



ΠΡΑΞΗ:

**«ΘΑΛΗΣ-ΠΑΝΕΠΙΣΤΗΜΙΟ ΜΑΚΕΔΟΝΙΑΣ-  
Το ανθρώπινο δυναμικό ως βασική συνιστώσα της αναπτυξιακής δυναμικής και  
διαφοροποίησης των περιοχών: Η περίπτωση της Ελλάδας»**

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**«Το ανθρώπινο δυναμικό ως βασική συνιστώσα της αναπτυξιακής δυναμικής  
και διαφοροποίησης των περιοχών: Η περίπτωση της Ελλάδας»  
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Υπουργείο Παιδείας και Θρησκευμάτων**

ΑΞΟΝΑΣ ΠΡΟΤΕΡΑΙΟΤΗΤΑΣ 11:

**«Ενίσχυση του ανθρώπινου κεφαλαίου για την προαγωγή της έρευνας και της  
καινοτομίας στις 3 Περιφέρειες Σταδιακής Εξόδου»**

ΚΑΤΗΓΟΡΙΑ ΠΡΑΞΗΣ:

**«ΘΑΛΗΣ»**

Η Πράξη συγχρηματοδοτείται από το Ευρωπαϊκό Κοινωνικό Ταμείο (Ε.Κ.Τ.) και από εθνικούς πόρους, μέσω του Προγράμματος Δημοσίων Επενδύσεων (Π.Δ.Ε.) του Υπουργείου Παιδείας και Θρησκευμάτων

### Παραδοτέο

Παραδοτέο Π5.5.2: Ένα άρθρο προς υποβολή σε επιστημονικό περιοδικό  
Υποδράση 5.5: Συγγραφή Τελικών Κειμένων  
Δράση 5: Ο ρόλος της εκπαίδευσης στην περιφερειακή ανάπτυξη



Η παρούσα έρευνα έχει συγχρηματοδοτηθεί από την Ευρωπαϊκή Ένωση (Ευρωπαϊκό Κοινωνικό Ταμείο - ΕΚΤ) και από εθνικούς πόρους μέσω του Επιχειρησιακού Προγράμματος «Εκπαίδευση και Δια Βίου Μάθηση» του Εθνικού Στρατηγικού Πλαισίου Αναφοράς (ΕΣΠΑ) - Ερευνητικό Χρηματοδοτούμενο Έργο: ΘΑΛΗΣ. Επένδυση στην κοινωνία της γνώσης μέσω του Ευρωπαϊκού Κοινωνικού Ταμείου.

Για την εκπόνηση του παραδοτέου απασχολήθηκαν τα κάτωθι μέλη της ομάδας έργου :

### ΜΕΛΗ ΚΥΡΙΑΣ ΕΡΕΥΝΗΤΙΚΗΣ ΟΜΑΔΑΣ (Κ.Ε.Ο.)

ΛΑΜΠΡΙΑΝΙΔΗΣ ΘΕΟΛΟΓΟΣ

ΚΑΡΑΓΙΑΝΝΗ ΣΤΕΛΛΑ

ΠΑΡΑΣΚΕΥΟΠΟΥΛΟΣ ΧΡΗΣΤΟΣ

ΠΑΝΑΓΙΩΤΙΔΗΣ ΘΕΟΔΩΡΟΣ

ΚΑΛΟΓΕΡΕΣΗΣ ΑΘΑΝΑΣΙΟΣ

BALLAS DIMITRIS

### ΜΕΛΗ ΟΜΑΔΑΣ ΕΞΩΤΕΡΙΚΩΝ ΣΥΝΕΡΓΑΤΩΝ (Ο.Ε.Σ.)

ΘΑΝΗΣ ΗΛΙΑΣ

ΠΑΝΩΡΗ ΑΝΑΣΤΑΣΙΑ

SAMANTHA STOKES

Θεσσαλονίκη, 30/11/2015



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## Πανεπιστήμιο Μακεδονίας

### Ερευνητικό Πρόγραμμα ΘΑΛΗΣ

Το ανθρώπινο δυναμικό ως βασική συνιστώσα της αναπτυξιακής δυναμικής και διαφοροποίησης των περιοχών: Η περίπτωση της Ελλάδας.

## ΟΜΑΔΑ ΕΡΓΑΣΙΑΣ 1

### Πανεπιστήμιο Μακεδονίας

Λαμπριανίδης Θεολόγος

Καλογερέσης Θανάσης

Καραγιάννη Στέλλα

Θάνης Ηλίας

Παρασκευόπουλος Χρήστος

Πανώρη Αναστασία

Παναγιωτίδης Θεόδωρος

Samantha Stokes

Ballas Dimitris

## Δ5. Ο ρόλος της εκπαίδευσης στην περιφερειακή ανάπτυξη

Παραδοτέο: Π5.5.2: Ένα άρθρο προς υποβολή σε επιστημονικό περιοδικό



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# Education and development through a capabilities perspective<sup>1</sup>

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## Abstract

In the vast majority of development literature education is considered to be one of the main explanatory variables of growth (and development). By augmenting knowledge and / or technology, investment in education has come to be considered equivalent, if not more valuable than capital investment.

What is not necessarily equivalently clear is how education relates to alternative measures of welfare. In the capabilities and other – loosely – related literatures (human development, Happiness, QoL) education often moves from dependent to independent variable. Through education, people may gain access to more information, improve their living conditions, or avoid circumstances which could probably have negative impact on their health. Furthermore, education might lead to higher social cohesion, which is considered central in development processes.

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The main scope of this paper is a thorough discussion of the various approaches relating education and development. Through the use of extensive survey data, we first aim to empirically test the role of education in shaping human capabilities in a developed country setting (Greece). Additionally, we aim to reveal possible relations and linkages between two large bodies of literature that are still unexplored. Specifically, both space and territory are considered to be loci of complex and intertwined social, economic and political flows, struggles and power relations leading to development or underdevelopment, throughout the large and evolving literature of economic geography. Although economic geography offers us a clear framework about what development is not, things are less straightforward when it comes to defining what development is. By viewing development through a capabilities perspective (the second large body of literature), we will try to clarify what development is.

A particularly extensive (both in terms of size and scale) telephone survey enables us to empirically validate the role of education and geography on affecting regional development and inequalities. Furthermore, this will be one of the first such studies in a developed country, as well as through the use of largely structured questionnaires.

**Keywords:** education, development, Capability Approach

## 1 Introduction

Education constitutes a crucial aspect, through which a public policy targeting on growth and development could be approached and analyzed. Any improvement in human capital, both in the narrow sense (associated with educational levels) and in the broadest sense (including informal individual competencies), arising from an increase in personal capabilities, skills and intelligence, generates positive results in terms of individual liberty expansion (self-empowerment, citizenship, etc.), as well as in economic activity.

However, throughout the analysis of the concept of education, significant problems arise related to a number of factors such as the absence of a precise and widely accepted definition, problems of integrating educational variables in economic, social and political analysis, or the estimation of impacts of educational inputs on economic and human development. Regarding these concerns, various approaches have been proposed that allow addressing this problem to some extent and a deeper understanding of the various aspects



of the concept. In general, the two main approaches mentioned in the literature are human capital and human capability approach (CA) (Lanzi, 2007; Robeyns, 2006).

