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Neoclassical and technological catching-up as the channels of the real convergence process in the European Union

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Neoclassical and technological catching-up as the channels of the real convergence process in the European Union

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ABSTRACT

Purpose:
The purpose of the paper is to investigate the β-convergence process between European Union member states in the period 2000-2014 and identify channels of that process. The paper attempts to illustrate if the investigated group of countries experienced convergence because of capital accumulation, technological catching-up or via both mechanisms.

Design/methodology/approach:
The framework used to test the relative strength of neoclassical and technological catching-up as convergence driving forces combines the neoclassical and endogenous representations of the economic growth process. The tests are conducted with the use of cross- sectional as well as panel data analysis, including the proper methods of estimation.

Findings:
The paper provides evidence for the presence of the β-convergence process among European Union countries in the period 2000-2014. The obtained results confirmed that in the analysed period, both channels of convergence (neoclassical and technological) occurred in the group of 27 EU member states. The technological mechanism seemed to be more important than the neoclassical one, especially between the "new" EU countries. In the group of "old" EU members no evidence of technological channel convergence was found. The preliminary survey on the existence of productivity convergence in the analysed groups confirmed its existence in the EU-27 and EU-12 group. Results for the EU-15 group were ambiguous.

Research limitations/implications:
As the results obtained for the EU-15 group were slightly different depending on the research method used, in the future, it would be advisable to carry out an additional study using an alternative research method. Moreover, further research on these issues should be explored towards much more accurate analysis of the productivity convergence and its impact on the real convergence process in the analysed groups of countries.

Originality/value:
The paper is an important step, giving direction to studies on determinants of the real convergence process in the EU. According to the obtained results, technological channel, not capital accumulation, is the driving force of the converge process in the European Union. It might be an important signal for the future convergence policy pursued at the national and European level. The policy concentrated on the dynamics of capital seems not to be effective enough to increase the speed of the convergence process between European Union member states in the future.

1. Introduction

Economic convergence is one of the main goals of the European Union integration process, referred to in all the EU treaties. Article 174 of the Treaty of Lisbon states that "The Community shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions…" (EU Treaty of Lisbon, 2007). After 2004, a vast group of less-developed Central and Eastern European countries started their integration with relatively richer Western

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European countries. In the last 12 years, GDP per capita disparities between the EU member states have decreased, in other words, σ- convergence has occurred. The key determinant of that process was undoubtedly the β-convergence process - the fact that the growth in GDP per capita has been on average higher in poorer, than in richer EU member states. The existence of a negative relationship between the initial GDP per worker and the pace of economic growth is a phenomenon confirmed in the majority of empirical studies of the convergence process in the European Union (e.g. Schadler, Mody, Abiad and Leigh (2006); Alexiadis and Alexandrakis (2008); Halmai and Vásáry (2010); Tatomir and Alexe (2011); Staňisić (2012); Grzelak and Kujaczyńska (2013); Rapacki and Próchniak (2014)).

The theoretical foundations of the idea that poorer countries catch-up with the rich ones derive from two alternative types of approach: neoclassical convergence (capital deepening) and technological catching-up. Neoclassical catching-up refers to the Solow-Swan growth model (1957). Its central hypothesis is that diminishing investment returns (decreasing marginal productivity of capital) slows the growth rate of a country as it approaches a steady state. It implies that richer economies (with shorter distance from the common steady-state) grow slower than poorer ones. The major aspect of that approach is to assume that all countries implement technology at the same rate. Consequently, it means that all the differences in country growth rates depend on countries' distances from the common steady-state and their rate of decrease of capital returns.

On the other hand, the technological catching-up approach suggests that a catching-up process should occur because poorer countries (followers) have capabilities to easily imitate and adopt technology of more advanced countries (leaders). This approach starts from the assumption of different technology levels and growth rates between countries. That alternative stream in convergence literature initially developed by Abramovitz (1986), Baumol (1986), Dowrick and Nguyen (1989) and then introduced in endogenous growth models of Romer (1990), Aghion and Howitt (1998), Howitt (2000), focuses on the fact that poor countries face a huge technology gap and, subject to their absorptive capabilities, can grow faster. Convergence tendencies arise because, although innovation tends to increase productivity and technological differences between countries, diffusion of technology tends to decrease them.

Despite the significant difference in assumptions between the two convergence mechanisms, it is difficult to empirically separate technological progress from capital deepening. In literature, the empirical tests on two alternative channels of convergence have often been conducted by means of the same econometric specification. In standard growth regressions, the initial level of GDP per capita used as explanatory variable may be interpreted both as a proxy for the level of capital (the distance of a country from its steady-state) and as a proxy for the level of technology (technological gap) in the economy. Thus, it's not clear how much of the convergence is due to technology diffusion rather than capital deepening of poorer countries. The necessity of solving that problem was noticed by Stockey (1994) and Temple (1999). However, the seminal approach to separately test the two possible convergence mechanisms was introduced by Rogers and Dowrick (2002). An alternative method to study these aspects was also proposed by Wong (2007) and Feyrer (2007).

Initial research on the importance of the individual channels in shaping the convergence process concerned mainly OECD countries and other countries belonging to the particular income groups. Dowrick and Rogers (2002) found the evidence for the significant role of both channels in the convergence process of 57 rich and poor countries between 1965 and 1990. Wong (2007), in a study of 23 OECD countries (including also EU Member States) and the sample of 70 high and low-developed economies in the period 1960-1985 confirmed a much greater relevance of technology channel in shaping the convergence process in both groups of countries. In turn, the convergence research at sectoral level in the group of 50 developed and developing countries in the period 1980-2000 conducted by Dal Bianco (2010) pointed to the varied importance of both channels for individual income groups. Capital accumulation was proven to be more important for well-developed countries, and technology channel- more crucial for developing countries.

Empirical surveys on the convergence mechanisms in the EU (especially in the enlarged EU) have so far been very limited. They have been conducted mainly at regional level, testing the role of technological progress in the convergence process. Paci and Pigliaru (2001), in a study of 109 regions of the European Union in the period 1980-1993 noted the importance of technological catch-up in shaping the real convergence process. Alaxiadis and Korres (2010), using the regional data for the 27 EU member states in the period 1995-2006, confirmed the hypothesis that the technological factor had a significant and positive effect on convergence in Europe. The role of both convergence channels was also tested in the surveys concerning Italian (Bianchi and Menegatti (2005), Scoppa (2013)) and Spanish (de la Fuente (2002)) regions.

The presented paper attempts to fill a gap in the research on the significance of the neoclassical and technological convergence channels with regard to EU member states. The aim of the paper is to investigate β-convergence between European Union member states in the period 2000-2014, and primarily identify channels of that process. The paper attempts to indicate if the investigated group of countries experienced convergence because of capital accumulation, technological catching-up or both mechanisms together. The framework used to test the relative strength of neoclassical and technological catching-up as convergence driving forces in European Union countries combines the neoclassical and endogenous representations of the economic growth process. The hypothesis of a common technology growth (from Solow's model) is mitigated and the technological catching-up hypothesis is adopted. The survey is based both on a theoretical model and empirical specification considering the two mentioned mechanisms.

The paper is organised as follows. The second part concerns the methodology of identifying convergence mechanisms from a theoretical and empirical point of view. In section 3, the data sources are presented, particularly the methodology of capital per worker and TFP calculation is explained. In section 4, the empirical evidence regarding the convergence process between the EU members (EU-27, EU-15 and EU-12 groups) is provided. Section 5 details the results of tests for the

importance of neoclassical and technological catching-up as the channels of the convergence process between the EU member states. Additionally, productivity convergence between the EU members (the relation between the initial levels of TFP and TFP growth) is investigated. The conclusion is presented in the final part of the paper.

1.1Neoclassical and technological catching-up: theoretical framework and empirical specification

The production function in a closed economy can be written as the Cobb-Douglass function:

$$Y_{it=}A_t K_{it}^{\alpha} L_{it}^{1-\alpha} \qquad (1)$$

where Y_{it} is the output, A_t the level of technology (Total Factor Productivity level), K_{it} capital stock and L_{it} labour resources in country i, at time t. α is the output elasticity of capital, equal to the capital share of income under the assumption that production factors are paid their marginal product. Assuming constant returns to scale, and after dividing both sides of the previous equation by labour input, it can be transformed into the following:

$$y_{it} = A_t k_{it}^{\alpha} \qquad (2)$$

where y_{it} is the output per worker and k_{it} capital per worker of country i.

