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# The child poverty factor as a constraint in a model of overall welfare: The case of Greece

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## Ο παράγοντας της παιδικής φτώχειας ως περιορισμός σε ένα μοντέλο της συνολικής ευημερίας: Η περίπτωση της Ελλάδας

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### ABSTRACT

In this paper a specific, specialized and cumulative index is formulated, in a theoretical level, for the measurement of child poverty in Greece. This index is subsequently introduced in a general model of welfare as a constraint and its relation with social solidarity is examined. The creation of an exclusive and polyprismatic child poverty/welfare index is useful as it helps for a more reliable and exact measurement, in order to take effective policy-measures to address and reduce this phenomenon, which has taken gigantic magnitude in Greece.

### ΠΕΡΙΛΗΨΗ

Σε αυτό το άρθρο καταρτίζεται ένας συγκεκριμένος, εξειδικευμένος, συνολικός αθροιστικός δείκτης, για την ασφαλή μέτρηση της παιδικής φτώχειας στην Ελλάδα. Στη συνέχεια, ο δείκτης αυτός τίθεται ως περιορισμός σε ένα γενικό μοντέλο καταγραφής της συνολικής ευημερίας και διερευνάται η σχέση του με τη κοινωνική αλληλεγγύη. Η δημιουργία ενός αποκλειστικού και πολυπρισματικού δείκτη μέτρησης της παιδικής φτώχειας/ευημερίας, είναι χρήσιμη καθώς βοηθά στη πιο αξιόπιστη και ακριβή μέτρηση, προκειμένου να ληφθούν αποτελεσματικά μέτρα, που θα συμβάλουν στην αντιμετώπιση και στον περιορισμό αυτού του φαινομένου, που έχει λάβει γιγαντιαίες διαστάσεις στην Ελλάδα.

**KEY WORDS:** Child poverty, welfare index, quantitative methods, social solidarity, crisis, Greece, human welfare.

**ΛΕΞΕΙΣ-ΚΛΕΙΔΙΑ:** Παιδική φτώχεια, δείκτης ευημερίας, ποσοτικές μέθοδοι, κοινωνική αλληλεγγύη, κρίση, Ελλάδα, ανθρώπινη ευημερία.

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## 1. Introduction

A total cumulative measurement of child poverty is introduced, which is a novel approach and complements the existing studies. Child welfare or its opposite, child poverty plays an important role in expressing social welfare. This factor is set as a constraint of the integrated decision-making framework. However a quantitative estimate is not attempted since

the measurements require a big sample and a substantial budget, it was not possible to do a quantitative estimation and evaluation of this indicator.

The current economic climate, with negative effects on society as a whole, reflected, to a large extent, in the rapid increase of child poverty in Greece during the last decade. Existing methods of measurement are based on indirect estimates, mainly financials, as annual income (Corak, 2006) and consumption (Nikolaou, 2008). These methods are not able to capture the true multidimensional (Bradshaw, 2007b; Mitrakos, 2008) extent of child poverty. Hence an imperative need arises for a specific, specialized cumulative index for the measurement of child poverty in Greece. There exist some similar efforts, (Unicef, Bradshaw, 2007; Nikolaou, 2008) but not always cumulative or not always perfect because of the use of several variables. This approach will be closer to the type of child poverty developed in Greece and that the use of a few variables will be a convenient political tool. It is therefore important to clarify that the use of several variables in such tools makes them difficult to use them as tools of economic policy. (Bradshaw, J., 2007b:123-128). Few variables are selected that best describe this kind of child poverty developed in Greece during the years of crisis.

Until now an existing, widely accepted and used approach to record child poverty, is based on income. It is investigated when a household is living below the poverty line (Corak, 2006) and then considered if there are any children in the household<sup>1</sup>. In particular, when experts want to calculate child poverty, since there is still no widely accepted method, they look for poor households (based on income criteria) and then examine whether there are children (Nikolaou, 2008), living in the poor households (Wen-Hao Chen and Corak, 2008; Seccombe, 2000; Lewit, 1993; Mitrakos, 2008). This simplistic approach leads to false conclusions, because child poverty is influenced by other components (Corak, 2006), such as the residence living conditions, nutrition, legislation etc. (UNICEF, 2012; Bradshaw, 2007a, b), which are not possible to identify if income is used as the only criterion (Corak, 2006). The current methods used to record child poverty give the impression that child poverty and the overall poverty are identical and depend merely on the income (Nikolaou, 2008). This is completely inappropriate, as children are a subclass of population highly sensitive, requiring special treatment and protection, as publicized in the Convention on the Rights of the Child (Corak, 2006; Bradshaw, 2007b; Unicef, 2012). So it is easy to see that the widely used unilateral economic (income) dimension of child poverty is not sufficient.

