



An EST Approach on the Influence of the Economic Crisis on Greek Adolescent Students' Academic Achievement

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Abstract

The enduring economic crisis across several countries has sparked a growing amount of research regarding its potential impact on various aspects of life, including adolescent academic achievement. However, there is not enough empirical evidence regarding the impact of a national-level economic crisis as a potentially traumatic experience on student populations (Bronfenbrenner, 2005; Elder, 1996). This study uses ecological systems theory (EST) as a consistent theoretical framework in order to explore the influence of both distal and proximal factors on students' academic achievement. The aim of the study is to show that the economic crisis deeply affects adolescents' academic performance in multiple ways and especially with regards to the distal factor of their home socio-economic status. Specifically, the current study is a person-process-context-time (PPCT) ecological systems model: a study using cross-sectional data from the 2009, 2012 and 2015 cohorts of about 3,000 15-year-old Greek students tested through the Program for International Student Assessment (PISA). The results indicate that student performance is not only significantly affected by family Socioeconomic standards, but also that across the three years of testing the economic crisis was a key moderating factor; therefore, it is a significant risk factor for student and teacher performance as well as class environment.

Keywords: academic achievement, ecological systems theory, economic crisis, risk factors, school policy

1. Introduction

The biggest economic and financial crisis of the 21st century to date, also referred to as the Great Recession [1] was sparked in 2007 in the USA and resulted in a dramatic drop of national Gross Domestic Product (GDP), high unemployment levels and significant reductions in their populations' income per capita around the world [2]. Despite the fact that the Great Recession is reported as having ended in the early 2010s in several sources [1], it can be validly said that it is still ongoing, if not globally, certainly in large parts of the world, and definitely in Europe and within EU and Eurozone countries such as Spain and Greece [3][4]. Specifically, the impact of the Great Recession in Greece has been severe in several aspects of everyday life, across most dimensions of its social capital (i.e. the social relationships between social groups and populations) and all categories of welfare and status of its population [3]. It has been referred to in several studies as the worst hit country by the Great Recession, with its GDP dropping from 354.46 billion USD in 2008 to 194.85 billion USD in 2015, marking an overall decrease of 45.03% [3][5][6]. The aim of this paper is to show that this economic crisis deeply affects adolescents' academic performance in multiple ways.

The education system in Greece is under the strain of budget cuts and resource restriction due to the financial crisis. Government spending on education has been reduced as much as 20%. Additionally, schools have been merged or shut to cut costs, funding for equipment and special programs for support for special needs has been all but cancelled [8][9][10]. The OECD report on Education Indicators for 2013 (states that teacher salaries were significantly curtailed in Greece decreasing to 2008 wage levels. This phenomenon was also recorded in about half of OECD countries affected by the Great Recession. The report underlines that cutbacks in the remuneration of teachers affect the overall quality of education and the performance of students [9]. It is also mentioned that for those countries (Greece included) that saw severe cutbacks in their teachers' salaries, there will be no capacity in the following years after 2013 for further financial support for teacher salaries to recover to proper levels commensurate to an acceptable standard of living in Greece.

In such an adverse environment, parents of students find themselves struggling more and more to provide access to goods and services regarding education among other things. In particular, there have been indications that social class differences are becoming more pronounced within the school

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environment among students while teachers are increasingly perceiving that the school environment fails to provide equal opportunities in times of such acute economic crisis [10][11].

The current study is a person-process-context-time (PPCT) Ecological Systems Theory (EST) model that explores the effect of the Great Recession on students' home Socio-Economic Status (SES) and its impact on students' academic performance. According to EST, the individual develops through interactions with his/her environment that become progressively more complex and reciprocal between the individual and the various ecological systems, and thus human development takes place. The regular interactions of an individual with his/her environment over extended periods of time are called *proximal processes* [12]. Affecting the proximal processes are the *distal processes*, elements that influence the experience of the individual's proximal processes, such as culture, administrative rules and regulations in education and community services [12][13]. The present study explores cross-sectional data from the 2009, 2012 and 2015 cohorts of 15-year-old Greek students that were sampled and surveyed by the PISA program. It is hypothesized that the Great Recession will significantly affect the students' home SES on their academic performance.

