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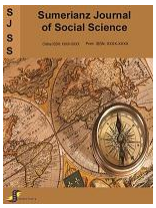

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The Financial Crisis Effect on Culture Employment the Case of Greece

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Abstract

The present work is related to the recent economic crisis effect in Eurozone and especially its weak link Greece to employment in one of country's heavy industries, culture. Greece has a long history on both and civilization. Using a set of six variables (GDP public expenditure on culture, the existence of crisis in the country or one of its counterparts, the change of consumer price index on sector, the human development index and the Heritage economic freedom index, respectively) we explain the level of employment on culture sector response for a fourteen year period (1995-2018) using the Robust least Squares model having major advantages compared to the traditional most used least squares methods against large residuals and high leverages. The results show that there is a strong negative relationship between culture employment and domestic crisis and a positive dependence on HDI and economic freedom.

Keywords: Civilization employment; GNP; HDI; Economic freedom.

1. Introduction

This work is presenting the link between the financial crisis hitting severe Eurozone and its effect to the cultural sector employment. The most interesting case on this motive seems to be the case of Greece where the crisis effects are still present in its economy by invoking all of the tied activities. The country's heavy reliance to the cultural business activity is coming back to the ancient years and its importance is still high (1.4 % of GDP, 3.2% of Greek employees). This exogenous sector could be effected and at what way? Thus, we are investigating the interconnection between professional workers number under the turbulence framework. Has the public budget reduction effected the occupation? What was the domestic and/or foreign crisis effect? The CPI on culture decline had issued? And finally human development and economic freedom indices are significant? The manuscript is stated as follows: On the first part there is a presentation of paper's main questions and layout. On the second part past works related to the subject are presented. The third part presents the model, its advantages as long as the variables. The results are presented and analyzed on the fourth part. Final part has some interesting conclusions based on present work and future research extension proposals and suggestions.

2. Past Works

European integration and its effect to culture as a part of economic life has been studied to a set of older works (Leydesdorff, 1992; Luukkonen, 1998) where integration effects such as contagion on crises or public budget have to be seen as a part of an integrated network , the European Union (EU). Member states benefit but also infected by the lack of integrated European policy. However, systemness is similar between and outside EU as stated by latter research (Frenken and Leydesdorff, 2004) and integrated is expected through R & D channel, where scientific cooperation and business innovation is also high.

The market major characteristics under integration framework seem to be changed to a high valued prototype market (Thorsby, 1994) where new technologies have made their impact on early 2000's reengineering the whole industry process along with centralizing the public budget role as a tool of business survival on time of crisis (2008 and beyond). The effects of crisis are presented (Bonet and Donato, 2011) and consist of the public debt unsustainability in countries such as Greece mainly by the permanent character of these public budget cuts and demand falls which can be stated as both opportunity and threat. The fall between 2009 and 2011 was significant and organizations had to remedy through marketing and partnership strategy channels. Where first seem to have a positive effect but the second strategy failed due to private donations or sponsorship faint during turbulence. The reduction of financial resources seems to have negative effect on labor especially for younger culture workers or companies with a high rate of disappearance. The created framework has major social and economic effect among lower income states with declining citizen evolvement and the creating of artistic elite where only high self-financed artists seem to survive. Priorities have also transferred from personal interests or symbolic value to commercialization or targeted fundraising.

Later Herzfeld (2013) analyzed the Greek case under the light of the European crisis, where cultural protection is central to the country's priorities along with high bureaucracy and corruption and their role to crisis. These issues were overexposed during turbulence where nepotism and patronage overcome possible will for investment. The level of political and economic freedom is generally low and a potential rise could overcome the crisis and its effects.

Others (Pavic, 2016) blame crisis also for democratic deficit and the deprivation of most defenseless groups of their fundamental culture rights. The threatened closure of one out of five public libraries in the UK on time of crisis

where they could become a form of consolation these acts are against people will. Lacking of transparency and public participation has also been noticed, where the room to express new ideas is absent. Under these political circumstances the independent and voluntary based schemes emerge in empowering art in lower income countries.

3. Materials and Methods

Robust least squares method needs the preliminary stage of selecting variables effecting unemployment for Greece. We have to develop a partial-correlation table among the variables because we eliminate possible multicollinearities among independent variables but also, we examine possible relations among them.

The data that consists the sample make a possible sensitivity of conventional regression modes implication cannot straightly give the real relationship among the variables. The exact methods seem to get more than possible parametric or non-parametric methods. Accuracy on least squares methods such as robust least squares (RLS) tend to be less sensitive to outliers within datasets. We have selected RLS because its more adjustable among exact methods and flexible applying a variety of regression modes. We use EViews[tm] software robust least squares model as it is estimated.