So it is vital to create a specialized and easy-to use child poverty index which will provide researchers with immediate and reliable results, but will also be a useful tool for economic and social policy decision makers. The compilation of this indicator, can contribute to more effective and multifaceted (Mitrakos, 2008) approach to the phenomenon, in order to allow for a comprehensive and effective interventions and the successful formulation of social and economic policy. The index will encompass all those variables that affect child poverty in Greece, according to our own value judgment.

## **2. Variables included in the child poverty index**

### ***2.1 The definition of the variables***

**G**iven the sub-indicators used by Unicef<sup>2</sup> (De Neubourg et al, 2012; UNICEF, 2013) to determine the child poverty, those that best reflect the type of child poverty index developed in Greece due to the crisis years (this work took place in 2012 -2014) are selected. Other variables, are

also included according to our own judgement. For example, the variable of whether or not exists an "internal toilet" in the house, which in Africa for example is important, but in Greece whether or not "electricity" exists, matters more than the existence of the toilet, because all houses have indoor toilet, but a lot of households have a great difficulty to pay the "electricity bills". Therefore in this paper some criteria are considered as "reduced significance" when they do not reflect the kind of child poverty, which appeared in Greece and therefore they are not included in the index.

The variables which are not considered by Unicef (UNICEF, 2013) and added in are: to provide or not electricity the method of heating and the possibility of free access to health services throughout the lifetime of the child. This paper can certainly be considered as a proposal to the competent bodies when measuring child poverty, to include these three variables.

It must be clear that the included variables depend on our own judgement (i.e. someone can also consider variables such as: the "child participation" in the school process when the percentage of not participating in formal education, in our country reaches 13%, or the "presence of both parents" in the household). The child poverty index (CPI) is in aggregated form and the weights (based on the experts and our own value judgement) depend on the position of each variable. Each variable takes either the values one or zero. Finally the index has the following format:

$$(CPI) \Rightarrow F(x) = x_1 + x_2 + x_3 + x_4 + x_5 + x_6 + x_7 + x_8 + x_9 + x_{10} \geq 0$$

While the variables included are the following:

1. Electricity provision
2. Heating mode
3. Possibility of free access to health services
4. Leaking roof, damp in the floor / walls / foundation, rotten windows,
5. Three meals a day.
6. At least one meal a day with meat, chicken or fish (or vegetables equal nutritional value).
7. Fresh fruits and vegetables every day.
8. A link to the internet.
9. Violence
10. Unemployment: Percentage of children living in jobless households.

The variables are taken from Unicef which groups them somehow in the following categories: Child Deprivation Index Material deprivation (low family abundance), Health and Safety, Participation in pre-school education, school performance, behaviours and risks, Dangerous behaviour, violence, housing - Environment, Multiple housing problems. For example, the variable  $x_7$  is included in the category "Childhood Deprivation", the variable  $x_4$  is included in the category "Multiple housing problems" (UNICEF, 2013: 11-38). These variables can be incorporated in the proposed index.

The form and values of these variables are:

- $x_1$ : Electricity  $x_1 = 0$ . / No electricity  $x_1 = 1$ .
- $x_2$ : Safe heating  $x_2 = 0$ . / Unsafe heating  $x_2 = 1$ .
- $x_3$ : Free health  $x_3 = 0$ . / No free health  $x_3 = 1$ .
- $x_4$ : Without humidity  $x_4 = 0$ . / With humidity  $x_4 = 1$ .
- $x_5$ : Three meals a day  $x_5 = 0$ . / Less than three meals  $x_5 = 1$ .
- $x_6$ : A daily meal given the nutritional value  $x_6 = 0$ . / Without the daily meal given the nutritional value  $x_6 = 1$ .

$x_7$ : With fruits and vegetables each day  $x_7 = 0$ . / Without fruits and vegetables each day  $x_7 = 1$ .