The first one, focuses on the impacts of education on economic activity and views education as a system. It recognizes the importance of a number of parameters, such as the quality of education, individual physical capacity, role of the family, school facilities, etc., considering them as inputs in the educational process, whereby the various technical combinations produce educational outputs. In economic terms, education is actually a type of investment, whose returns are primarily viewed through an individual perspective. Education is evaluated through, either educational / learning outcomes (e.g. test results), and/or its estimated impact on the level of wages and productivity of graduates. Therefore, the approach is economic, in the sense that it focuses solely on economic variables (mainly productivity and wage, as well as the likelihood of unemployment), ignoring to a large extent the non-economic aspects and interpretations. This constitutes one of the typical arguments in most discussions involving criticism to the dominant neoclassical approaches. In economic geography cf. (Amin and Thrift, 2000; Hadjimichalis, 2006; Krugman, 2011; Peck, 2012), it is argued that economic variables alone cannot capture the complex and intertwined social, economic and political flows, struggles and power relations, which are largely shaped by different territories or spaces and lead to development or underdevelopment. The second problem, according to Robeyns (2006) is that the role of education is more or less depleted throughout its instrumental economic role, since the intrinsic value of education is marginalized and private, instead of its social value being clearly favored.

According to the approach of human capital a modern economy cannot achieve positive economic growth without the existence of an educated and skilled labor force (Keeley, 2007). The accumulation of human capital has the capacity to sustain development process through enhanced productivity of both labor and physical capital (Lucas, 1988). One of the most notable features of human capital is its ability to reinforce the creation of new technological knowledge, innovation and entrepreneurship (Audretsch and Feldman, 1996; Bradley and Taylor, 1996; Faggian and McCann, 2009).

Despite its limitations, the approach should not be condemned en masse, nor should its tools and data permitting the examination of the various aspects and dimensions of education be abandoned. Prominent among the positive features of the approach is the fact that it is



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operationally and empirically validated and politically consistent as to the role of the market. According to literature, this approach incorporates three main points regarding the role of human capital: economic growth rate (Barro, 2000; Hanushek and Kimko, 2000; Krueger and Lindahl, 2000), productivity (Bassanini και Scarpetta, 2001; Hall και Jones, 1999; Pritchett, 2001 κ.α.), and income/wages (Becker, 2009; Dabos και Psacharopoulos, 1991; Jenkins, 1995).

Nonetheless, the up-until-now dominance of productive approach in academic discourse is challenged by the CA. This approach moves beyond the leveling view of education solely in economic concepts and terms (cf. productivity), incorporating into its framework individuality as well as the social and cultural characteristics of educational policies and features (Alkire, 2008, 2003; Burchardt και Vizard, 2011; Clark, 2005). The main concept of this approach is based on the assumption that education should be approached under the perspective of a set of interactions that develop relatively to human freedom and are translated in terms of human life enrichment . Therefore, the concepts of human capabilities or functioning's, as opposed to the value measurements of productivist approach, constitute the key elements of this approach.

Following CA, the total value of education can be defined as the sum of observable value (wages, exam results, certificates, schools etc.), of intrinsic value (individual achievements, autonomy, happiness etc.) as well as the value that is associated with the position (positional values) of a person (establishment of social relations, etc.). In this way, education is not related solely with the labor market, wages or productivity, but is being viewed as a central factor in a wider conceptual approach including the examination of social norms, social inequalities and individual freedom.

According to Sen (1997) human capital mainly refers to the agency of human beings, concerning their effort to accumulate knowledge and skills, in order to increase their production possibilities. On the other hand, human capabilities focus on the ability of human beings to obtain the way of living they have reasons to value, while at the same time it enhances the substantive choices they have. Each person is able to assess some situations given their social environment, specific economic conditions and other important factors. This valuation could be either direct (the functioning involved may directly enrich their life) or indirect (the functioning involved may contribute to further production, or command a price in



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the market). Both ways of valuation and assessment should be used to give us a more complete view of human capital. However, indirect valuation is used in practice to define human capital.

According to the above, CA could integrate the concept of human capital, incorporating both direct and indirect effects of human capabilities. In order to better understand this enhanced and more inclusive concept, let us consider the situation of evaluating the benefits of a person's education. Through a human capital perspective, the main benefits of education accruing to the person are increased productivity and higher wages. A human capabilities perspective would enrich these benefits by adding to them the ability of a person to read, to communicate, to choose in a more informed way and so on. As a result, this latter approach comprises all these aspects of education, which are being ignored by human capital theory.

Thus, these two approaches are closely related but distinct. During the last few years, the concept of human capital has been considerably transformed and expanded by putting humanity in the center of the most analyses, bringing it closer to the concept of human capabilities. According to Sen (year)? *“if a person can become more productive in making commodities through better education, better health, and so on, it is not unnatural to expect that she can also directly achieve more - and have the freedom to achieve more - in leading her life”*.

At the same time, an important distinguishing factor between these two approaches tends to be the general discussion of means and ends especially concerning economic growth, which is put in the center of the human capital approach. Human capabilities do not face economic growth as an end, but instead *“as a means of expanding human freedom to live the kind of lives that people have reason to value”*. As a result, economic growth should be treated as a part of the development process and not as its main objective. According to Robeyns (2006, 2005) human capital needs to be supplemented in order to extricate itself from the restrictive framework of resources. In this way human beings are not considered as means of the production process, but instead as the end of it.

Apart from economic growth, there are many other factors such as education, health etc. which affect freedom and happiness of human beings. Giving due importance to expanding capabilities, especially through social change, we can better understand the instrumental role





that both economic production and social development can perform. For example, something that is confirmed empirically is that an expansion of female participation in educational process, could decrease gender inequality, affect the rate of fertility, increase political participation and improve public dialogue. Without ignoring the concept of human capital (instrumental role of the education) or seeking an alternative approach, the approach of human capabilities can act cumulatively and complementarily, in such a way that their combination could provide a more comprehensive and broad approach to the subject.

Education through its complementary cumulative function, which is achieved by using the approach of human capabilities, must be addressed (in conjunction with other key factors that affect the state of the individual) as a crucial concept of individual freedom. Dreze and Sen (1996), argue that the above is accomplished through five distinct modes. *The first one* is related to the intrinsic importance of education, meaning that education is a valuable achievement for each individual, which can affect directly and effectively personal freedom. *The second way*, it is related to the personal instrumental role of education. Through education individuals can make many other things than just be considered educated, which in no way alters the value of the initial achievement. With the foundational support offered by knowledge, the person is able or at least has the opportunity to improve her position in the labor market or to exploit in the best possible manner the various economic opportunities that arise in professional or social area of activity. Thus, the desired functions that the individual seeks and to which attaches particular value are easier to be conquered since he is now in a more favorable position (increased income and general economic resources and means).

*The third way* is associated with the instrumental social role of education. The expansion of knowledge in society as a whole will result in an enhanced public debate on social needs and at the same time in creating a more informed basis upon which will be recorded, analyzed and claimed collective actions (e.g. creation welfare state). Members of society in this way will be able to expand the use of existing public goods and also their qualitative improvement and quantitative growth.

