.pdf>.

The electronic questionnaire was developed based on the questions as they were identified during its design. The workflow for the development of the electronic questionnaire used the following steps: 1) design of a questionnaire structure according to the needs of the research, 2) adaptation of an electronic database guided by the structure of the questionnaires, 3) process of checking the content of the questionnaire through internal test completion to check the relevance and clarity of the questions, 4) creation of a database and creation of an electronic questionnaire in a test environment, 5) creation of controls through the electronic questionnaire to avoid invalid data, technical checks of the correct operation of the questionnaire in a test environment, 6) finalisation of the questionnaire structure, backup, 7) introduction questionnaire tool in a productive operating environment, 8) internal Quality Assurance of questionnaire and analysis of data with test data, 9) technical checks of correct operation of the questionnaire in a productive environment (note: the final questionnaire was posted and tested in test environments from 7/5/2020 to 25/5/2020), 10) configuration of population data for the needs of integration into the research platform, 11) input of population data into the research platform (csv import), 12) definition and integration of informative texts formulated suitable for the needs of the research, 13) sending a unique questionnaire to the research population, 14) support of the questionnaire users by phone and e-mail, and finally 15) application configuration based on specific options.

## 7.4.2 Conducting the survey

The statistical survey was conducted between 25/5/2020 and 31/7/2020.

The data collection process was as follows. Each participant received a personalised request with Surname and First Name, through which he/she was informed in a clear and comprehensive way about the nature of the survey, its purpose, the implementing bodies and the guarantee of statistical confidentiality.

The participant was then able to select the fill in link to complete the section related to his/her demographic characteristics. At the end of this section and through the last question they were led to the next section of the questionnaire depending on the population to which they chose to belong. The participant was able not only to save his/her responses to the questionnaire but also to print both them and a blank questionnaire if necessary. Note that each participant's link was unique (token). Therefore, upon completion and submission, the participant was not eligible to re-enter, nor able to send the link to another candidate participant. The submission of answers was made electronically only, with the completion of the submission process in Limesurvey. Upon submission of the questionnaire, the participants received email with a confirmation message of the completion of the research participation process. Participants who had not filled in the questionnaire or had done so incompletely received a weekly email reminder to participate in the survey.

The answers of the participants had a unique answer id and could be exported in a number of ways (excel, csv, xml, spss etc.) in order to be included in data analysis tools.

A total of 10,295 questionnaires were collected, corresponding to a response rate of 46.1%. The number of answers/doctorate holders and the response rate per year are presented in detail in Figure 7.4.2.1 and Figure 7.4.2.2 respectively.