$x_8$ : With internet  $x_8 = 0$ . / Offline  $x_8 = 1$ .

$x_9$ : No violence  $x_9 = 0$ . / With violence  $x_9 = 1$ .

$x_{10}$ : Working  $x_{10} = 0$ . / Unemployment  $x_{10} = 1$

If the overall result equals zero, then there is no child poverty (all variables are zero). The index consists of ten variables so there are  $2^{10} = 1024$  different situations - shades of child poverty. The shades of child poverty, can be expressed in various colours. Therefore a country, region or municipality can have different colours according to the index and take the appropriate measures. While the weights depend on the position of each variable. Further to the right the greater the significance of the variable. The overall sum as well as the position of the variable have their own merit in the final result. The selection of the weights is based on: UNICEF (UNICEF, 2013: 11-38) and on our own judgement.

True, the hierarchical arrangement of several variables is a subjective undertaking. This issue, however, can be addressed once we accept Scitovsky and Little's views on the unavoidability of ethical judgments in economic welfare scientific field. Recall, specifically, that Scitovsky argues that economists ought to make value judgments (Scitovsky, 1951: 315); and for his part, Little observes that the denial of such judgments has created a great deal of confusion in economic theory (Little, 1949: 244).

For example:

A)

$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$X_6$	$X_7$	$X_8$	$X_9$	$X_{10}$
0	0	0	1	1	1	1	1	1	0

Then  $F(x_0) = 6$

B)

$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$X_6$	$X_7$	$X_8$	$X_9$	$X_{10}$
1	1	1	0	0	0	1	1	1	0

Then  $F(x_B) = 6$

But the «6» in the A case is different than «6» in the B case. In A case, six is worse, because the one in the fifth variable is worse than the one in the first variable (The assessment is done the same way as the calculation of a decimal system of a binary number. The «positions» of the figures are more important when they are on the right). In the same way, through value judgments weights could be assigned in some of the ten variables i.e. «without safe heating» is  $x_2 = 3$  (third position) rather  $x_2 = 1$ .

Therefore the total cumulative index includes variables from Unicef (UNICEF, 2013) but also additional variables in the category of housing problems, as “electricity” and “heating mode”. In the health insurance category, the possibility of free access to health services for a child's lifetime is also included as a variable. Those variables are not so far taken into account. This paper focus on variables that affect most negatively the welfare of children. Eventually the measurement of child poverty through a specialized and exclusive indicator, based not only on income, helps economic and social policy decision makers to adopt mitigation measures.

## 2.2 Child poverty: The constraints

child poverty is bound between two extreme situations: A) When all the conditions describing the child poverty are applicable, i.e. when all parameters are equal to one, the worst situation. B) When all the conditions described do not apply, i.e. all parameters are equal to zero.

Any general model describing overall welfare, correctly attributes the welfare when child poverty is between the two:

$$(3rd\ Restriction) \Rightarrow 0000000000 \leq \text{Child Poverty} \leq 1111100000$$

This constrain refers to a child and does not describe the whole sample. In the same analogical manner, the above limitation applies to the entire sample. The restriction is the mildest one imposed on any overall welfare model. The last five variables are set to 0, which means that these variables are not forced to be active. A stricter upper bound would require the last five variables to be 1. Hence ten criteria are used for child poverty, with increasing importance as from left to right. Child poverty is therefore a restriction of a welfare function, which will be explored in a future study, based on primary data collected.

## 2.3 The relationship of child poverty with social solidarity

### 2.3.1 What is social solidarity

An important parameter of social welfare is social solidarity. The term “social solidarity” in this paper refers to “social cohesion” as defined by the German Research Institute Bertelsmann. In this paper the term social cohesion and solidarity are taken as synonymous. (In fact it is not always identical and social solidarity is part (sub index) of the social cohesion). More specifically, the social solidarity is: *“The result of the attitude and behaviour of people in a given society and is characterized by persistent relationships and emotional connection between members of the society as well as a strong focus on public interest.”* (Bertelsmann, Eurofound, 2014: 6) There are of course other definitions of social cohesion as the one of Easterly (2006) but the definition of the Bertelsmann Institute is deliberately taken into account as it best describes the possible absence of social solidarity in Greece in the years of crisis. In fact, all definitions resemble and complement to each other. For example, trust in institutions is considered paramount in all of social cohesion approaches. But the definition is taken into account in this paper is more general and therefore more easy-to-use.