We use M-estimation as a Robust estimation type because it can lead regressors outputs where it can get out of the model path (using large residuals) (Huber, 1973).

In order to select an estimating method, we have to apply further steps OLS regression and control of all assumptions

3.1. Determination of Outliers

Estimation of regression models on all three variants Test independent variables effect on dependent.

We have pretested data based on algorithm above and we determined that outliers both on residual and leverage terms are high. Furthermore, referring to the M estimation the constant term (C) is parametrized thus it could be more flexible. Least squares estimation on this model is given by the objective function:

$$\widehat{\beta_{LS}} = argmim_{\beta} \sum_{i=1}^{N} r_i(\beta)^2$$

Where r the residual function is:

$$r_i(\beta) = r_i = y_i - X_i'\beta$$

The summed values of residuals are minimized through M- estimation given by:

$$\widehat{B_M} = argmin_{\beta} \sum_{i=1}^{N} \rho_c \left(\frac{r_i(\beta)}{\sigma w_i}\right)$$

Where σ measures the scale of residuals, c is the turning constant related to function of equal weights w and ρ is the underlying function (turning constant). We have chosen Bisquare function due to 95 % confidence interval and its default c value (4.685).

$$\begin{cases} \frac{c^2}{6}\left(1-\left(1-\left(\frac{X}{c}\right)^2\right)^3\right) if\ |X| \le c \\ \frac{c^2}{6} \end{cases}$$

The R- squared given by Maronna *et al.* (2006), are:

$$R^2 = \frac{\sum_{i=1}^{N} \rho_c \left(\frac{y_i - \tilde{\mu}}{\hat{\sigma} w_i}\right) - \sum_{i=1}^{N} \rho_c \left(\frac{r_i}{\hat{\sigma} w_i}\right)}{\sum_{i=1}^{N} \rho_c \left(\frac{y_i - \tilde{\mu}}{\hat{\sigma} w_i}\right)}$$

Where $\tilde{\mu}$ is the M- estimation as specified by constant only.

The variables are chosen under the literature developed path and combined in the base of crisis analysis under the current circumstances.

Cultural Employment: As given by Eurostat the variable refers to the employed persons as main but not necessarily unique occupation to the economic sector which is defined as cultural. Related and straightly connected to the culture occupations are also included. We don't use any selections-based NACE (demographic) or ISCO (Type of employment) classification including all persons aged 15 or more. We relate this variable as a dependent to set of independent variables as follows:

GDP % expenditure to "recreation, culture and religion": Is the percentage of GDP related to these sectors both individual and public which can be summarized as culture on an annual frequency provided by national authority Greek ELSTAT to the Eurostat. The higher percentage of GDP related to the sector is normal to create more labor positions making industry more attractive. The spending part though is also present. Where improvement on employment or human capital level has to be paid and seen as investment. The excessive amount has to be covered through taxation. The fact is that ever a heavy financed development will be shortly ruined by high taxation schemes.

The long-term effect will be mounting debt, lower productivity and inefficiency. On the short term however, the employment is expected to rise. Thus, we expect positive relationship between the two variables.

Crisis: This a binary variable taking the prices of zero (0, no crisis) or one (1, crisis). Various definitions are generally given but the most of them name it as one of a kind, non-ordinary, rare event or a set of similar small-scale occurrence on the same country. The main idea has to do with the economy and its external sector. A devaluation compared to the previous month has been deployed on the primary models where speculating attacks have been also blamed for the turbulences. During the time bonded or monetary union schemes arisen. A possible percentage in the fixed currency terms is not present. Pressure indices with the same economic effects to invariable official rate were deployed. We use for the case of Greece the proposed (Dapontas, 2013) model where Greece is included to the analysis and the crisis variable is dependent. Following this model, the fixed rate can be substituted to one of the three following occasions: First we denote as crisis the decline of the real effective exchange rate over 10% on any month of the year. Second exemplification could be a rise of at least 25% on the country's basic 10 years bond rate compared to the previous month. Finally, a monthly deterioration of 25% or more on international reserves can be named as an incident. We expect that a decline of employment will follow the turbulence with a possible lag.

Crisis elsewhere: It's a categorical variable denoting whether is a crisis on a related to the under-examination economy country which can be under crisis (1) or not (0) based on criteria given on the domestic crisis definition. The phenomenon was made known as "butterfly effect" spreading the turbulence to other countries. Major counterpart relationship can be denoted as a considerable candidate for transmitting the effect. The possible job effect on culture industry where countries interact both as competitors and complements is questionable. It can be both positive transferring when international market participants believe that the connected country will not be affected and negative when an escalation from effecting country is made to the national labor market. The sequences of the contagion are faster and higher on the last years when a country could infect faster (no more than two months) and multiple (not only one on the same incident) (Dapontas, 2013).