FIGURE 7.4.2.1: Number of answers per year of completing doctoral dissertation

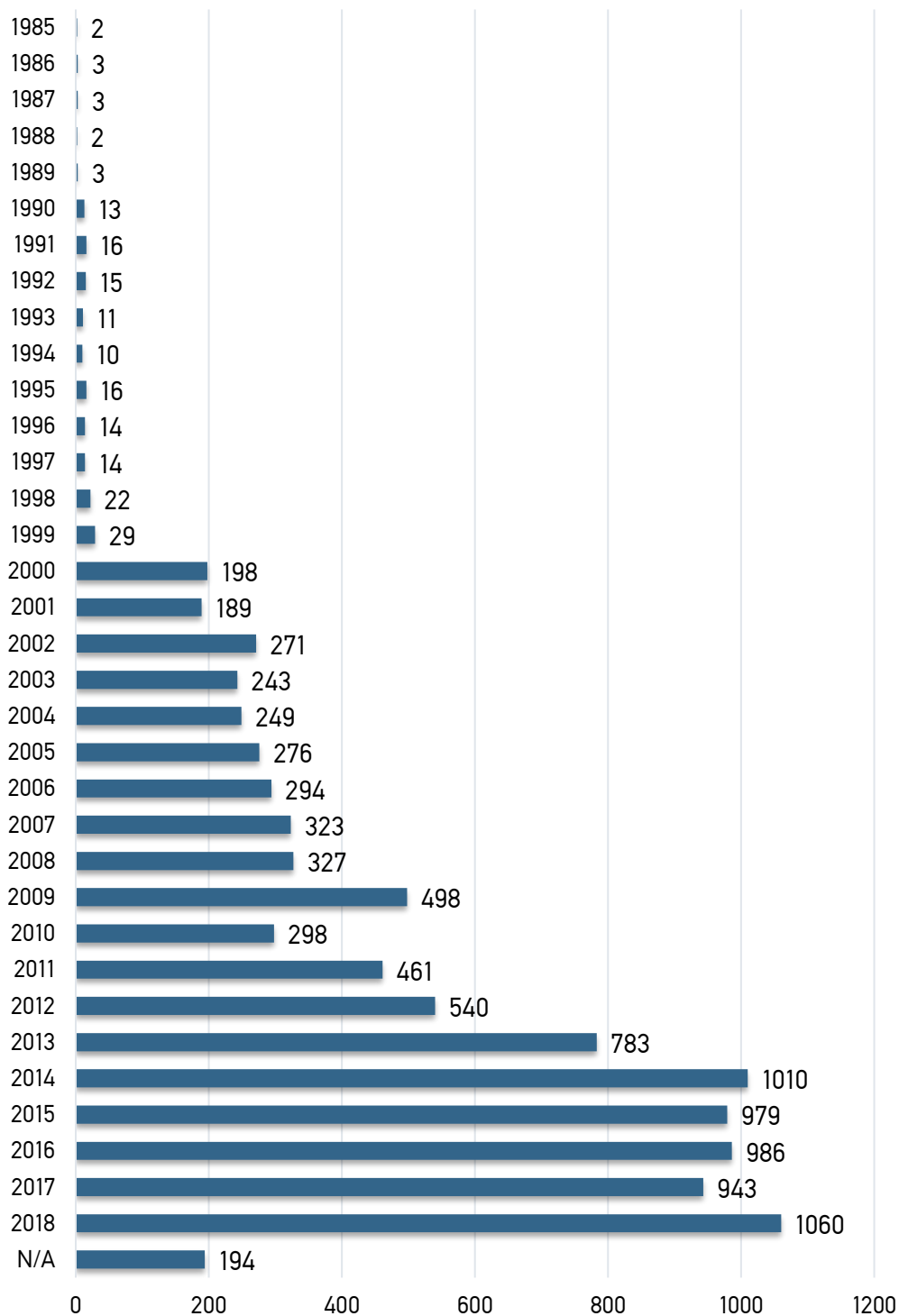
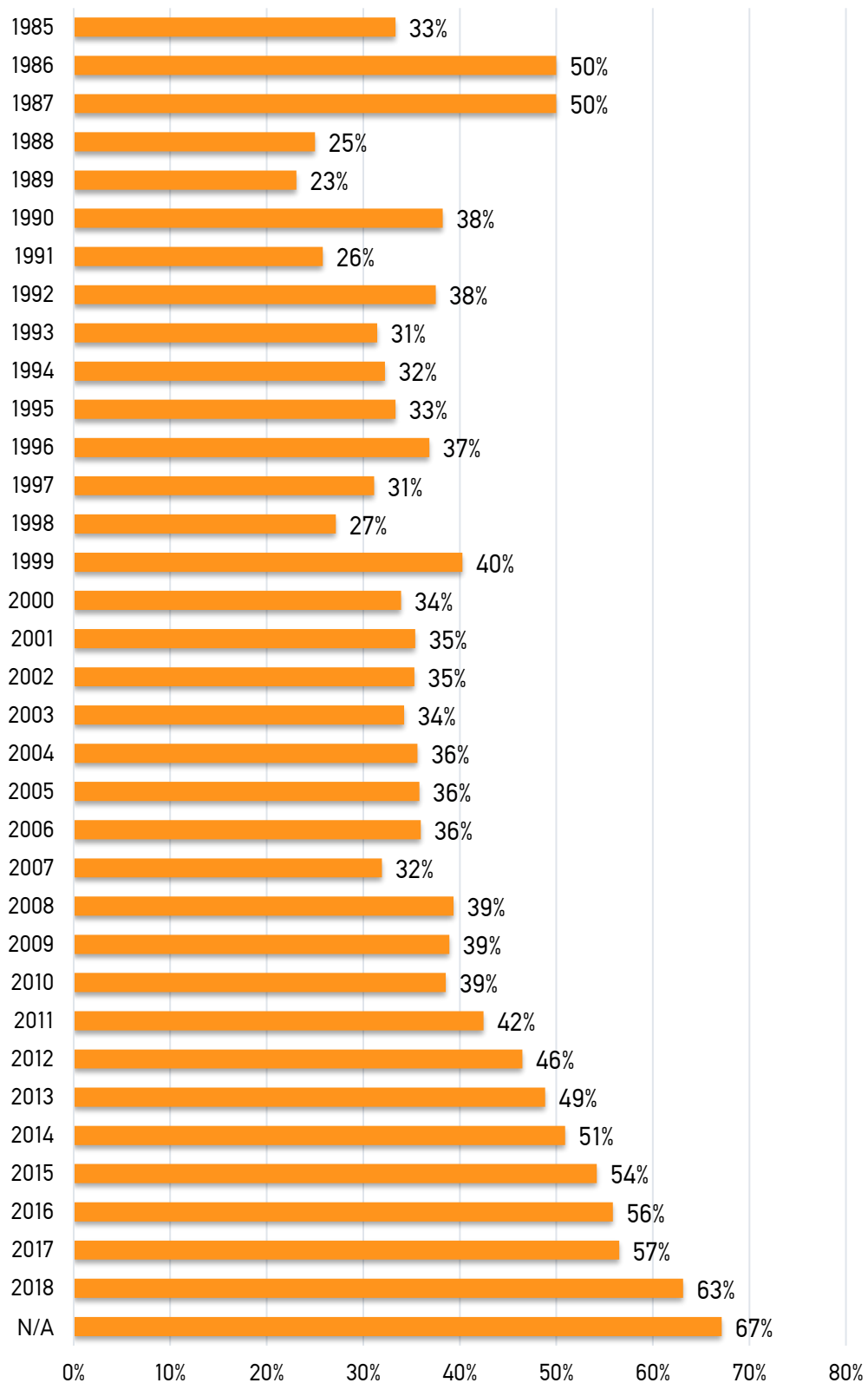