The importance of social cohesion, as defined by the Bertelsmann Institute plays a key role in a country's effort to overcome a financial shock, this finding is very significant for Greece in the light of the current situation. Countries with a higher level of social cohesion are also rich countries (higher per capita GDP) have the benefit of low unemployment rates. However, economic growth does not necessarily lead to greater social cohesion, but social cohesion is crucial for a country to overcome an economic shock. (Dheret, 2015: 3-4).

On the other hand, social development does not depend on economic growth only but includes social, cultural and political attainments that can be achieved by improving social cohesion. (Vavouras and Syrmeli, M, 2015: 12-14)

### 2.3.2 Connection of child poverty with social solidarity

Social solidarity is a “glue factor” because it is directly linked to other parameters of welfare and makes them interact. In this paper the relationship of the child poverty with the moral education is illustrated. (On the concept of moral education and the quantitative contribution to welfare, see: Tasopoulos and Leriou, 2014: 595-608). It is of course worth noting that in this paper a simple descriptive relationship of these variables is introduced.

The causal relationship between child poverty and social cohesion is bidirectional. Therefore child poverty can lead to a lack of social cohesion and thereby ultimately to further intensity of the crisis in the sense of economic shock elimination. Dheret in his analysis (Dheret, 2015: 9-10) refers to the whole of Europe and does not mention child poverty. In this paper the procedures have been adapted to the current Greek situation and refer to child poverty in order to show the relative child poverty through the appropriate channels offered by the Dheret approach. In the modern Greek reality then can say that: “austerity policies have brought cuts to public spending, which in a degree are responsible (with other factors as well) for the enormous increase of child poverty. Deprivation experienced by Greek children combined with young people’s unemployment as well as the unemployment which many children will experience in a few years (today are in a deprivation status due to short ability obtained), create a gap between the new and the old generation. The state’s cuts of public spending have more affected negatively children and young people than the older, resulting to the waste of a whole new generation. If the demographic problem is also linked up, because of the aging population, which already exists and will be further intensified in the coming years and considering the small percentage of working people who must support a large number of inactive people, the price for the previous generation retirement pensions will be paid by this generation who today are either unemployed or experiencing child poverty. Thus the new generation comes to pay the price of both the crisis and spending cuts and the demographic problem. This imbalance between the generations will eventually lead to a rupture. It is currently developed in young people the feeling that they are paying disproportionately for these two events without being supported to some extent by the older generation. This in turn will lead to the disruption of solidarity between generations and the lack of informal support within the family which is the core of social cohesion” (Dheret, 2015: 9-10). If this happens then and social cohesion in a country will be lost.

It is previously analysed how child poverty leads to lack of social cohesion, causal relation of the two variables, will be examined. To be more specific, the lack of solidarity or social cohesion leads to children poverty. For example when there is strong solidarity between the members of a society, then everyone has to count on someone in an emergency. *Social cohesion in the neighbourhood is important for families living in poverty as it improves the welfare of families with low income* (Brisson, 2012: 268-279). So it could be argued to some extent that the presence of child poverty is accompanied by a lack of social solidarity. Or else the lack of social solidarity leads to child poverty.

The feeling of supporting our fellow man can only develop through the means of moral education. Therefore that education that is based not only on developing skills<sup>3</sup> but on the cultivation of moral education (Tasopoulos and Leriou, 2014: 595-608) is the education which will lead to the developing of social solidarity. We ought to teach how we should be better human. Moral education therefore serves as the means to develop social solidarity eliminate child poverty and possibly overcome the economic shock. These three parameters or determinants of welfare are related and interact with each other.

## 2.4 *The relationship of child poverty with unemployment*

The relationship of the child poverty with the issue of solidarity has been previously described, in order to show how: the lack of solidarity leads to child poverty, the appearance of child poverty indicates the lack of social solidarity and the lack of solidarity leads to the upsurge of childhood poverty and not to its restraint. This section will show how unemployment leads to child poverty and how child poverty leads to unemployment. This relationship takes place in a simple descriptive manner again.