CPI on culture: The yearly change of CPI related to the cultural products. It is a macro economic stability analysis variable related to the price level change over time with a negative impact related to the economy's instability over time. Possible effect related to traditional economic theory under Philips curve seems to be positive to be but related to post keysian theory the effect seems to be in reverse.

HDI: The Human Development Index is a statistic indicator which consists of three equal weighted indices. The first part has to do with human life expectancy where the lifespan, the average time of life which an organism is expected to live based on its year of birth. The trend of the latest years seems to be a raise of life expectancy especially in the developed countries. Second component is the level of education where the ratio of people in the age of normally finishing the first cycle of second level education to the total population. Finally, third piece is the GNI per capita for the country. All three elements consist of a positive meter which can determine the real development level of the nation. We assume that there is a positive relationship to the under-examination variable.

Economic Freedom: The rate of economic freedom is issued by Heritage foundation for every country in a yearly basis, comprising various indices related to the level of freedom in every aspect of economic life. Under a strict framework a high level of freedom on labor market fragment can lead to better jobs on economic and satisfaction terms. An economy can profit from an increase of this index in multiple ways related but not limited to better confrontation of turbulences, successful participation to commercial and monetary unions, more flexible markets etc. We expect though a positive sign.

4. Results

The results are shown on the table below:

Table-1. The RLS Results Under 5% Significance

C	**-9,754.831 (0.0000)**
GDP_CULT	**1,117.668(0.0120)**
CRISIS	**-589.1158(0.0000)**
CRISIS_E	28.68769(0.6266)
CPI	19.4097(0.1707)
HDI	**12,960.20 (0.0000)**
ECO_FREE	**64.4707(0.0000)**
R^2	**0.6753(0.0000)**

As we can see three variables (GDP percentage on culture, HDI and economic freedom, respectively) seem to be important and have the expected positive sign. As GDP on culture as percentage raises more money are given to the sector raising its employment possibilities. Countries with high HDI rate have more working possibilities for their citizens and possible immigrants than the ones having lower ranking. Finally, economic freedom and its high effect to the labor market as presented can raise employment on both private and public sector. The more stable and developed economic environment can attract raised investment on the cultural sector based on comparison between Greece and its competitors to the cultural and touristic industry. Crisis in Greece is also important and negative as expected. The aftermath of the Greek crisis can give opportunities to the cultural market but the remedy was really harsh. Country had to suffer for more than 8 years and many of its workers had to immigrate or remained unemployed within the country. Its effect to every sector was croaking. While traditional parts of the national economy faced a decline of 50-60% on their annual turnover the effect on culture was less severe but it existed and

mattered especially through the early years. The constant variable can consist of possible negative factors mostly related to crisis or political and country risk compared to culturally based economies having bigger chunks of their national product and less effects of the eurozone economic turbulence. R-square seem to be high relating the important variables to the cultural employment.

Two variables (Crisis Elsewhere and Cultural CPI) seem to be unimportant. The first variable didn't initially seem to have a standard effect on economy. Depending on binational or international relations it could have positive if the country is seen as a safe port on cultural heritage or consumption compared to the under-crisis economy and vice versa it could be seen as the country who could be infected next and it could have negative effect. In our case though Greece seem to get uninvolved on contagion crisis related to its economy. The fact that this variable is not significant can make the sector independent of the international political or economic crisis effects having its own possible route to the market. Cultural price level index is also unimportant. That can be explained of the nature of the cultural products where their price effect is different to the other goods. It seems to be less important than other related factors.

5. Conclusion, Discussion and Further Research Suggestions

As we have seen on the present work the determining factors of cultural sector occupation seem to be concluded to the importance of crisis in the under examination country where the eight year crisis hit severe every aspect of the economy more or less and the remedy is difficult especially for the traditional industries such as civilization where the rebound should emerge in the following years. The chunk of GNP provided to the cultural sector is as expected another important doer. The more a country spends on its limited product people more related economically to the field can make income out of it. Human development also provides possible prospects for its inhabitants in every country. The higher economic and especially labor freedom raises the odds of more flexible economic conditions and the more attractive work force framework is provided. The possible effect of crisis in another country and the causing turbulence didn't seem to have effect positive or negative on national cultural level of labor. Finally, the price level on sector is not significant because of the price lower importance to cultural goods demand and by extension to labor demand.

A possible future work should determine the time when possible crisis can cause unemployment itself or correlated to the external economic environment. Political risk can also be examined in a comparison to culture competitors or other possible countries offering similar experience to Greece on level of sector. In any case this work is introducing and opening a new field for discussion over the economic determinants of crisis

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