According to Solow's model, capital stock is accumulated at a fixed rate s_i and depreciates through time at a common rate δ, labour grows at a constant rate n_i. Under the above assumptions, capital accumulation in country i can be described by the following dynamic equation:

$$\dot{k}_{it} = s_i y_{it} - (n_i + \delta) k_{it} \qquad (3)$$

where the dot notation denotes the derivative of the capital stock with respect to time.

In the neoclassical model, a common country technology growth rate g is assumed, where:

$$A_t = A_0 e^{gt} \qquad (4)$$

Differently, one assumes that the technology growth rate is different in particular countries, thus:

$$A_{it} = A_0 e^{g_i t} \qquad (5)$$

The assumption about different technology growth rates g_i is essential in the situation when the technological catching-up process is to be considered. The technological catching-up approach is connected with the existence of a technological leader and followers, and technology transfer between them. According to Dowrick and Rogers' (2002) specification, technology transfer increases technical progress of a follower in direct proportion to the logarithm of the technological gap at the beginning of the period. Thus, technological progress of country i can be described by the following formula:

$$g_i = \theta + \varphi ln\left(\frac{A_o^L}{A_{io}}\right) \qquad (6)$$

Coefficient θ is a constant term reflecting the country-specific determinants of technological progress (e.g. institutions, policies influencing domestic rate of innovation). A^L is the highest value of A in the group of economies under examination (in the initial year of the analysed period), in other words, it is the level of technology of the lead country. Coefficient ϕ can be interpreted as the speed of technology diffusion due to the technological gap between the leader and follower country i.

Substituting equation (5) into (2), then differentiating it with respect of time and finally dividing it by y_{it}, one obtained:

$$\frac{\dot{y}_{it}}{y_{it}} = \alpha \frac{\dot{k}_{it}}{k_{it}} + g_i \qquad (7)$$

Then, substituting formula (6) into (7) one gets the following equation:

$$\frac{\dot{y}_{it}}{y_{it}} = \alpha \frac{\dot{k}_{it}}{k_{it}} + \left(\theta + \varphi ln\left(\frac{A_o^L}{A_{io}}\right)\right) \qquad (8)$$

Equation 8 represents two different catching-up channels. The first term on the right-hand side reflects the influence of capital accumulation on the economy's growth in output. Taking into account decreasing capital returns and equation 3 showing that capital accumulation is higher in poorer countries, we can conclude that poorer countries, with a lower level of capital per head, can grow faster than richer ones; thus, the neoclassical catching-up process appears.

The second term in the mentioned equation represents the influence of the technological gap on GDP per worker growth in the economy. The greater the technological gap between the leader and the follower, the higher the output growth in the follower country. In other words, an economy with a lower initial level of technology grows faster because the technological catching-up process occurs. Of course, the role of both mentioned channels in boosting the pace of particular countries' economic growth can be differentiated. Furthermore, they can work separately or together.

The above theoretical background is useful for building a proper econometric specification in order to conduct an empirical analysis concerning the comparison of the importance of neoclassical and technological catching-up in the convergence process between EU member states. Following Bianchi and Menegatii's (2005) approach, the role of the neoclassical and technological convergence mechanisms can be tested via two different econometric specifications.

The first specification combines a modified β-convergence equation (in which output is regressed on the initial level of output) and a model based on the traditional decomposition of economic growth (where growth in output is decomposed into contributions due to the growth in capital and technological progress).

The simplest absolute β-convergence test provided by Barro (1991) investigates the cross-country relation between the initial level of output per worker and the growth in output per worker in the examined period:

$$ln\left(\frac{y_{it}}{y_{io}}\right) = \alpha_1 + \beta_1 ln(y_{io}) + \varepsilon_{it} \qquad (9)$$

The negative relation between the initial level of GDP per worker and its growth in the analysed period,

reflected in coefficient β, means that poorer countries grow faster and the absolute β-convergence process exists in the analysed group of countries. In the above equation, the catching-up phenomenon is described by the initial level of output as the regressor. In order to distinguish the two types of the catching-up process (neoclassical and technological), a modification of equation (9) incorporating equation (2), (5) and the other theoretical statements is estimated:

$$ln\left(\frac{y_{it}}{y_{io}}\right) = \alpha_2 + \beta_2\, ln(k_{io}) + \gamma_2 ln\left(\frac{A_o^L}{A_{io}}\right) + \omega_{it} \quad (10)$$

The negative sign of statistically significant β_2 coefficient associated with the logarithm of initial capital per worker indicates that poorer countries in the analysed group exhibit faster growth in GDP per worker. It confirms that neoclassical capital deepening is a significant channel of convergence in the investigated group of countries.

The positive sign of statistically significant coefficient associated with the logarithm of the technological gap (measured as the distance between initial A (TFP) level of country i and technology level of the lead country in the group) indicates that less-developed countries, with a huge technological gap, converge to richer ones because they improve their technological level much faster due to technology transfer and imitation. It confirms that technological catching-up occurs as an important channel of the convergence process.

The above econometric specification called "informal growth regression" is the most popular technique used to study sources of economic growth in empirical surveys. However, the modified β-convergence regression including a group of variables affecting growth is not a direct consequence of the theoretical model (8). Taking into account the solution proposed by Dowrick and Rogers (2002), as well as Bianchi and Menegatii's (2005) approach, the growth rate decomposition regression can be constructed and estimated. A modification of equation (2) so that ln (y_t/y_0) on the left- hand side is obtained and including equation (5) (with the assumption that the average growth rate of A is substituted by the total growth of technology in the analysed period) results in the following formula:

$$ln\left(\frac{y_{it}}{y_{io}}\right) = \alpha \ln\left(\frac{k_{it}}{k_{io}}\right) + \left(\theta + \varphi ln\ \left(\frac{A_o^L}{A_{io}}\right)\right) \quad (11)$$

Finally, the neoclassical and technological channels of convergence can be investigated by estimating the following econometric model:

$$ln\left(\frac{y_{it}}{y_{io}}\right) = \alpha_3 + \beta_3 \ln\left(\frac{k_{it}}{k_{io}}\right) + \gamma_3 l\, n\left(\frac{A_o^L}{A_{io}}\right) + \vartheta_{it} \quad (12)$$

The positive value of the statistically significant coefficient β_3 indicates that the neoclassical channel of convergence works, as well as positive sign of γ_3 coefficient implies the significant importance of technological catching-up in shaping the convergence process.

2. Data

The dataset used in the empirical surveys includes variables observed at annual intervals in the period 2000-2014 for the group of 27 European Union countries: Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden, the United Kingdom, Bulgaria, the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovenia and the Slovak Republic. GDP data expressed in Purchasing Power Parity (Y_{it}) and total labour force data (L_{it}) in the mentioned countries were obtained from the WDI database (World Bank Development Indicators Database).

Direct measures of capital per worker and technology levels in particular countries are used in the analysis. The dataset on the physical capital stocks (K_{it}) as well as the levels of technology-TFP (A_{it}) for all the analysed countries in the period 2000- 2014 are not available in any macroeconomic statistical database. To obtain them, additional calculations and surveys had to be conducted.