The instrumental procedural role *is the fourth way* in which education benefits the individual freedom. Educational process beyond its obvious role (knowledge transfer, etc.) can also be beneficial in a secondary level of individual freedom. A typical example is the socialization that occurs during the educational process. Students through interpersonal contact that



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occurs at school have the opportunity to expand their horizons or create friendships with other people (a valuable social support for the future). Another typical example of secondary influence that is part of instrumental procedural role is to combat the phenomenon of child labor. An enhanced educational structure surrounded strongly by social acceptance while being characterized by a sufficiently long period will be able to suppress similar phenomena of social backwardness.

*Finally*, the reinforcing and redistributive role of education regarding the enlargement and enrichment of individual freedom cannot be ignored. The importance of this role can be clearly seen in social groups that face problems of crowding out and abandonment by society. Disadvantaged groups using education and conquering ever-higher educational levels, increase their skills by creating better defenses referring to wider society that operates in an oppressive manner, in order to achieve a new fairer social contract. These disadvantaged groups are not the only ones that can benefit from the redistributive role of education. Specifically, we can mention intra-familial inequalities - distinctions which can be restored more effectively through education.

A more concise mechanism linking education with the expansion and strengthening of capabilities could be described via two main channels. At a first level, we could find enrichment of capabilities and opportunities and at a second level development of value judgment regarding the proper use of the capabilities. By emphasizing on these channels we can better understand the role that education exercises on each individual's potential and can also explore more thoroughly the concept of education in the wider context of CA (Saito, 2003).

The different ways of dealing with education through the two approaches and the different nature of their instrumental interpretative nature are found figuratively in the fundamental conceptual framework within which public policies and strategies of education are designed (Wigley and Akkoyunlu-Wigley, 2006). For example, the state, mainly because of the usual financial constraints that characterize it, might choose to allocate the resources of public education in a community whose members are able to complete not only basic education but also the subsequent stages, choosing at the same time to deprive these funds from social groups of lower economic or social status. The official reason for implementing that kind of policy could possibly be the belief that economic growth, resulting from the improvement or



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expansion of education being received only by a certain part of society, even characterized by economically and socially disadvantaged groups, will bring positive multiplier effects throughout the economy.

In this way, deprived individuals will benefit from these multiplier effects by improving their economic and social status, through either the improvement of their education or the prospect of its expansion (from primary to higher levels). On the opposite side of that kind of policy, the analytical framework of human capabilities is located, according to which this strategy defines a highly restrictive and unacceptable way to assess the value of education. This fact cannot guarantee by itself the value of education in terms of intrinsic dimension and role. Nonetheless, positive multiplier effects are clearly evaluated *prima facie* as important and beneficial, especially when their recipients are less privileged individuals. For example, establishment of compulsory education for all citizens or government concern that leads to improvement of educational structures and the general education system through systematic and increasing funding, will formulate citizens able to achieve the basic functions arising from the provision of education, offering significant advantages in a variety of topics. For example, individuals belonging to disadvantaged groups will be able to avoid unfavorable situations for them, by exploiting the inherent importance of education (better defense in legal matters which leads to a more objective function of justice administration mechanism, improved health conditions through possibly better and more efficient use of health system etc.).

Basic educational capabilities can essentially enhance the ability of individuals to avoid all possibly unfavorable and highly dangerous conditions associated with health, enabling them to achieve greater life expectancy and reducing infant mortality rates (mainly through education of women). Moreover, education can strengthen the spirit of collective responsibility, reflected through more active involvement in decision-making and thereby lead to a more democratic form of governance. Finally, remaining consistent in its regulatory spirit, CA constantly maintains a skeptical position on whether an income increase can lead to a general transformation of other key functionalities.

By placing the individual and his prosperity at the center of the research, CA emphasizes on the fact that each person should be able to meet the demands created by the fundamental needs (e.g. food, shelter, health care, etc.), in order to achieve prosperity and create the necessary conditions that would allow him to live the life he wishes (Anand et al., 2005;



Radja et al., 2003; Sen, 1999). This main position, justifies the gradual disengagement of classical economic thinking from per capita income as the most suitable and widely used measure of individual wellbeing. What is evaluated as most important by this approach is what can be achieved by the individual and not what can be gained. The key feature of this approach is humanistic rather than commodity, assuming that a higher income alone cannot ensure greater individual prosperity. Finally, individual wellbeing is approached in terms of individual functionings and capabilities.

## 2 Data

This paper is based on a rather extensive field work, since there are no official data referring to human capabilities in Greece. More specifically, a structured questionnaire comprising eight different sections ((a) demographics, (b) standard of living of the household (c) education (d) employment (e) entrepreneurship (f) migration (g) satisfaction levels (h) trust/ social capital) was addressed to the wider public through a telephone survey.

Telephone interviews were conducted during the period between 05/06 -15/07 2014 using infrastructure (software and the equipment) provided by the Research Institute of the University of Macedonia. Overall 1,956 questionnaires were correctly completed (following a rule of the minimum number of answered questions, which should have been more than half).

The sampling frame used was the Greekphones database ([www.greekphones.gr](http://www.greekphones.gr)), which contains more than 6,000,000 landline numbers and 2,000,000 mobiles. Although the availability of mobile numbers provides an excellent opportunity to access some highly desirable age groups (particularly younger ones), two major restrictions prevented us from using that information. The first restriction was that the questionnaire was prohibitively long (149 questions lasting around 22 minutes), while the second, was the lack of any geographic reference, which would force us to violate our sampling methodology.

In general, our sample of 2,000 questionnaires is sufficient for a confidence level of 95% and confidence interval of 2%. Concerning the method of sample selection, the chosen method is that of the "multistage sampling" in proportion of the population as in the 2011 census represent regional units in the first stage of stratification, and proportionate representation of the provinces of each regional section, in the second stage of stratification.



### 3 Rationale

Being one of the first studies attempting to investigate development through a capabilities perspective, it must be pointed out that our approach is highly exploratory. Unavoidably, this creates problems of operationalization and choice concerning the object of investigation. To overcome this difficulty we utilize Nussbaums's (2003, 2001) list of central human capabilities, along with an adaptation of the operationalization of capabilities provided by Anand et al. (2005).

Another significant issue regarding this research, is related to the relocation of one of the main capabilities (education) from dependent to independent variable. In her description of the basic capabilities, Nussbaum lists 'adequate education' as the main component of the 'senses, imagination and thought' capability. In this context, trying to determine the capability level through another capability is highly problematic, even though the list is supposed to be one 'of separate components... (A)ll are of central importance and all are distinct in quality' (Anand et al., 2005, p. 13). We overcome this difficulty by clearly separating the policy/institutional nature of education, as embodied in the actual level of education (UNESCO's International Standard Classification of Education - IESCED<sup>2</sup>) completed by interviewees. This permits us to evaluate the way in which formal education actually shapes the capability of people to think and reason. Of course, in statistical terms, we would expect the two variables (i.e. the formal level of education and the senses, imagination and though capability) to be highly however, not perfectly correlated. Particularly in educational systems that are rather rigid, such as the Greek system (Mitrakos et al., 2010; Psacharopoulos and Tassoulas, 2004; Tsakloglou and Cholezas, 2005), we would expect inequalities in access and quality (from the supply side) and differing impact on the freedoms of the individuals (the demand side).