2. Method and Results

2.1 Participants and Materials

The present study explores cross-sectional data from the 2009, 2012 and 2015 cohorts of 3403, 3334 and 3710 15-year-old Greek students that were sampled and surveyed by the PISA program.

The analysis was done via a mediation-moderation model. To explore the structure of the hypothesized mediation of the effect of students' home SES on students' performance as these are moderated by time, structural equation modeling (SEM) was selected as the methodology of statistical analysis [14].

2.2. Results

A chi-square difference test ($\Delta\chi^2$), using a multigroup solution was performed to examine the effect of the moderator (i.e. Time).

The chi-square of the unconstrained model was $cmin=1558.730(360)$. The Chi-square of the constrained model was $cmin=1604.911(362)$. The chi-square difference test was: $\Delta\chi^2=(1604.911-1558.730)=46.181(2)$, $p\leq.001$. We reject the null hypothesis of no difference between the SES \rightarrow PER path across the three years (omnibus test).

For the same structural path, for years 2012 and 2015, the chi-square difference test was: $\Delta\chi^2=(1576.185-1558.730)=17.455(1)$, $p\leq.001$. We similarly reject the null hypothesis of no difference in the SES \rightarrow PER path between years 2012 and 2015.

3. Discussion

The current study investigated cross-sectional data from the 2009, 2012 and 2015 cohorts of 15-year-old Greek students sampled by the PISA program. The impact of the students' SES on their academic performance was explored by applying structural equation modelling. It was demonstrated that there is a significant effect of the Great Recession on the school-based proximal processes of 15-year old Greek students, as well as on the distal process of students' home SES. Consequently, the effect of the economic crisis on students' performance is confirmed [3][4][5][6][9][10].

Specifically, across the three years that were examined, students' home SES was consistently found to exert a direct effect on students' academic performance. This suggests that the students' access to resources as well as their perception of their own SES play a significant role on how they perform academically. It should be noted that from year 2009 to year 2012, this effect becomes much stronger. In 2009 it was still the beginning of the Great Recession, and its consequences were just beginning to appear. However, 2012 was well within the negative impact of the crisis [5][15]. It could be suggested that access to resources and goods became more important a factor in order to maintain performance levels, academic and otherwise. In 2015 the effect of student home SES on academic performance remains much higher than in 2009, but it seems to have lessened somewhat, compared to that of 2012. This could have been due to the fact that there was hope that the austerity policies would be terminated by the newly elected government [16]. It could be suggested that the students' perceived SES levels in 2015 and a possible hope that their home SES could revert to pre-crisis standards mitigated the effect of their actual SES levels.

This study employs a wide and representative sample of the population of interest with high construct validity, and an advanced methodological approach, yet it is based on three cross-sectional



representative samples of different 15-year-old Greek adolescents that were compared across three different points in time (at the beginning, the middle and the latest phases of the crisis to date). Consequently, further investigation, possibly by means of a large-scale longitudinal panel study furthering the findings in this study is necessary in order to be able to confidently make causal statements for the impact of time (i.e. the Great Recession) as a moderator on the distal process of students' home SES and its influence on their academic performance.

This study is one of the few, if not the only one to date, to approach the issue of the impact of the Great Recession on students' academic performance from an EST perspective, and in particular by applying the PPCT research design. It becomes evident that the economic crisis has much more important an impact on the society and specifically education than it was thought. The academic performance of the students is significantly affected by their SES which in turn is affected by the financial crisis. Importantly, the effect seems to become progressively more important in the data as time progresses. It is conceivable that as the financial crisis deepens the influence on the performance of students will become more pronounced. This issue should be taken into account when deciding on educational policies, curricula and further cutbacks on access to social services as well as possible interventions via school-based consultation and advocacy services.

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