Countries' physical capital stocks (K_{it}) in the period 2000-2014 were calculated through Mroczek and Tokarski's (2014) perpetual inventory method. For each of the analysed country, the growth in capital stock can be written as:

$$\Delta K_t = I_t - \delta K_{t-1} \quad (13)$$

where: K_t- capital stock in year t, I_t- total investment flow, $\delta \in (0,1)$- the rate of depreciation of physical capital, fixed usually at the level of 5%.
Assuming that , the capital stock in time t can be described via the following formula:

$$K_t = I_t + (1-\delta)K_{t-1} \quad (14)$$

Consequently, it leads to a more general relation between the capital stock and the annual value of investment in the economy that can be written as:

$$K_t = \sum_{\tau=0}^{\infty}(1-\delta)^{\tau} I_{t-\tau} \quad (15)$$

Because the expression $(1-\delta)^{\tau}$ is the element of decreasing geometric progression, and $I_t > I_{t-1}$, thus the expression $(1-\delta)^{\tau}\ I_{t-\tau}$ is also the element of decreasing geometric series. Under the above assumption, the approximate value of capital stock in a country in time t can be expressed as:

$$K_t = \sum_{\tau=0}^{\infty}(1-\delta)^{\tau} I_{t-\tau} \approx \sum_{\tau=0}^{n}(1-\delta)^{\tau} I_{t-\tau} \quad (16)$$

The longer the time of investment accumulation taken into account (greater number of years n), the more accurate the approximation of the total value of capital stock in time t in economy.

The data on gross fixed capital formation (the measure of annual value of investment I_t) for all the analysed countries in the period 1991-2014 was obtained from the WDI database. It was used in formula (16) to calculate the value of capital stocks in the period 2000-2014. A 10-year period of investment accumulation (n=9) and capital depreciation rate δ at the level of 5% were assumed in the formula.

In order to estimate the level of technology A_{it} ("the rest of Solow" or TFP) in the analysed countries, the method applied by Tokarski (2008), which consists of determining the estimation of parameter α on the basis of a two-input Cobb-Douglas function (1), transformed into the following efficiency model:

$$ln\left(\frac{Y_{it}}{L_{it}}\right) = ln\, A_0 + g_i t + \alpha\, ln\left(\frac{K_{it}}{L_{it}}\right) + \varepsilon_{it} \quad (17)$$

The expression indicates the logarithm of technology level in the analysed country i (.

In order to include individual and time effects shaping, the level of technology in the particular countries, the proper method of estimation was implemented - the *within* estimator was used. The estimation of model (17) as the *fixed effect model* resulted in obtaining the value of coefficient α (see table 1).

Table 1: Estimation results of model (17); dependent variable ln(Y it/L it); within estimator

Variable/ Model diagnostics	Coefficient
$\ln A_0$	6.18993 (0.156507)***
t_1	0.040283 (0.0147873)***
t_2	0.0818278 (0.014813)**
t_3	0.0897239 (0.0149173)***
t_4	0.110245 (0.0151469)***
t_5	0.125412 (0.0154718)***
t_6	0.175903 (0.0159254)***
t_7	0.194165 (0.0167047)***
t_8	0.193465 (0.0175852)***
t_9	0.13693 (0.0180517)***
t_{10}	0.147799 (0.0184573)***
t_{11}	0.171163 (0.0189445)***
t_{12}	0.166619 (0.0192125)***
t_{13}	0.173931 (0.0194137)***
t_{14}	0.193445 (0.0195435)***
$\ln(K_{it}/L_{it})$	**0.413661** (0.01475)***
LSDV R^2 (Within R^2)	0.987785 (0.935734)
Number of observations	405
Model diagnostics[1] test statistics critical value [p value]	77.4394 1.80802; [4.39353e-131]

Source: own calculations using GRETL
Note:
Individual effects of particular countries were taken into consideration in the model but not calculated.
[1]Test F for diversification of the constant in groups.
Null hypothesis H_0: groups have a common constant.
The numbers in brackets denote the value of standard error. ***means significance at 1%.

The next stage of the analysis involved calculating the TFP values (A_{it}) specific to individual countries and years. They were calculated according to the following formula:

$$A_{it} = TFP_{it} = \frac{(Y_{it}/L_{it})}{(K_{it}/L_{it})^a} \quad (18)$$

where a is the estimate of parameter α of model (17), amounting to 0.413661.

3. β-convergence process in the European Union in the period 2000- 2014

Studies on the β-convergence processes can be conducted using averaged data for the entire period or panel data. Taking into account the most traditional method based on averaged data, one should be aware that a limited number of observations influence the statistical credibility of the obtained results. However, from the economical point of view, the mentioned approach seems to be adequate, because it gives an opportunity to investigate the relation between initial conditions of economies and their long-run growth processes. On the other hand, due to taking into account a large number of observations and various methods of estimation, it may be said that studies based on panel data are more solid. From the economic point of view, an analysis that uses that kind of data is distorted by the influence of business cycles and other irregular fluctuations of the economy. Besides, it is hard to expect that growth in GDP per capita (per worker) in time t is created by its level in time $t-1$. From the economic point of view, a good solution may be analysis based on data averaged for subperiods. In this case, the relation between the initial level of GDP and mid-term pace of economic growth can be investigated.

The survey on the convergence process between European Union countries in the period 2000- 2014 is conducted with the use of averaged data for the entire period and panel data. In the panel analyses, three sub-periods: 2000-2004, 2005-2009 and 2010-2014 were taken into account. Furthermore, the analyses concern not only the entire group of 27 countries, but also the

group of 15 "old" EU members states, and the group of 12 "new" member states.

In table 2 the estimation of structural parameters of equation (9) using averaged data for the period from 2000 to 2014 is included. White's test for heteroscedasticity for growth regression models was conducted in order to confirm that the OLS estimator is efficient and unbiased. The results of the conducted tests were satisfactory.

The results indicate the presence of the β-convergence process in the EU-27, in the analysed period. The negative value of the statistically-significant structural parameter β_1 of the equation (9) indicates a negative correlation between the initial level of income per worker (in 2000) and economic growth rate in the period of 2000-2014.

Table 2: Estimation results of the cross-sectional growth regression models describing absolute β convergence among European Union Member States in the period 2000-2014; OLS method of estimation

Coefficient / model diagnostics	EU-27	EU-12	EU-15
α_1	4.90688 (0.54509)***	7.47519 (0.85834)***	0.0611445 (0.66251)
β_1	-0.412030 (0.05150)***	-0.667023 (0.08515)***	0.0298116 (0.06007)
R^2	0.719119	0.859865	0.513045
Adjusted R^2	0.707883	0.845851	0.462875
β convergence	yes	yes	no
β coefficient	0.01967	0.040729	-
Number of observations	27	12	15
Model diagnostics[1]: test statistics critical value [p value]	9.022542 9.21034 [0.010984]	0.19373 9.21034 [0.907679]	0.199245 9.21034 [0.905179]

Source: own calculations using GRET
Note:
The numbers in brackets denote the value of standard error. ***means significance at 1%.
[1] White's test: null hypothesis H_o: variance of error term is constant across observations (heteroscedasticity does not occur).

The speed of convergence (β coefficient) is calculated using the following formula:

$$\beta = -\ln(1+\beta_1)/T \qquad (19)$$

(where T is the interval between the first and the last observation) and amounts to 1.9%.

The β_1 coefficient obtained for the EU-12 group is statistically significant and its negative sign stands for the existence of the convergence process between the "new" EU members. In the analysed period, the countries with lower GDP per worker approached the level of prosperity of richer ones at the relatively high rate of 4.07% per year.

According to the results included in table 2, β_1 coefficient obtained for EU-15 is positive and statistically-insignificant. It means that the divergence process between the "old" EU members exists.

The above statements are also confirmed by the results of the estimation of equation (9) with the use of panel data (sub-periods: 2000-2004, 2005-2009 and 2010-2014). For each model the Breusch-Pagan test for the presence of individual effects was conducted. Additionally, for the first model (EU-27 group) the test for diversification of the constant in groups, confirming a viable use of the *within* estimator, was used.

Table 3: Estimation results of panel growth regression models describing absolute β- convergence in the period 2000-2014 among European Union Member States

Coefficient / model diagnostics	EU-27	EU-12	EU-15
α_1	3.03499 (0.38513)***	2.95965 (0.34442)***	0.574810 (0.32835)*
β_1	-0.266316 (0.03563)***	-0.283873 (0.03308)***	-0.041655 (0.02950)
LSDV R^2	0.752043	-	-
Within R^2	0.513136	-	-
R^2	-	0.651734	0.444327
Adjusted R^2	-	0.641491	0.422102
β convergence	yes	yes	no
β coefficient	0.020645	0.02226	-
Number of observations	81	36	45
Estimator	within	OLS	OLS
Model diagnostics test statistics critical value [p value]	 1.98[1] 1.705 [0,017348]	 0.0625686[2] 6.6349 [0,802481]	 3.19675[2] 6.6349 [0,07378]

Source: own calculations using GRETL
Note:
[1] Test F for diversification of the constant in groups: null hypothesis H_0: the groups have a common constant; rejection of H_0 means a viable use of the fixed effect model.
[2] Breusch-Pagan test: null hypothesis H_0: Error variance in a unit = 0; rejection of H_0 means that the introduction of individual effects is desirable; no possibility of using the OLS.