### 4 Results

#### 4.1 Educational level and capabilities

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<sup>2</sup>ISCDE is comprised of 6 levels: 0: pre-primary, 1:primary, 2: lower secondary, 3: upper secondary, 4:post-secondary non-tertiary, 5: tertiary, and 6: post graduate.

ISCED levels 1-2 comprise the compulsory levels of education in Greece.



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In total, 24 questions of our survey correspond to eight of Nussbaum's capabilities. 'Life' and 'other species' were excluded. Most of the answers were given on a scale of 0-10, although in some cases scale changes to 0-3 and Yes/No type. **Table 1** illustrates all survey questions that correspond to Nussbaum's basic capabilities, followed by the type of their answer.

**Table 1:** Survey questions corresponding to Nussbaum's basic capabilities.

Nussbaum's Capability	Survey Question	Categories
<b>Bodily Health</b>	<i>How satisfied are you from your health, in general?</i>	0-10
	<i>How satisfied are you from your current accommodation?</i>	0-10
<b>Bodily Integrity</b>	<i>How safe do you feel in the area near your home?</i>	0-10
	<i>Have you ever been a victim of a violent assault or attack in the area near your home</i>	Y/N
	<i>How likely do you think it is that you will be a victim of a violent assault or attack in the future</i>	0-10
<b>Senses, Imagination, and Thought</b>	<i>Have you recently been using your imagination and (or) reasoning in your day to day life?</i>	0-3
	<i>How free do you feel to express your political views?</i>	0-10
	<i>How free do you feel to practice your religious duties?</i>	0-10
	<i>How free do you feel to claim things that you desire (have pleasurable experiences and to avoid non-beneficial pain)?</i>	0-10
<b>Emotions</b>	<i>How satisfied are you with your friendships?</i>	0-10
	<i>How satisfied are you with your family relations?</i>	0-10
	<i>Can you express strong feelings (love, grief, anger, etc) compared with the most people of your age?</i>	0-10
	<i>Have you recently lost much sleep over worry?</i>	0-3
	<i>Have you recently felt constantly under strain?</i>	0-3
<b>Practical Reason</b>	<i>Do you have a clear plan of how you would like your life to be?</i>	0-10
	<i>Outside work, do you feel that you can play a useful part in things?</i>	0-10
	<i>How often, do you feel that you have achieved your goals?</i>	0-10



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<b>Affiliation</b>	<i>How do you respect, value and appreciate other people?</i>	0-10
	<i>Have you recently been thinking of yourself as a worthless person?</i>	0-3
	<i>Have you ever experienced discrimination (because of your race, gender, religion, age etc)?</i>	Y/N
<b>Play</b>	<i>Have you recently been enjoying your recreational activities?</i>	0-3
<b>Control Over One's Environment</b>	<i>When seeking employment in the past, Have you ever experienced discrimination (because of your race, gender, religion, age etc)?</i>	Y/N
	<i>To what extent does your work make use of your skills and talents?</i>	0-10
	<i>Have you recently felt that you were playing a useful part in things?</i>	0-3

Source: Nussbaum (2003, 2001) and Authors' calculations.

A first descriptive analysis of the results referring to educational level<sup>3</sup> combined with Nussbaum's capabilities is given below, for each one of them separately. Moreover, some characteristic bar charts combining educational level with some particular questions are also illustrated in **Appendix 1**.

**Bodily health:** There is a 4,8% of the participants who are not at all satisfied (0-3) from their health level, while respondents with low educational level (0-2) seem not to be satisfied (0-3) from their health level followed by respondents with educational level 2. In addition, there seems to be a rather clear cut-off point between levels 2 and 3. Starting with level 0, there is a clear positive relationship between higher levels of satisfaction and education. This increasing trend seems to vanish at ISCED level 3, beyond which higher levels of satisfaction increase marginally. This is one of the few consistent patterns of education characterizing its impact on a number of variables.

**Bodily Integrity:** The number of respondents in our sample who were victims of a violent assault (14.9%) was very high. Furthermore, higher rates of violence victims seem to be at

<sup>3</sup>Due to the very small number of responses in ISCED category 0 (11 respondents), categories 0 and 1 were merged.



the lowest (0-2) and at the highest (5-6) educational levels. In general, being a victim of a violent assault does not seem to be related to the levels of education.

Surprisingly, only 5.8% of our sample believes that it is highly possible (9-10) to be victim of a violent assault in the future. This percentage moves up to 17.9% when the answer becomes simply possible to be a victim of an assault (8-10). Also in this case, there is no clear evidence that education is associated with high levels of a future violent assault perception. Finally, 7.9% of our sample does not feel safe (0-2). In general, high levels of insecurity (0 - 2) are associated with a lower educational level (mainly education levels 2, 0-1 and 3), while on the other hand there is no clear evidence that education is associated with high levels of security (9-10).

Senses, Imagination, and Thought: The freedom to exercise religious duties is generally very high, as only 1.2% of the sample feels restricted in exercising their religious duties (0 to 3 on the scale of 0 to 10). This might be due to the fact that, in terms of religion, Greece is a very homogenous country. People of the highest educational level (6) are also enjoying the highest levels of religious freedom (10).

Similar to religious freedom, freedom to express political views is also considerable, although smaller than religious freedom. Only a small percent of 5.8% feels unable to express its political views (0-3), whilst more than the half sample (53-69%) seems not to have any problem to express their political views. Regarding education, people with lower educational levels (0-2) feel to a greater extent completely free to express their political views (9-10), even though there is no real evidence that this freedom is directly associated with educational level.

Emotions: There is a very small percentage (3%) which is not satisfied from its friendships, and a very similar share of respondents not satisfied from the way they express their emotions (2.8%). In both cases Lower educational levels (0-2) are associated with low rates of high satisfaction (9-10) and high rates of low satisfaction (0-2).

Furthermore, a very small percentage (2.1%) is not satisfied from its family relations. There is a U shaped relationship between very high levels of satisfaction (10) from one's family relations and level of education. Lower educational levels (0-2) are associated with low rates of high satisfaction (9-10) and high rates of low satisfaction (0-2) from their family relations.





Moving on, 19.8% of our sample has lost sleep over worry lately, while the lower the educational level of a person the higher is the loss of sleep over worry much more than usual. Finally, a similar share (25% of our sample) has been feeling constantly under strain lately more than usual, while overall there is no clear evidence that educational level is associated with being under strain.

Practical Reason: 37.9% of our sample seems to have a clear plan (9-10) of how they want their life to be, 9.4% of our sample has been feeling that they play a useful part in things much more than usual and 6.4% of our sample has been feeling that they cannot play a useful part in things outside work. In none of these cases is there clear evidence that educational level is significant.

Affiliation: Rather high shares of our sample has experienced discrimination, either while searching for a job (17.9%), or in general (13.4%), while it is very impressive that higher educational levels seem to have also the highest rates of discrimination. This is maybe because they tend to be more sensitive than others on this issue. Moreover, 67.6% of our sample claimed that they respect, value and appreciate other people. In terms of self-respect, 4% of our sample has been thinking of themselves as worthless persons much more than usual. Both respect for others and self-respect is not substantially affected by education.