FIGURE 7.4.2.2: Response rate per year of completing doctoral dissertation



## 7.5 Data processing and analysis

Out of the 10,295 answers, 10,054 doctorate holders selected Greek citizenship in one of the three available relevant fields. As the aim of the research was to record and understand data about Greek doctorate holders, the statistical results were based on the data of the questionnaires completed by those 10,054 doctorate holders.

It has already been mentioned that the questionnaire included individual sections on careers and mobility of the doctorate holders, to which respondents were guided on the basis of answers about their current place of residence and current employment status.

Due to the very small number of categories of unemployed/retired, the responses of these populations were merged with the responses of the work active populations. In the analysis of the variables the results were grouped into four (4) larger sections based on the present place of residence.

It should also be noted that, for the purposes of this publication, the statistical results concerning the scientific fields are presented in the Major Groups category. More details will be published in individual publications/scientific publications.

### 7.5.1 Processing of Open-ended responses

As mentioned above, in order to collect data that is as complete as possible in terms of the particular characteristics of spatial, scientific and professional mobility of Greek doctorate holders and the factors that affect them, the questionnaire included specific open-ended questions to which doctorate holders were able to respond freely.

Such questions were those which, in addition to the predefined classification lists, included the additional field "Other", which could be selected by doctorate holders in order to give a brief description. The inclusion of the field "Other" was intended to enrich the set answers to a series of questions about the behavioural patterns of Greek doctorate holders.

As a general rule of cleaning and homogenisation of the "Other" answers, the principle of "closest" to the classification lists was applied. In order to cover the answers to which this rule could not be applied, new categories were created, thus grouping entries of participants that could not be classified otherwise.

There was an additional category of open-ended questions aimed at exploring issues to which there were no predetermined answers such as investments or professional relations of the doctoral holders with Greece. In these cases, open-ended questions were created to which the doctorate holders were asked to answer with a short free text. In order to proceed with the refinement of these responses, they were grouped based on the coherence of their relationships, as described by the participants.

The following is an example of the processing and classifying of the answers in the category “Other” for the question “How did you find your job?”

### Processing of open-ended responses –

#### Question “How did you find your job?”

In the case of questions about how they got a job, participants had to choose from a total of seven (7) options, one of which was “Other”. From the total number of participants, the “Other” option received 776 answers.

The six (6) predefined answers included the following: 1) Application for a vacancy via a job search office website, 2) Via personal contacts of acquaintances, 3) Via social such as LinkedIn, 4) Via the career office of the University where I studied, 5) Resulting from secondment, 6) Through an Internship or volunteer programme.

The processing and categorisation of the answers in the field “Other” was done as follows:

The content of the answers that in any way presupposes a call for participation in a formal selection process was classified in the category “Application through a website/job search office”. Examples include answers such as participation in a programme, securing a scholarship, through competition, yearbook listing, some form of the answer “civil servant” and certain categories of educators.

Answers relating to the army (see military school, military doctor) were classified in the category “Through the University where I studied”, as, in Greece, graduates of military schools are eligible for immediate professional appointments in the military.

Finally, the answers that indicate personal actions and initiative for finding a job (e.g. sending a CV, personal effort, sending an email, etc.) were grouped in a new category “through personal search”.



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