According to the obtained results, the absolute convergence process existed in the entire group of 27 countries as well as in the group of the "new" and relatively less-developed countries. In models constructed for the mentioned groups, the negative and statistically significant β_1 coefficients were obtained. The speed of the convergence process amounted to 2% and 2.2% respectively. In the light of the results included in table 3, the convergence process did not exist in the group of the most developed EU members (β_1 coefficient was positive and insignificant from the statistical point of view).

4. The tests for the existence of neoclassical and technological catching-up in European Union member states in the period 2000- 2014

The existence of capital deepening and technological catching-up mechanisms of convergence in the EU-27, EU-15 and EU-12 groups were verified, at first, through the estimation of equation (10), and then through the estimation of structural parameters of equation (12). The surveys were conducted with the use of cross-sectional as well as panel data analysis (a panel with three five-year subperiods for each country). The OLS estimator was employed to estimate the structural parameters of the cross-sectional regressions. In order to confirm that the OLS estimator was efficient and unbiased, model diagnostic procedures (White's test for heteroscedasticity and the Jarque Berra normality test) were conducted. The results of the mentioned tests were satisfactory (see table 4 and 6). The estimation technique of panel data regressions was employed after conducting the Breusch-Pagan test. The results suggested the absence of individual effects and the use of OLS estimator in all the analysed models (see table 5 and 7).

The coefficient estimates of the variables in model (10) with averaged data for the particular groups of countries are included in table 4. The negative and statistically significant β_2 coefficients (for the initial level of capital per worker) in models constructed for the EU-27 and EU-12 groups imply that the neoclassical catching-up process occurs.

Table 4: Neoclassical and technological catching-up in β-convergence cross-sectional regressions for UE-27, EU-15 and EU-12 in the period 2000-2014; equation (10); OLS method of estimation

Coefficient /	UE-27	UE-15	UE-12

Model diagnostics			
α_2	0.193124 (1.29176)	-1.34998 (1.25811)	-1.57064 (1.86802)
β_2	-0.199785 (0.03252)***	0.0655704 (0.07484)	-0.252496 (0.05327)***
γ_2	0.411038 (0.17707)**	0.168218 (0.13477)	0.781068 (0.26292)**
R^2 Adj. R^2	0.795891 0.778142	0.654109 0.580311	0.847465 0.813568
Obs.	27	15	12
Model diagnostics: White 's test: test statistics critical value [p value]	3.69773 15.0863 [0.593702]	13.5208 15.0863 [0.018957]	4.39821 15.0863 [0.493618]
JB normality test: test statistics critical value [p value]	2.89081 9.21034 [0.23565]	2.79577 9.21034 [0.247119]	9.13273 9.2103 [0.056968]

Source: own calculations using GRETL
Note:
White 's test :Null hypothesis H_0: variance of error term is constant across observations (heteroscedasticity does not occur).
JB normality test: Null hypothesis H_0: residuals are normally distributed.
***/**means significance at 1%, 5%; the numbers in brackets denote the value of standard error.

Furthermore, the positive and significant γ_2 coefficients (for the initial technological gap) stand for the presence of technological catching-up between the countries in the mentioned groups. Taking into account the values of the obtained coefficient estimates, one may conjecture that the technological channel of convergence in EU-27 and EU-12 is much more important.

According to the results shown in table 4, neither the neoclassical nor technological mechanism works in the group of the "former 15". β_2 and γ_2 coefficients in the model for the EU-15 group are statistically-insignificant.

Table 5 summarises the parameter estimates of model (10) with the use of panel data. In the models made for EU-27 and EU-15, β_2 coefficients are negative and statistically-significant. γ_2 parameters are also significant but positive. It means that both (neoclassical and technological) catching-up mechanisms have occurred between countries of the above groups.

Table 5: Neoclassical and technological catching-up in β-convergence panel regressions for UE-27, EU-15 and EU-12 in the period 2000-2014; equation (10); OLS method of estimation

Coefficient / Model diagnostics	UE-27	UE-15	UE-12
α_2	0.88612 (0.40271)**	1.27101 (0.487491)**	0.187024 (0.60885)
β_2	-0.0931004 (0.01064)***	-0.0724024 (0.02727)***	-0.12766 (0.01881)***
γ_2	0.0474433 (0.03347)*	-0.0551467 (0.06457)	0.217491 (0.09261)**
R^2 Adj. R^2	0.557998 0.546212	0.469383 0.426787	0.620632 0.597640
Obs.	81	45	36
Model diagnostics: Breusch-Pagan test: test statistics critical value [p value]	0.00097485 6.6349 [0.975092]	0.847411 6.6349 [0.357286]	0.00353216 6.6349 [0.952608]

Source: own calculations using GRETL
Note:
Breusch-Pagan test: Null hypothesis H_0: Error variance in a unit = 0; rejection of H_0 means that the introduction of individual effects is desirable; no possibility of using the OLS.
***/**/*means significance at 1%, 5%,10%; the numbers in brackets denote the value of standard error.

Contrary to the result obtained in the cross-sectional regressions, in the panel model built for EU-15, a weak but statistically significant negative correlation between the initial level of capital per worker and GDP per worker growth is found (β_2 parameter amounts to -0,072). However, the γ_2 coefficient estimated as negative and insignificant results in the absence of the technological mechanism of the convergence process.

The second test for validity of the two alternative channels of convergence in the EU is connected with the estimation of model (12), explained in section 1. Table 6 shows the results of cross-sectional regressions. In models for EU-27 and EU-12, the positive value of β_3 parameters, confirms the presence of the catching-up process due to diminishing returns to capital. The positive and statistically-significant γ_3 coefficients, amounting to respectively 0.46 and 0.54, indicate that technological catching-up due to technology flows is present.

Table 6: Neoclassical and technological catching-up in growth rate decomposition cross-sectional regressions for UE-27, EU-15 and EU-12 in the period 2000-2014; equation (12); OLS method of estimation

Coefficient / Model diagnostics	UE-27	UE-15	UE-12
α_3	-2.58442 (0.71961)***	-1.22873 (0.87674)	-3.05834 (1.66179)*
β_3	0.396352 (0.04211)***	0.192976 (0.12443)	0.381943 (0.07864)***
γ_3	0.46539 (0.12281)***	0.254436 (0.14215)	0.547068 (0.28036)*
R^2 Adj. R^2	0.88891 0.87925	0.65744 0.52243	0.85275 0.82002
Obs.	27	15	12
Model diagnostics: White 's test: test statistics critical value [p value] JB normality test: test statistics critical value [p value]	 6.7114 15.086 0.2430 0.6494 9.210 [0.7227]	 3.1786 15.086 0.6725 0.9732 9.210 [0.6147]	 8.6101 15.086 0.1257 1.3114 9.210 [0.5191]

Source: own calculations using GRETL
Note:
White 's test: Null hypothesis H_o: variance of error term is constant across observations (heteroscedasticity does not occur).
JB normality test: Null hypothesis H_o: residuals are normally distributed.
***/*means significance at 1%,10%; the numbers in brackets denote the value of standard error.

The coefficient estimates obtained in the model for EU-15 have positive signs, but they are insignificant from the statistical point-of-view. Thus, one can conjecture that none of the analysed convergence mechanisms works between the most developed EU members. In turn, the results obtained in the panel data version of model (12) reject the hypothesis of technological catching-up as a determinant of the convergence process, while they confirm the positive and statistically significant influence of capital deepening on the convergence process between them (see table 7).