Play: 11.7% of our sample cannot enjoy recent activities at all, while there is no clear evidence that educational level is associated with enjoying recent activities.

Control Over One's Environment: Only 5.3% of our sample feels not to be able to make decisions for various things. The higher the educational level of a person, the higher the possibility to be able to make decisions much more than usual.

Moving on, 3.5% of our sample feels that they don't make use of their skills and talents at their work. People in lower educational levels (0-2) seem to think that they have the highest rates of full use of their skills and talents at their work (10).

After having illustrated a descriptive analysis in the first part of this section, as a next step a regression analysis was conducted to the overall data. The main idea of this regression analysis was to reveal some demographic parameters which probably affect the nine main human capability indicators, defined by Nussbaum (2011). **Table 2** shows the results of this



statistical analysis by illustrating the estimated coefficients with their standard errors and the statistical significance level. When looking at **Table 2** someone can draw some very important conclusions, which are presented below.

Firstly, education seems to be statistically significant with human capabilities' indicators, showing a positive relationship in all cases. This is completely consistent with our main hypothesis, that education can offer someone the ability to expand his capabilities. However, in our previous descriptive analysis there was no clear evidence that education is a significant parameter every time. This may be due to the fact that previous descriptive statistics illustrated the way in which answers to each question separately varied between different educational levels, whereas in the regression analysis we combine these individual questions in order to synthesize a complete indicator each time.

Furthermore, our empirical results suggest that unemployment is also statistically significant having a negative effect, regarding the ability of a person to laugh, to play or to enjoy recreational activities (*PLAY* indicator), which is another important point. This fact is also consistent with the previous theoretical analysis, because unemployment is a very difficult situation that in many cases prevents people from enjoying their daily activities. On the other hand, both education and income help him broad and enjoy everyday life and activities, conclusion which is drawn by the positive relationship of these two variables with *PLAY* indicator.

Lifelong learning in most of the cases is not a significant variable, but when it comes to the *Control over One's Environment* indicator it becomes statistically significant. This indicator contains the question concerning *the extent to which your work make use of your skills and talents* which may be broadly influenced by lifelong learning. Generally, the way in which Greece treats lifelong learning may be also another cause of its non-significance to our empirical analysis. Most of the time, lifelong learning is not treated as a way to expand someone's abilities but as a hidden unemployment benefit that may even not be in his interests.

Moving on to the role that space plays in the configuration of human capabilities, we used a dummy variable called *Region Dummy*, in order to control our datasets for the possibility of someone living in a large city (Athens or in Thessaloniki in our case). This variable, as



expectedly showed a statistically significance in the case of *Body Integrity* indicator, mainly because in large urban areas there are phenomena of high levels of violence.

Finally, in the case of *Control over one's environment* indicator a raise in educational level results in increasing its ability to control his environment, while at the same time this ability is decreased when someone is unemployed.



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**Table 2:** Ordered Probit Models for Capability Indicators.

Independent	Dependent							
	Bodily Health	Bodily Integrity	Senses, Imagination, and Thought	Emotions	Practical Reason	Affiliation	Play	Control Over One's Environment
<b>Sex</b>	0,036 (0,052)	-0,063 (0,054)	-0,044 (0,054)	-0,028 (0,054)	0,254 (0,053)	-0,024 (0,054)	-0,044 (0,058)	-0,085 (0,057)
<b>Age</b>	-0,01 (***) (0,001)	-0,007 (***) (0,001)	-0,0002 (0,001)	-0,004 (***) (0,001)	0,006 (***) (0,001)	0,0002 (0,001)	-0,001 (0,002)	-0,007 (***) (0,002)
<b>Unemployment</b>	-0,077 (0,080)	0,012 (0,082)	-0,089 (0,0827)	-0,178 (**) (0,084)	-0,254 (***) (0,079)	-0,117 (0,083)	-0,231 (***) (0,089)	-0,493 (***) (0,088)
<b>Region Dummy</b>	-0,066 (0,062)	-0,431 (***) (0,064)	-0,037 (0,064)	0,045 (0,063)	0,074 (0,063)	0,007 (0,064)	0,009 (0,068)	0,033 (0,067)
<b>Population</b>	-0,019 (*) (0,012)	-0,044 (***) (0,012)	-0,006 (0,012)	-0,021 (*) (0,012)	-0,046 (***) (0,012)	-0,003 (0,012)	-0,008 (0,013)	-0,014 (0,013)
<b>Income per person</b>	0,31 (***) (0,037)	0,177 (***) (0,039)	0,135 (***) (0,384)	0,217 (***) (0,038)	0,162 (***) (0,037)	0,057 (0,039)	0,085 (**) (0,041)	0,070 (*) (0,040)
<b>Education</b>	0,04 (*) (0,049)	0,063 (***) (0,020)	0,063 (***) (0,020)	0,061 (***) (0,020)	0,093 (***) (0,019)	0,075 (***) (0,020)	0,047 (**) (0,021)	0,047 (**) (0,021)
<b>Lifelong Learning</b>	-0,004 (0,059)	-0,048 (0,061)	0,030 (0,060)	-0,016 (0,060)	0,065 (0,059)	0,0003 (0,061)	0,067 (0,065)	0,276 (***) (0,063)
<b>Previous Victim</b>		-0,083 (0,0727)						
<b>Previous Discrimination</b>						-0,001 (0,076)		
<b>Job Discrimination</b>								0,094 (0,070)



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<b>Log likelihood</b>	-3889,03	-4335,53	-5688,69	-6486,84	-4789,88	-3863,17	-1725,79	-3393,88
<b>Observations</b>	1646	1558	1523	1508	1565	1544	1599	1453

Estimated standard errors in parentheses

\*\*\*, \*\*, \*, indicate statistical significance at the 1, 5 and 10 percent level, respectively



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## 4.2 A regional perspective on the relation between level of education, GDP and human capabilities

Trying to highlight the difference between human capital and human capabilities approaches, regional rankings of all Greek NUTS II and NUTS III regions were constructed. This section is based on a combination of secondary data selected from the Hellenic Statistical Authority considering GDP and average schooling years and data on human capabilities derived from our own survey.

A human capability index (HuCap) was calculated as a simple average of the total scores of all interviewees in each region. The regional level of analysis was chosen to be NUTS II and NUTS III.

In terms of GDP ranking, Athens (Attiki) comes first in both NUTS II (**Table 3**) and NUTS III (**Table 4**) rankings. However, the observable changes in the ranking order between GDP and average years of schooling are rather significant, although there is no clear pattern. In general, Athens constitutes in many ways the verification of human capital theory, since it has the highest levels of GDP, as well as the highest levels of formal education. At the same time, Athens is also a very indicative example of the problems arising if we try to equate growth with development, as it falls to the 12<sup>th</sup> place in the human capabilities ranking. On the contrary, island regions of Notio Aigaio, Ionia Nisia and Voreio Aigaio encompass the first places of the HuCap list. More specifically, Notio Aigaio does quite well in all three cases, while Ionia Nisia come second from the end regarding education.



**Table 3:** Contrasting measures of Regional Performance (gdp, average schooling years, Human capabilities), by NUTS 2 regions.