The direction of this relationship is in fact evident: unemployment ends up to poverty. Unemployment is the cause and the causal is poverty. But the apparent direction of causality may be reversed especially when it relates to child poverty and child poverty is the cause and effect the unemployment. Therefore is not only the unemployment that causes poverty, but poverty itself (child poverty) because of low skills leads in precarious or low-paid work and unemployment. As unemployment generally means the participation in working life and the labour market. If someone never managed to find a job is not counted as unemployed. But as unemployed are recorded those who had work, they lost and are now looking anxiously for a new job. If they are disappointed and quit the intense struggle for a new job they are once more not counted as unemployed. Therefore the impact of child poverty in future unemployment is realized as an impact on future socio - economic status.

Therefore through the relationship of causality the relationship between child poverty and unemployment can be described. Restraining and tackling child poverty today means through causal relationship and restriction of future unemployment.

## 3. Discussion

**E**xamining the overall welfare, the child welfare or the opposite of, the child poverty should be included. The children welfare is a parameter of overall welfare, that is of the social welfare. In this paper child poverty has been considered on any model describing overall welfare.

This index is not based on many variables, but only a few key variables, represent the particular type of child poverty created in Greece during the years of crisis. This makes it a convenient tool for economic and social policy decision makers, as opposed to an index that includes many non-related to the Greek problem, variables. This paper accepts the judgments and considers that the weights on these variables are provided by the economic and social policy bodies depending on the location in which to place the identity of the index of child poverty. When the index includes ten variables, there are 1,024 shades of child poverty. Of course for another country depending on the type of child poverty they deal of, experts can introduce different variables. For example if you go to examine child poverty in Africa, the shortage of drinking water should be one of these ten variables and because of the position a high score of weight is assigned. In the same way the remaining nine variables, should be included respectively. In this paper a tool is introduced, in which both, variables and the respective weights are included, left to subjective judgment of public policy decision makers. Of course this is done under the assumption that it is usually different kinds of child poverty presented in different countries or continents, therefore, there are not comparable and different tackling is preferred in each case. (E.g. Just like any other medicine you give for migraine and other for the disease even though correlated both with head ache.)



Therefore a different treatment will be preferred for the problem in Greece than the one that will be preferred in Africa, even though they are both related to the problem of child poverty. If we do not measure and record it properly, we will not be able to give the appropriate treatment. So it is imperative of the implementation of such a tool in Greece.

This is a new indicator, because even though it is a logical continuation of existing surveys, the assignment in the framework and the needs of the Greek reality is in itself unique. Another index originality is the proposal for classification of child poverty and the 1024 shades. Since there are not sufficient studies in our country on child poverty, despite the huge dimensions that the problem has taken in Greece, any research made towards this direction helps scientists to realize the size of the child poverty problem. Also, the configuration of this factor as a constraint of the overall welfare addressed in this paper is entirely new. Additionally, the expression itself (identity) of that constraint and its rationale is significant. Even the mere idea of the inclusion of child welfare in the overall welfare is a new one.

## 4. Conclusions

The paper contribution can be summarized:

The creation of a specialized and aggregative index in order to completely capture the size of the child poverty. An easy-to use child poverty index which will provide researchers with immediate and reliable results but also will be a useful tool for decision makers of economic and social policy. The proposed measurement of the child poverty involves other factors besides income, such as nutrition, legislation, living conditions, residence etc.. Also it highlights the factors that are the most fundamental for the formation of child poverty index in the Attica region which, represents the whole country of Greece. There is also a demonstration of the shades of child poverty and of the fact that child poverty index depends also on the characteristics of each country. This paper highlights the way child poverty is incorporated (or its opposite child well-being) in overall welfare and highlights also the relationship of child poverty with social solidarity and unemployment. More specifically, child poverty lead us to absence of social cohesion or social solidarity and the absence of social solidarity lead us back to child poverty.

This paper addresses the problem of composing a child's poverty factor which can be used as a constraint in a model of overall welfare. The results are that the current economic climate brings about the rapid increase of child poverty in Greece. Existing methods of measurement are based on indirect estimates mainly financials as annual income and consumption. Therefore they are not able to capture the true multidimensional extent of child poverty. The one-dimensional approach of child poverty based on the income only is widely used but is ambiguous. In the overall measure of child poverty, this paper considers the variables that affect most negatively the children's welfare in Greece. Eventually the measurement of child poverty through an indicator, which approaches the phenomenon not only of income, helps decision makers of economic or social policy mitigation measures.