Table 7: Neoclassical and technological catching-up in growth rate decomposition panel regressions for UE-27, EU-15 and EU-12 in the period 2000-2014; equation (12); OLS method of estimation

Coefficient / Model diagnostics	UE-27	UE-15	UE-12
α_3	-0.98956 (0.32901)***	-0.249749 (0.38777)	-1.36871 (0.66816)**
β_3	0.354627 (0.04177)***	0.299799 (0.07154)***	0.333278 (0.06904)***
γ_3	0.175978 (0.05477)***	0.0524655 (0.06425)	0.240265 (0.10957)**

R^2 Adj. R^2	0.544679 0.532537	0.323755 0.289075	0.467254 0.434966
Obs.	81	45	36
Model diagnostics: Breusch-Pagan test: test statistics critical value [p value]	 5.12383 6.6349 [0.02359]	 4.98723 6.6349 [0.025535]	 1.53419 6.6349 [0.215484]

Source: own calculations using GRETL
Note:
Breusch-Pagan test: Null hypothesis H_0: Error variance in a unit = 0; rejection of H_0 means that the introduction of individual effects is desirable; no possibility of using the OLS.
***/**means significance at 1%, 5%; the numbers in brackets denote the value of standard error

The growth rate decomposition panel regressions for the group of 27 and the "new" 12 countries are also built. The estimates support the previous statements that convergence process in the above groups of countries depends on capital accumulation, as well as on technological catching-up. Looking at the values of the parameter estimates, one can assume that technology transfers and technological gap as determinants of convergence are relatively more important in the EU-12 group.

The results of the above tests, regardless of the econometric specification and the type of data used in surveys, show that the technological channel is found as an important determinant of the convergence process in the entire group of analysed countries and between the "new' EU members, and it is totally insignificant in the EU-15 group. It leads to the conjecture that in the case of the EU-27 and EU-12 groups, technological progress is faster in economies with a relatively lower initial level of technology. In turn, technologically well-developed countries experience higher pace of technology growth than less-developed countries of the EU-15 group. To prove it, an additional simple survey on the existence of productivity convergence is conducted. It consists of an examination of the relation between the initial technology level and technological progress in the analysed groups of countries. Table 8 includes the estimation results of models with averaged and panel data.

The following regression is estimated:

$$ln\left(\frac{A_{it}}{Aio}\right) = \vartheta + \theta\, ln(A_{io}) + \mu_{it} \qquad (20)$$

The negative and statistically significant θ coefficient indicates the presence of productivity convergence.

Table 8: Initial TFP level and TFP growth in 2000-2014 for UE-27, EU-15 and EU-12; cross-sectional and panel data regressions;
OLS method of estimation

Coefficient / Model diagnostics	UE-27	UE-15	UE-12
cross-sectional regression			
υ	2.29993 (0.64394)***	1.0876 (0.86672)	3.64275 (1.3268)**
θ	-0.340309 (0.10398)***	-0.148432 (0.13792)	-0.559931 (0.21835)**
R^2 Adj. R^2	0.399943 0.371941	0.281811 0.211181	0.396728 0.336400
Obs.	27	15	12
Model diagnostics: White 's test: test statistics critical value [p value] JB normality test: test statistics critical value [p value]	 8.06302 9.21034 0.0177475 0.476526 9.21034 0.787995	 2.55279 9.21034 0.279041 1.74095 9.21034 0.418753	 0.927622 9.21034 0.628882 1.20993 9.21034 0.546093
panel data regression			
υ	1.25673 (0.284642)***	0.549331 (0.29019)*	2.43497 (0.590832)***
θ	-0.1912 (0.045299)***	-0.0793251 (0.045676)*	-0.382072 (0.09537)***
R^2 Adj. R^2	0.384010 0.373681	0.265544 0.243812	0.320683 0.300703

Obs.	81	45	36
Model diagnostics: Breusch-Pagan test: test statistics critical value [p value]	1.47735 6.6349 0.224189	1.70594 6.6349 0.191513	0.038149 6.6349 0.546093

Source: own calculations using GRETL

Note:

White 's test: Null hypothesis H_0: variance of error term is constant across observations (heteroscedasticity does not occur).

JB normality test: Null hypothesis H_0: residuals are normally distributed.

Breusch-Pagan test: Null hypothesis H_0: Error variance in a unit = 0; rejection of H_0 means that the introduction of individual effects is desirable; no possibility of using the OLS.

***/**/*means significance at 1%, 5%, 10%; the numbers in brackets denote the value of standard error.

Regardless of the type of data taken into account, the obtained estimation results confirm that there is a statistically significant and negative correlation between the initial level of technology and technological progress in EU-27 group (θ coefficient amounts to about -0.34 and -0.19 respectively). Additionally, one can remark that the mentioned negative relation is even stronger between the "new" member states (θ coefficient amounts to about -0.56 and -0.38 respectively). In other words, the pace of productivity convergence between them is much higher than in the overall group of the analysed countries.

In turn, the estimates of the models built for the EU-15 group indicate either the absence of productivity convergence (θ coefficient is negative but statistically insignificant in the model based on averaged data) or the presence of a very weak negative relationship between the initial level of technology and the pace of technological progress (θ coefficient is estimated to be only -0.08 in the model based on panel data).

5. Conclusion

The paper provides evidence for the presence of the β-convergence process between European Union countries in the period 2000-2014. The conducted analysis clearly indicates that the catching-up process existed in the analysed group of 27 member states. Moreover, the speed of convergence was much stronger between 12 "new" members than in the entire group. However, a surprising aspect of it is that in the analysed period, the convergence between the most developed "old" EU countries did not exist. In other words, in the EU-15 group, the relatively poorer countries did not catch-up with the richer ones.

The paper aimed mainly at identifying the possible mechanisms responsible for generating the obtained convergence results. The conducted empirical surveys were focused on the neoclassical and technological catching-up mechanisms, proposed by the economic theory. The validity of the two alternative convergence driving forces was tested with the use of two different econometric specifications and two different types of data. The obtained results confirmed that both channels of convergence: neoclassical and technological occurred in the group of 27 EU members. Moreover, the technological mechanism seemed to be more important than the neoclassical one. The mentioned phenomenon was particularly visible between the "new" EU countries. Regardless of the econometric specification, and the type of data used in surveys, the obtained results indicated that the β-convergence process between them was the result of differences in technology levels and technology transfer rather than capital accumulation.

The results obtained for the group of "old" EU members were ambiguous. No evidence for the existence of technological channel of convergence process in that group of countries was found. The estimation results of models based on averaged data denoted also the lack of the neoclassical mechanism, while estimations of panel models signalled the importance of capital deepening. Even though the last mechanism was found, it turned out not to be sufficient to influence the β-convergence process in the group of the most developed EU countries.

In general, one may conclude that the technological channel, not capital accumulation, is the driving force of the converge process in the European Union. The more intensive technological catching-up process, the higher the speed of β- convergence. The above statement was also confirmed by the survey on the existence of productivity convergence between the analysed countries.

In the EU-27 and EU-12 groups, where productivity convergence appeared (technological progress was faster in the countries with relatively lower initial TFP level), the β-convergence process was found. It is worth adding that productivity convergence in the mentioned groups was a result of high diversity of technology levels and intensive technology transfer between countries. Moreover, medium-high technologies that are relatively easy to implement were mostly transferred.

In contrast, in the EU-15 group, where countries with higher productivity level experienced the highest technology progress, technological catching-up did not occur, and nor did the β-convergence process. One can suppose, that between the most developed EU countries having similar technology levels and small technological gaps, technology transfer was much less-intense (the implementation of high technologies requires specific absorptive capabilities, the most groundbreaking technologies are particularly protected, etc.).

The obtained results and insights about the sources of the convergence process in the European Union might be an important signal for the convergence policy pursued at the national and European level. The policy concentrated on the dynamics of capital seems to be not effective enough to increase the speed of the convergence process. Bearing in mind the key role of productivity convergence, the policy should move forward in the direction of deepening countries' absorptive and imitation capabilities, as well as supporting technology transfer.

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The Impact of Tourism on Economic Growth in the Western Balkan Countries: An Empirical Analysis

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ABSTRACT

Purpose:
The purpose of this research paper is to empirically analyse the effects of tourism on economic growth in Western Balkan countries (Albania, Bosnia and Herzegovina, Croatia, FYROM, Montenegro and Serbia).