	Average Years of schooling	GDP (at current market prices NUTS 2 regions in purchasing power standard per inhabitant)	HuCap
1	Attiki	Attiki	Notio Aigaio
2	Kentriki Makedonia	Notio Aigaio	Ionia Nisia
3	Kriti	Dytiki Makedonia	Voreio Aigaio
4	Notio Aigaio	Ionia Nisia	Thessalia
5	Voreio Aigaio	Stereia Ellada	Dytiki Makedonia
6	Dytiki Makedonia	Kriti	An. Makedonia, Thraki
7	Dytiki Ellada	Peloponnisos	Ipeiros
8	Peloponnisos	Voreio Aigaio	Kentriki Makedonia
9	Thessalia	Kentriki Makedonia	Stereia Ellada
10	Stereia Ellada	Dytiki Ellada	Dytiki Ellada
11	Ipeiros	Thessalia	Peloponnisos
12	Ionia Nisia	An. Makedonia, Thraki	Attiki
13	An. Makedonia, Thraki	Ipeiros	Kriti

Source: Author's calculations

In many ways, NUTS II analysis conceals the wide differences which emerge when we move to a lower spatial level. When looking at the results of NUTS III level<sup>4</sup>, there are quite visible differences between the three ranking lists. When comparing GDP to education considerable differences arise, without altering the prevailing 'development map' of the country. On the contrary, this map is completely reshaped when moving from GDP to HuCap rankings, with the majority of the regions changing more than 10 positions.

<sup>4</sup> We should note that we included regions for which we had at least 20 replies. That gave us 26 of the 51 prefectures (NUTS III regions) of the country.



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**Table 4:** Contrasting measures of Regional Performance (gdp, average schooling years, Human capabilities), by NUTS 3 regions.

	average years	GDP	HuCap
1	Attiki	Korinthos	Kyklades
2	Thessaloniki	Kyklades	Karditsa
3	Xania	Attiki	Dwdekanisa
4	Axaia	Dwdekanisa	Magnisia
5	Dwdekanisa	Irakleio	Lesvos
6	Magnisia	Thessaloniki	Kozani
7	Ioannina	Magnisia	Kavala
8	Irakleio	Kozani	Larisa
9	Kozani	Fthiotida	Pella
10	Korinthos	Larisa	Aitoloakarnania
11	Larisa	Axaia	Pieria
12	Kavala	Xania	Euvoia
13	Fthiotida	Imathia	Trikala
14	Lesvos	Euvoia	Thessaloniki
15	Euvoia	Ioannina	Serres
16	Kyklades	Lesvos	Irakleio
17	Pieria	Xalkidiki	Xalkidiki
18	Messinia	Pieria	Axaia
19	Xalkidiki	Pella	Messinia
20	Imathia	Aitoloakarnania	Ileia
21	Pella	Kavala	Attiki
22	Ileia	Messinia	Ioannina
23	Serres	Trikala	Imathia
24	Trikala	Karditsa	Fthiotida
25	Aitoloakarnania	Serres	Korinthos
26	Karditsa	Ileia	Xania

Source: Author's calculations

## 5 Conclusions - Discussion

This paper constitutes a first attempt to investigate regional development through a capabilities perspective in the case of Greece. At the same time, it adds to a very interesting and growing literature referring to the role of education on the formation of human capabilities and thus, on the development process in a European country.



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Initially, in order to overcome the problem of operationalization and choice concerning the object of our study, we utilized Nussbaums's (2001; 2003) list of central human capabilities, along with an adaptation of the operationalization of capabilities provided by Anand et al. (2005). We consider Nussbaum's list to be a very satisfactory solution, although concerns are frequently expressed, regarding the fact that the notion of human capabilities must reluctantly be condensed into a list of generally applicable capabilities. In general, as the transition from the relatively abstract notions of Sen's capabilities to Nussbaum's list did not create enough complexity, care should be also taken when moving from the list, to an observable measure.

Using survey as the main tool for data selection, provides an opportunity to remain more 'faithful' to Sen and Nussbaum, by not assuming the capabilities through some functioning (which is often forced), but rather by directly asking people. Unfortunately, no option is risk free, as the questions are very often open to varying interpretations (which may be wider or narrower than originally intended, e.g. the notion of assault which may take a completely different meaning according to the respondent's social, cultural or educational background).

One of the main findings of our survey is that educational level is a significant indicator of the human capabilities of a region, as well as its welfare. A number of interesting points arise when taking a more detailed look on the descriptive data. Firstly, education seems to affect shaping of capabilities and welfare in a way that is far from linear. In general, there is a differentiation between capabilities, depending on the educational level where there is a breaking point, beyond which more education does not necessarily lead to higher scores in the respective human capability. In addition, there are cases where the impact of education is either U or reverse-U shaped.

Moving on to statistical analysis, the possibility of endogeneity issues (e.g. the level of education affecting the creation of a human capability, which at the same time affects the level of education), still remains as one of the main questions for future research. However, the econometric analysis performed in this paper highlights the level of education as perhaps the single most important explanatory factor in the shaping of human capabilities. Some other crucial factors are the level of income (although there are questions, that need to be answered when it comes to the issue of linearity), and in some cases the size of the city of



the interviewee. Not surprisingly, gender is statistically non-significant in all cases, as Greece is in general performing well in gender inequality issues (UNDP, 2014).

Another interesting finding, is the particularly limited significance of the outside the formal education system training, which is probably due to the fact that training in Greece is one of the forms of unemployment benefits. Furthermore, we showed that a previous experience of a negative nature (i.e. whether someone had been an assault victim, or a victim of discrimination) does not seem to be a good predictor of a person's attitude. This could be due to the social or institutional nature of attitudes, which are co-determined with personal/ psychological factors.

Moreover, economic geography recognizes the importance of agglomeration phenomenon, considering it to be beneficial for larger cities. This of course makes sense mostly in the cases of less developed countries, in which cities are places where people are more free to pursue their aims, providing both opportunities and protection. However, in a developed country, this role is considerably limited. Our research, does validate this statement, as the role of space appeared to have relatively low significance, concerning the population size and degree of urbanization in the determination of human capabilities.

Another interesting conclusion was that there was a considerable variation in the ranking of regions according to the level of human capabilities and average education in comparison to the standard classification of GDP per capita. This fact highlights the need for a more reliable way to measure or evaluate welfare and level of development than GDP. In general, the outlining of the factors shaping human capabilities in a developed country, does require a more systematic and comprehensive effort, that would enable us to better understand how territories shape and are in turn shaped, by human capabilities and education policies.

## Acknowledgements

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Research Funding Program: THALES. Investing in knowledge society through the European Social Fund (grant number MIS 380421).