There are 1024 different shades of child poverty, when ten dimensions of child poverty are presumed according to the weights set. It is for the decision-makers to put these weights according to their own judgments expressing the central planning of the government. These dimensions show us that child poverty differs amongst countries. For example if the variable "having enough water" is set, this will be of major importance in Africa and of less importance

in Greece, because in Greece the problem is not the existence of water but other variables describing the child poverty. Child poverty lead us to absence of social cohesion or social solidarity and the absence of social solidarity lead us back to child poverty. Different policies must be use in Africa than the ones used in Greece, to reduce child poverty. If we implement the same measures in Greece and Africa - considering that child poverty is the same everywhere - then we will not succeed in the eradication of the child poverty. It is important to understand that there are different kinds of child poverty for which different economic and social policies must be put forth to address them. Ten criteria are used for child poverty, with increasing importance from left to right.

This paper can go further provided the necessary funds and apply the index in the region of Attica, Greece, in order to obtain quantitative results of the index.

## 6. Notes

1. The child poverty rates published in our country have emerged in this way.
2. As part of UNICEF's on-going efforts to create qualitative assessments on child poverty and disparities, the Analysis Multi Coating Deprivation (MODA) is a tool developed by the UNICEF's research agency, with the support of the Directorate of Policy and Strategy to strengthen the focus on equality of child poverty and deprivation analysis worldwide. The «MODA» takes a holistic approach to child welfare, focusing on the access to various goods and services that are vital for the survival and development. It recognizes that the experience of a child in deprivation is multifaceted and interrelated and that multiple overlapping deprivations are more likely to occur with more adverse effects, the most socio-economically disadvantaged groups. (De Neubourg, C., Chai, J., De Milliano, M., Plavgo, I., and Wei, Z., 2012, *Paper 2012-05*)
3. So far in existing models the correlation between education and social cohesion, is formulated in order to reveal how education affects social cohesion is via the skills or qualifications, namely literacy skill which OECD also uses. Then is investigated how the unequal distribution of the literacy skill associated with inequality in income distribution and the social cohesion and eventually conclude that what social cohesion is particularly sensitive to the effects of these distributions. See: Green, A. & Preston, J. (2001). "Education and Social Cohesion: Recentering the Debate", *Peabody Journal of Education*, Vol. 76: No. 3/4, Global Issues in Education, pp. 247-284 (pages 263-276). However the role of ethics is generally recognized, in social cohesion. See: Heuser, B., L. (2005), "The Ethics of Social Cohesion", *Peabody Journal of Education*, Vol. 80: No. 4, Organizations and Social Cohesions, pp. 8-15. Therefore it is understood that until today it has not been investigated how the moral education, affects associated with social solidarity.

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## Biographical Note

Dr **Eirini Leriou** is the Scientific Coordinator, Principal Investigator and the Project Manager of the Project "C.W.-SMILE". She was an Adjunct Lecturer (through ESPA in Greek) at the Faculty of Economics and Public Administration /Department of Economic and Regional Development of Panteion University of Social and Political Sciences, aPostdoctoral Researcher at the Faculty of Economics and Administration / Department of Public Administration of Panteion University, a Tutor at the Faculty of Social Sciences / Master in Business Administration (MBA) of Hellenic Open University, an Adjunct Lecturer (through ESPA in Greek) at Piraeus University of Applied Sciences and a Tutor at Neapolis University Pafos (NUP). She holds a Ph.D. degree in decision making on well-being issues (with scholarship). Her research interests lie in the areas of the quality of life, well-being, quantitative methods, models training, indexes training, foreign trade and economic policy. Dr Leriou has nearly seven years of teaching experience in higher education (at both undergraduate and postgraduate level). More specific (Mathematical Economics, Information Systems, Welfare Indexes in Regional Development, Advanced Quantitative Methods for Managers, Economic Development and Human Well-Being, Microeconomics, Financial Management for the Public Sector - Welfare Economics). She also supervised a Ph.D. student at Bolton University of England in collaboration with New York College. She is reviewer and editor of international journals and a member of International Society for Quality of Life Studies (ISQOLS).