Design/Methodology/Approach:
The empirical analysis consists of 17- year panel data of 6 countries over the period 1998 to 2014. Several models are analysed using the panel regression econometric techniques. The study investigates the random and fixed effects, as well as individual heterogeneity across those countries. Also, the Hausman Taylor IV estimator is used as the most appropriate model for this analysis. The real income per capita of the sample countries is modelled as dependent on the lagged income per capita, tourist arrivals, tourism receipts, FDI stock, exports and government expenditures.

Findings:
The estimation results in all types of models, and indicate that tourism has a positive and significant impact on economic growth in the Western Balkan countries. The Hausman Taylor IV model suggests that for every 1% increase of tourist arrivals, the output will increase approximately by 0.08%.

Research limitations/implications
Although the Hausman Taylor IV model performs well, the results should be interpreted with caution. The analysis has its limitations; firstly, the total number of observations is relatively small for a panel regression analysis; secondly, the problem of endogenity is not completely avoided. However, the study implies that these countries should enhance efforts for joint tourism sector policies to engender economic sustainability.

Originality/Value: – To our best knowledge, this is the first attempt of estimating the effects of tourism on economic growth in the Western Balkan countries using the Hausman Taylor IV model

1. Introduction

Tourism is widely perceived to be an effective vehicle for development (Sharpley, R, 2010). For many countries, this sector is considered a powerful stimulator of national economies because it affects those economic sectors associated with it, and at the same time creates jobs, increases domestic demand, contributes positively to the balance of payments and allows a better reallocation of wealth. Recognizing this importance, it becomes relevant to investigate the impact of tourism in Western Balkan countries.

Tourism combines several different elements due to the high interdependency of the activities needed to form the overall touristic product. A universally-accepted definition of tourism is that presented to the Conference on International Travel and Tourism in Rome in 1963 by the United Nations World Tourism Organization (UNWTO). It classifies tourism as 'the activities practised by individuals during their travels and stays in places

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located outside their normal residency for a continued period not surpassing a year for motives of leisure, business and others' (Naudé and Saayman, 2004). At the same conference, a 'visitor' was defined as 'any person who visits a country or region different from their place of residence, for any motive as long as it is not to exercise a remunerated activity in the visited place' (Naudé and Saayman, 2004). Furthermore, visitors were classified as tourists when they stay in the visited place for at least 24 hours, and as excursionists when they stay for less than 24 hours. When people visit a specific destination region with the purpose of making use of the lodging, transport, food and recreation services, among others, they stimulate the economy of the receiving region and create a market: the 'tourism market'. The tourism market is defined as an atypical market because a product is not delivered, but the right to the use of goods or services available in a different location from the residency is awarded.

Tourism contributes to raising the investment rate in tourist destination regions through the construction of facilities and infrastructure needed for the production of tourism goods and services, which demand high levels of investment, both public and private. Despite the high levels of investment in infrastructure and equipment, tourism development is less demanding of capital than is the case for most industries, since tourism activity are characterized by the prevalence of small- and medium-sized enterprises (SMEs), which cover a great variety of products and services. Hence, the high level of investment in tourist infrastructure and superstructure are carried out by the state and should be considered as a means to stimulate employment, economic growth and the social promotion of small investors.

Tourism effects employment, inflation, the currency offer and the speed of currency circulation, on production, on the balance of payments, on investment in the creation of physical infrastructure, which makes tourism possible and, finally, on the state's budget, increasing public expenditure through public services, but also increasing the public income with the collection of direct and indirect taxes. Determinants of touristic attraction can be stimulated by tourism as it creates new sources of work with increases in both the size and number of lodging establishments, the opening of new restaurants and growth in transport. Tourism also creates jobs indirectly; related sectors supplying the productive sectors expand.

The Western Balkan countries finally understood the importance of this economic sector for economic growth and established a regional network of tourism stakeholders that began to realize the value of collaboration and exchanging best practices.

2. Literature Survey

2.1 Theory and some stylized facts

In September, the 70th Session of the United Nations General Assembly adopted the Sustainable Development Goals (SDGs), a universal agenda for planet and people. Among the 17 SDGs and 169 associated targets, tourism is explicitly featured in Goals 8, 12 and 14 for its capacity to foster economic growth and decent work for all, promote sustainable consumption and production, and advance conservation and sustainable development of aquatic resources.

With more than one billion tourists travelling to an international destination every year, tourism has become a leading economic sector, contributing 10% of global GDP and 6% of the world's total exports, one in eleven jobs around the world (UNWTO, 2016). Representing more than just economic strength, these numbers reflect tourism´s vast potential and increasing capacity to address some of the world´s most pressing challenges, including socioeconomic growth, inclusive development and environmental preservation. The development of tourism is a priority for all countries. The tourism industry is a strategic asset for social and economic policies to trigger growth and development.

Tourism is today a major category of international trade in services. Spending on international tourism grew significantly in 2015, proving the sector's relevance in stimulating economic growth, boosting exports and creating jobs for an increasing number of economies worldwide. International tourist arrivals grew by 4.4% in 2015 to reach a total of 1,184 million in 2015, marking the sixth consecutive year of above-average growth with international arrivals increasing by 4% (UNWTO, 2016). International tourism represents 7% of total world exports and 30% of services exports. The share of tourism in overall exports of goods and services increased from 6% to 7% in 2015 as for the fourth consecutive year international tourism outgrew world merchandise trade, which grew 2.8% in 2015 according to recent data reported by the World Trade Organization. Europe (+5%) led growth in absolute and relative terms supported by a weaker euro vis-à-vis the US dollar and other main currencies. Arrivals reached 609 million, or 29 million more than in 2014. Central and Eastern Europe (+6%) rebounded from last year's decrease in arrivals. Northern Europe (+7%) and Southern Mediterranean Europe (+5%) also recorded sound results, while Western Europe (+3%) was below average (UNWTO, 2016).

As a worldwide export category, tourism ranks third after fuels and chemicals, and ahead of food and automotive products. In many developing countries, tourism ranks as the first export sector. Unusually strong exchange rate fluctuations in 2015 seriously influenced receipts for individual destinations and regions, expressed in US dollars. Taking exchange rate fluctuations and inflation into account, receipts in the Americas, Asia and the Pacific and the Middle East all grew by 4%, while in Europe they grew by 3% and in Africa by 2%.

In December 2015, the United Nations declared 2017 as the International Year of Sustainable Tourism for Development. This is a unique opportunity to better establish tourism as a global and national priority, a valuable component of all efforts to advance economic growth, cultural and environmental protection, mutual understanding and peace. It reflects the belief of UNWTO that greater recognition should be given to the tourism sector as fundamental to shepherding us all into a sustainable and prosperous future.

2.2 Previous empirical findings

Over the last decade, the concept of sustainable tourism development has become the focus of interesting attention amongst tourism theorist. Many of them have published articles and tourism development plans.

Tourism contributes to the national production by creating a supplementary demand through intermediary

consumption in different areas of activity (for example, consumption in the food and agriculture industry supplying restaurants) and by the demand for new investments (Vas M and Silva J, 2010).

The balance of payments is also affected by tourism because of the increase of international flows, where tourism exports are calculated through the entry of foreign currencies brought by foreign visitors and imports through the exit of residents who go abroad, as well as the importing of goods and services to supply tourist services in typical, non-typical, indirect and induced activities and payments abroad (Cruz, 2004). Brida and Risso (2009) found that tourism is an important source of economic growth.

According to Soukiazis and Proença (2008), tourism contributes to national economic growth and development, and improves the standard of living, thus promoting a process of regional convergence and stimulating domestic demand. Tourism can generate significant revenue in the public sector, especially when managers stimulate the dynamics of the business sector, when effective tax collection systems are in place and when the destination is administered in an enterprising manner, with the creation of services and activities that extend the touristic offerings and give rise to greater direct expenditure by tourists. Additionally, tourism development provides added value through increased investment, increased employment, an improvement in the balance of payments, a boosting of tourism sectors and have a positive impact on GDP.