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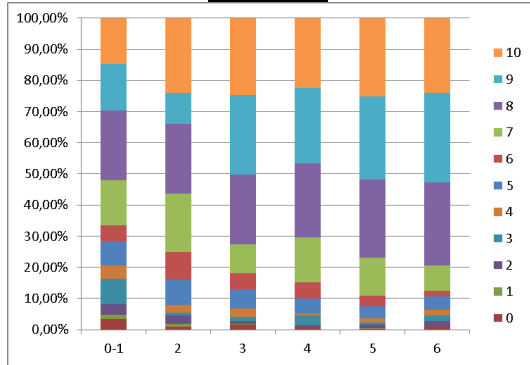
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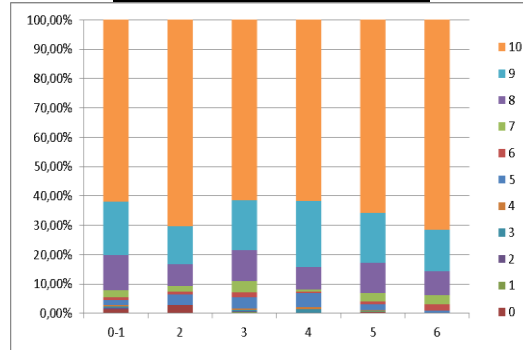
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## Appendix 1

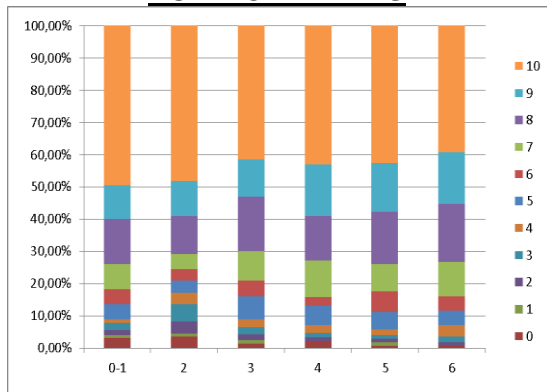
### HEALTH



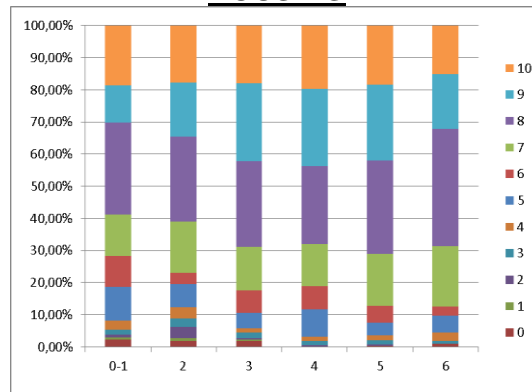
### RELIGIOUS FREEDOM



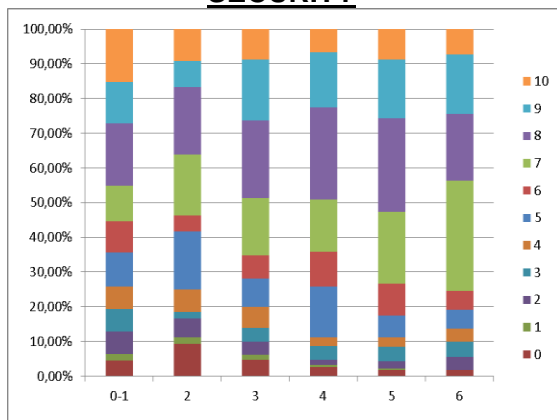
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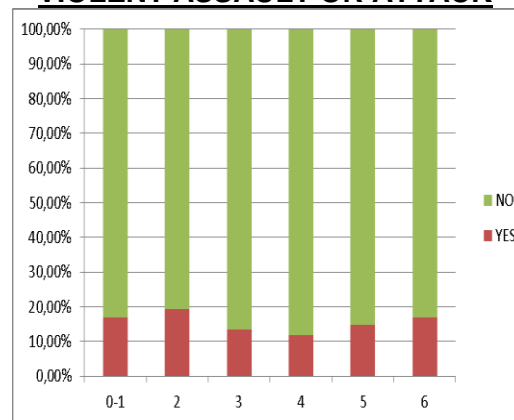
### HOUSING



### SECURITY

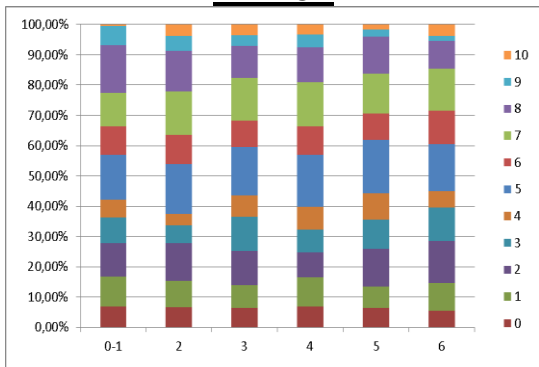


### VIOLENT ASSAULT OR ATTACK

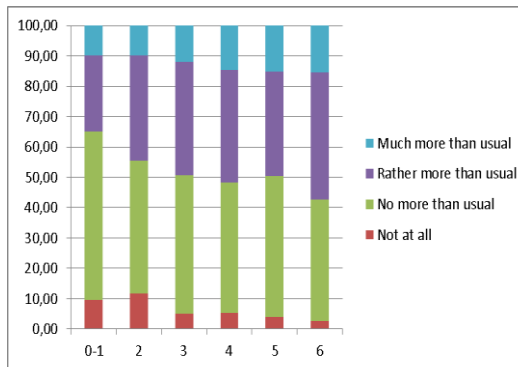


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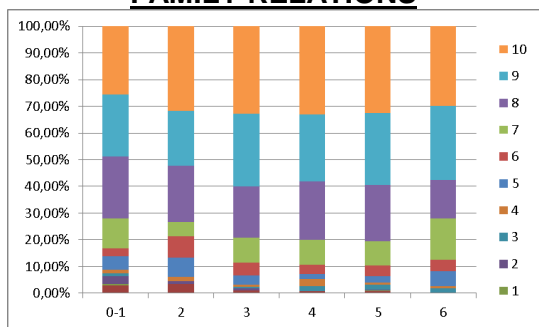
### FUTURE VIOLENT ASSAULT OR ATTACK