The authors (Cerovic et al. 2015) in their paper indicate that tourism makes a modest direct contribution to the overall economic growth in the examined countries, regardless of the continuous increase in the number of foreign tourist arrivals. The level of tourism contribution to the overall economic growth varies and it is primarily related to diversity and quality of supply (the highest contribution is recorded in Montenegro, while lowest contribution is observed in FYROM).

Alba Kruja (2012), in her work concluded that for a developing country like Albania, tourism is an important sector that may generate foreign exchange earnings and employment. The sector is still in its infancy and highly intensive investments are needed.

The major challenge for Western Balkans countries is to overcome differences and find a way to collaborate to benefit from the opportunity presented by natural and cultural assets. The tourism industries in those countries needed to expand their thinking and connect with partners in neighbouring countries to joining their offerings in a regional sustainable tourism portfolio. In addition, they needed to begin positioning themselves as one singular destination that invites travellers for exploration and adventure.

3. Methodology and data

In order to examine the impact of tourism on economic growth of the Western Balkan countries, a general standard model is used in the following form:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_i + \varepsilon_{it}, \qquad (1)$$

where Y represents the real output for country i and time t, X is a vector of control variables that include, in our case, the lagged GDP per capita, tourist arrivals, tourism receipts, FDI stock, exports and government expenditures. Whereas Z_i is an unobserved variable that varies from one country to the next but does not change over time. We want to estimate β_1, the effect on Y of X holding constant the unobserved country characteristics Z. Because Z_i varies from one country to the next, but is constant over time, the real output regression model can be interpreted as having n intercepts, one for each country, and ε_{it} is the stochastic term.

To estimate the above panel regression model, four alternative methods are used. First, the Pooled Least Squares (OLS) model, which fundamentally depends on minimizing the sum of squared residuals, is based on the assumption that both intercept and coefficient are constant over time and cross section, and statistical noise captures disturbances over time and cross section. Second, the Fixed Effects model (FEM), also referred to as the "Least-Squares Dummy Variable (LSDV) model", estimates the intercept as coefficient of dummy variables. This model allows the intercept to vary for each cross-section and thus account for the individual effect. Third, the Random Effects model (REM) treats the intercepts as random variables rather than fixed constants. The intercepts are assumed to be independent from the error term and also mutually independent. This study also uses Hausman test to decide between a Fixed Effect model and Random Effect model. The null hypothesis underlying this test is that the FEM and REM estimators do not differ substantially. If the null hypothesis is rejected, REM is not appropriate and it is may be better to use FEM, in which case statistical inferences will be conditional on the ε_{it} in the sample. Specifically, if it is assumed that ε_{it} and the *X's* (explanatory variables) are uncorrelated, REM may be appropriate, whereas if ε_{it} and the *X's* are correlated, FEM may be appropriate (Gujarati, 2003).

Explicitly, let $\alpha_i = \beta_0 + \beta_2 Z_i$, then equation (1) becomes:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + \varepsilon_{it} \qquad (2)$$

This equation represents the fixed effects regression model by which we estimate the fixed effects on real output, where α_i (i=1....n) is the unknown intercept for each country.

While the random effects model has the form:

$$Y_{it} = X_{it}\beta + \alpha_i + u_{it} + \varepsilon_{it}, \qquad (3)$$

where u_{it} is the between-entity (country) error; ε_{it} is the within-entity (country) error.

Finally, the Hausman Taylor IV estimator can be considered to be an estimator in between the fixed and random effects approach. The crucial difference between the random effects model and the fixed effects model is based on assumptions about the correlation between the individual-specific effects and the set of regressors. However, these assumptions do not consider that if the individual effects are related to the regressors, estimation of time-invariant explanatory variables is not possible. To

overcome this, Hausman and Taylor (1981) introduced a model where some of the explanatory variables are related to the α_i , while others are not. In particular, they consider a model of the form:

$$y_{it} = X_{it}\beta + Z_i y + \mu_{it} + v_{it}, \quad (4)$$

where the Z_i are time invariant covariates. In this formulation, all individual effects that are denoted as Z_i are observed. Unobservable individual effects are contained in the random term μ_i. Hausman and Taylor suggested to split X and Z into two sets of variables: $X = [X_1;\ X_2]$ and $Z = [Z_1;\ Z_2]$, X_1 is $n \times k_1$; X_2 is $n \times k_2$; Z is $n \times g_1$; Z_2 is $n \times g_2$ and $n = NT$. The model then is:

$$y_{it} = X_{1it}\beta_1 + X_{2it}\beta_2 + Z_{1i}y_1 + Z_{2i}y_2 + \mu_i + v_{it} \quad (5)$$

The distinguishing feature of this model is found in the assumptions on the correlation between the individual-specific effect, μ_i , and the set of time varying and time invariant regressors.

The data

This study is an empirical study using secondary data. The annual data from 1998 to 2014 of six Western Balkan countries, namely Albania, Bosnia and Herzegovina, Croatia, FYROM, Serbia and Montenegro, were collected from World Development Indicator (WDI) provided by the World Bank. Data for tourist arrivals and tourism receipts were obtained from the World Tourism Organization (UNWTO). All data are transformed into logarithmic values in order to measure the relative impact and elasticity of tourism on economic growth in Western Balkan countries. A descriptive statistics of the data used in the empirical analysis is provided in (Table 1) below:

Table1. Summary statistics

Variable	Mean	Std. Dev.	Min	Max	Observations
GDPC	4419.496	2588.286	1743.098	1151 5.96	102
FDI	9.78e+08	1.11e+09	4.12e+07	5.81e+09	96
EXP	32.92835	8.483087	9.85324	49.37222	96
TOURISTS	1984660	3053193	9900	1.16e+07	96
RECEIPTS	1.91e+09	2.91+09	3.00e+07	1.16e+10	96
GOVEX	3.58e+09	3.56e+09	2.16e+08	1.30e+10	96

Source: Authors' calculations

4. Empirical findings

In this section estimates of econometric models, i.e. "pooled OLS," "Fixed Effects", "Random Effects", and the results of Hausman Taylor IV model are presented. GDP per capita was taken as a dependent variable representative variable of economic growth, while we consider GDP per capita with a time lag (lag GDPC) as independent variables in addition to the variable of tourist arrivals (Tourists) and tourism receipts (Receipts) in order to control the convergence of 'steady-state' predicted by neoclassical growth models (see Solow 1956; Mankiw et al. 1992). We also experiment with other control variables such as foreign direct investment stock (FDI), exports (EXP) and government expenditures (GOVEX). Summarized results are shown in Table 2 below.

Table 2. Regression results

	OLS	Fixed Effects	Random Effects	Hausman Taylor IV
Variables	ln_gdpc	ln_gdpc	ln_gdpc	ln_gdpc
ln_gdpc L1.	0.91860 (0.02584)***	0.31453 (0.06953)***	0.91860 (0.02584)***	0.34516 (0.06816)***
ln_tourists	0.02061 (0.01071)**	0.08346 (0.01635)***	0.02061** (0.01072)	0.08151 (0.01619)***
ln_receipts	0.00309 (0.00793)	0.02669 (0.00993)***	0.00309 (0.00793)	0.02717 (0.00984)***
ln_fdigdp	0.004712 (0.00509)	0.01451 (0.00391)***	0.004712 (0.00509)	0.01418 (0.00392)***

ln_exp	0.00819 (0.02118)	0.04321 (0.02099)*	0.00819 (0.02118)	0.04029 (0.02511)*
ln_govexp	0.00697 (0.00634)	0.11039 (0.02099)***	0.00697 (0.00634)	0.10021 (0.02191)***
ID_country	-	-	-	0.02997 (0.03313)
Constant	0.303020 (0.09246)	1.4755 (0.17901)	0 .303020 (0.09246)	1.36518 (0.21106)
Observations	89	89	89	89
R-squared	0.796	0.7443	-	-
F	29.25	75.75	-	-
Chi2	-	-	77.51	260.69
Model	OLS	FE	RE	-
Comand	Regress	xtreg	Xtreg	Xthtaylor
Number of countries	6	6	6	6

Note: The values in parentheses represent standard errors of coefficients, and notations ***; **; * indicate statistical significance of the regression coefficients of 1%, 5%, 10%, respectively
Source: Authors' calculations

As a result of individual unobservable heterogeneity linear regression method, respectively pooled OLS estimates show bias and cannot be regarded as consistent, so therefore the results of this approach should be taken with caution. Consequently, we have estimated the FEM and REM models, where through the Hausman[1] test we determined that the FEM model is more preferred than REM. Moreover, given the endogeneity problems that appear especially in growth models, we further applied the method of Hausman-Taylor IV as a method that avoids these problems. After running it, we performed again a second Hausman test to compare the FEM models and Hausman Taylor IV, and came to the conclusion that the Hausman Taylor IV model is the best model and the empirical results of this model are more robust than the results of previous models.