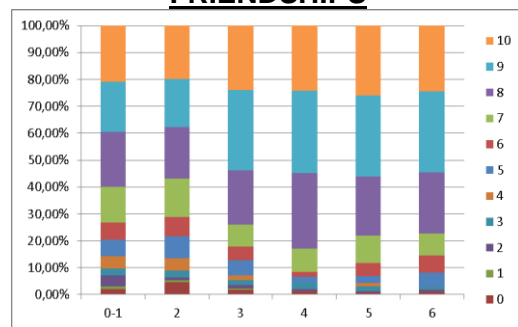
### CAPABLE TO MAKE DECISIONS



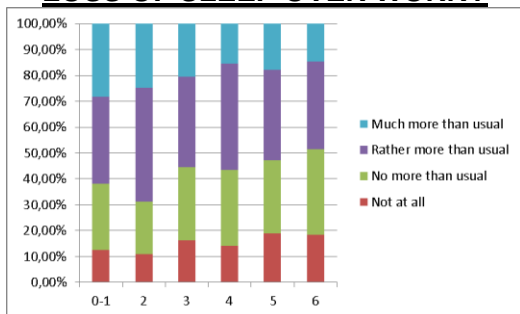
### FAMILY RELATIONS



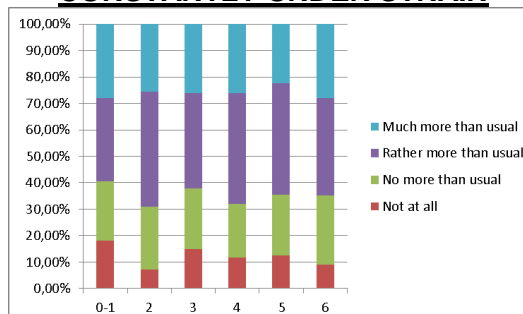
### FRIENDSHIPS



### LOSS OF SLEEP OVER WORRY

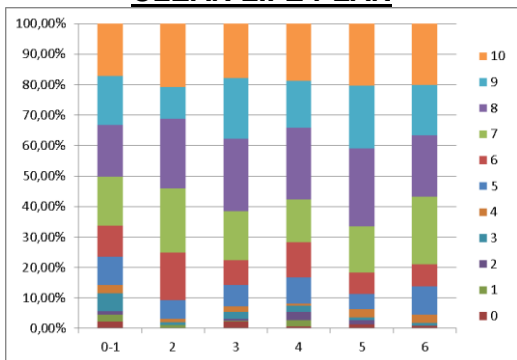


### CONSTANTLY UNDER STRAIN

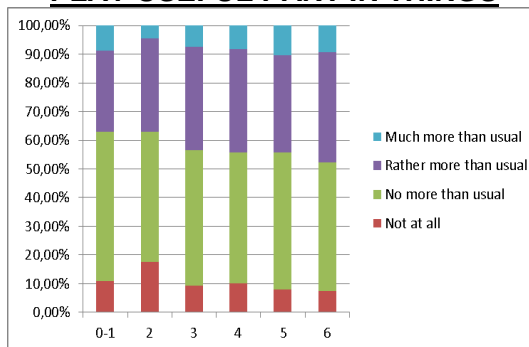


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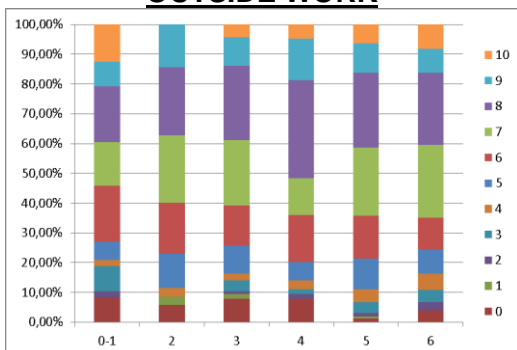
### CLEAR LIFE PLAN



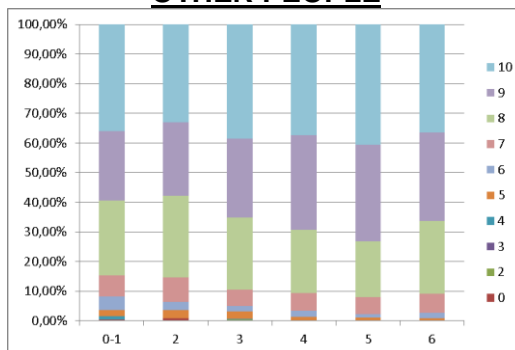
### PLAY USEFUL PART IN THINGS



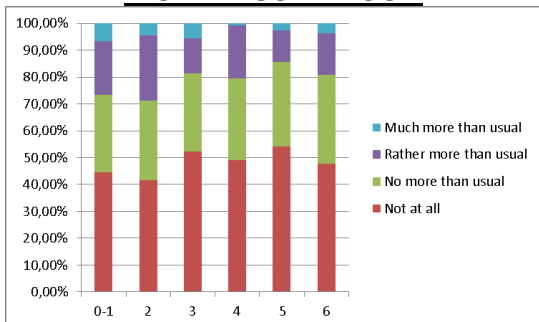
### PLAY USEFUL PART IN THINGS OUTSIDE WORK



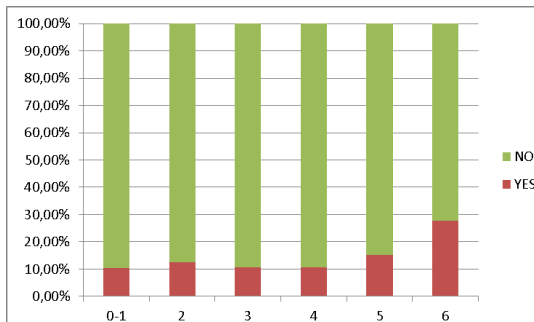
### RESPECT, VALUE AND APPRECIATE OTHER PEOPLE



### THINK OF YOURSELF AS A WORTHLESS PERSON



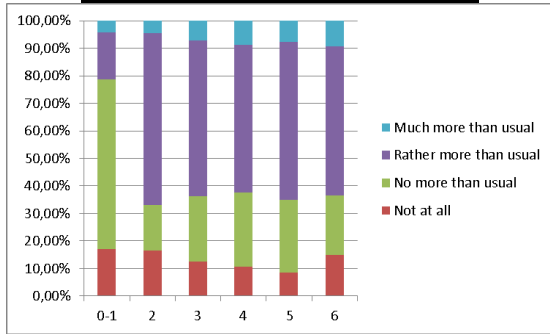
### DISCRIMINATION



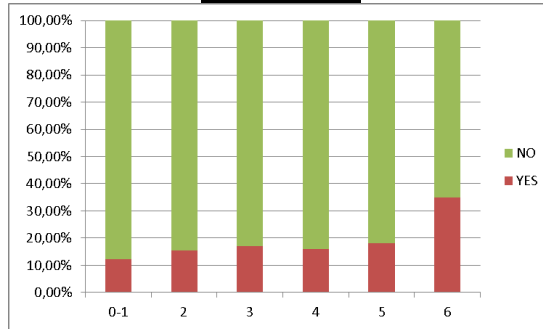
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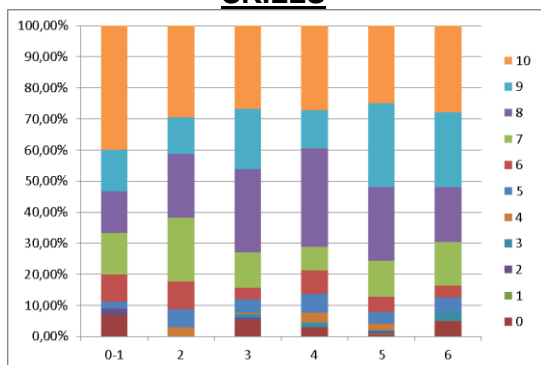
### ENJOY RECENT ACTIVITIES



### DISCRIMINATION WHEN SEARCHING FOR A JOB



### MAKE USE OF YOUR TALENTS AND SKILLS



ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ  
ΕΚΠΑΙΔΕΥΣΗ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗ  
*επένδυση στην κοινωνία της γνώσης*

ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ ΚΑΙ ΘΡΗΣΚΕΥΜΑΤΩΝ  
ΕΙΔΙΚΗ ΥΠΗΡΕΣΙΑ ΔΙΑΧΕΙΡΙΣΗΣ

Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

ΕΣΠΑ  
2007-2013  
*πρόγραμμα για την ανάπτυξη*  
ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ

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