From the regression results of all models we note that there is a positive relationship between economic growth and tourism. Namely, the regression results of the Hausman Taylor IV model reveal that there is a strong positive link between economic growth and tourism. Also, the relationship is positive and statistically significant with the other independent variables considered in the model. The intuition behind the positive coefficient of GDP per capita of countries included in the study, is that all countries are transition countries and growth rates have been relatively high, mainly as a result of public property privatization and increased investment. It can also be assumed that the 'steady state' of these countries can be considered to be at a higher level than the average. Specifically, the coefficients of tourist arrivals, tourism receipts, FDI and government expenditures are statistically significant at 1% level of significance, while the ratio of exports at 10% level of significance. So, under other unchanged conditions, for every 1% increase in tourists, GDP per capita will increase by 0.0815%, and for every 1% increase of tourism receipts, GDP per capita will be increased by 0.0271%. FDI can also be considered as a determinant of growth of GDP, although researchers have achieved different results for different countries; in some countries there is a positive impact, while in others the link is unclear. In the case of the Western Balkan countries, according to these results the relationship is positive. Exports and government expenditures also have positive impact on economic growth.

The study of Cerovic et al. (2015) concludes that, although the number of tourist arrivals is growing in the Western Balkan countries (analysis consists of only three countries: Serbia, Montenegro and Macedonia), tourism makes a modest contribution to economic growth. Those

[1] To decide between fixed or random effects we can run a Hausman test where the null hypothesis is that the preferred model is random effects vs. the alternative hypothesis the fixed effects (see Green, 2008, chapter 9). It tests whether the errors (u_i) are correlated with the regressors, the null hypothesis suggests that they are not correlated.

authors use a different methodology than ours, which is mainly adopted by (Brida et al., 2008) with minor modifications. Despite this, our results suggest strong positive impact of tourism in the economic growth of the Western Balkan countries. The reason behind this is that

Balkan countries as far as tourist arrivals. As can be seen, fixed effects are higher in Croatia and Albania, while lower in Bosnia and Herzegovina, and FYROM.

Although the Hausman Taylor IV model performs well, the results should be interpreted with caution. The analysis has its limitations and shortcomings; first, the

our sample also included Croatia and Albania as two countries with highly developed tourism, especially Croatia. This can be seen in Figure 1 below, that shows fixed effects, i.e. individual heterogeneity of the Western

total number of observations is relatively small for a panel regression analysis; second, the problem of endogenity is not completely avoided. A dynamic panel regression analysis may be a comprehensive analysis by incorporating instrumental variables into the model.

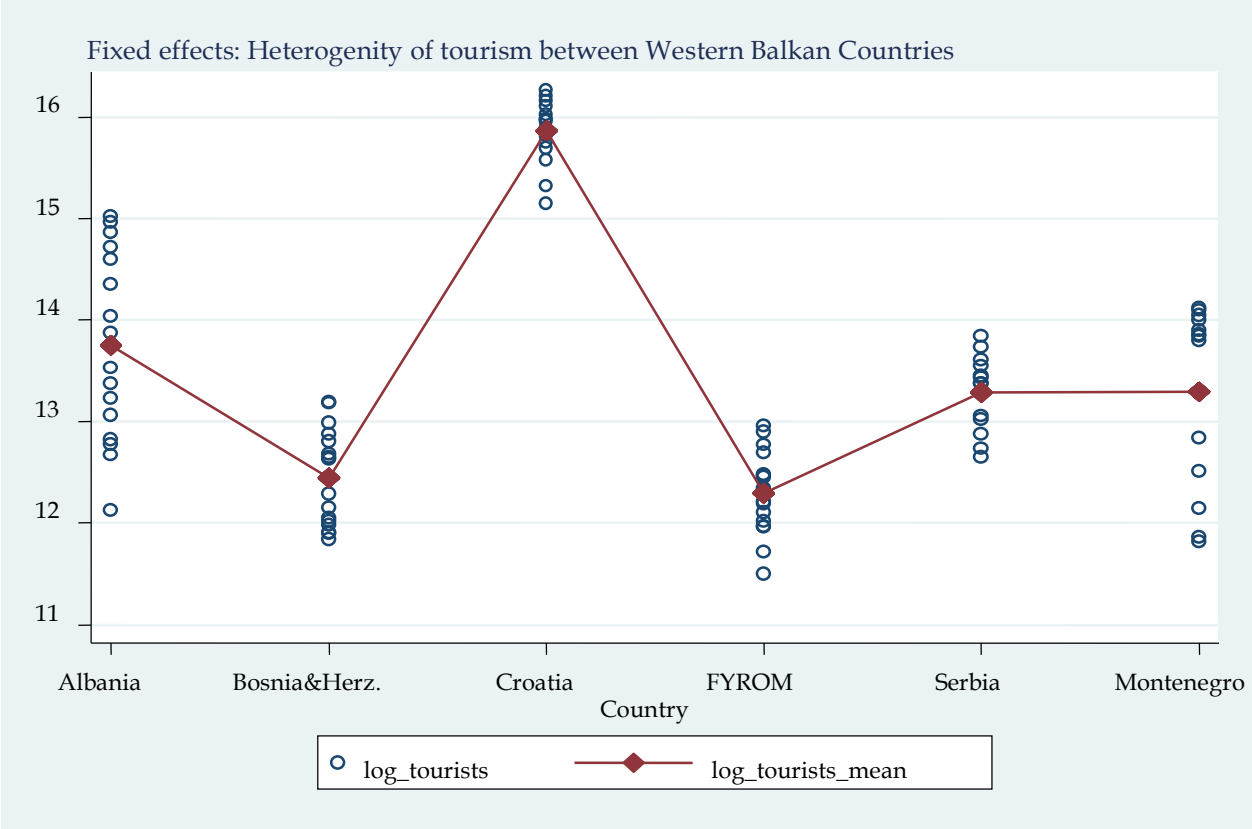

Figure 1. Heterogenity of tourism arrivals between Western Balkan Countries

Source: Authors' calculations

5. Conclusion

The main purpose of this study was to empirically analyse the impact of tourism on the economic growth of the Western Balkan countries (Albania, Bosnia and Herzegovina, Croatia, Macedonia, Serbia and Montenegro). To accomplish this goal, we performed a series of regression models based on panel data (from 1998-2014), such as pooled OLS model, fixed effects model, random effects model and the Hausman Taylor IV model. The results of all models show a positive and statistically-significant relationship between tourism and economic growth in the sample countries. Based on the results of Hausman test, the Hausman Taylor IV model was found to be most appropriate model for this analysis, holding other factors unchanged. It suggests that for every 1% increase in tourists, GDP per capita increase approximately by 0.08% over time.

Although the Hausman Taylor IV model performs well, the results should be taken with caution. The analysis has its limitations and shortcomings; first, the total number of observations is relatively small for a panel regression analysis; second, the problem of endogenity is not completely avoided. A dynamic panel regression analysis may be considered a comprehensive analysis by incorporating instrumental variables into the model

However, the study has important implications for economic policymakers of Western Balkan countries. The regional cooperation of these countries should be a priority, as well as the development of long term strategies for sustainable tourism to ensure further positive effects in economic development.

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The Effect of Private Benefits of Control on Minority Shareholders: A Theoretical Model and Empirical Evidence from State Ownership

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ABSTRACT

Purpose:
The purpose of this paper is to examine the effect of private benefits of control on minority shareholders.
Design/methodology/approach:
A theoretical model is established. The empirical analysis includes hand-collected data from a wide range of data sources. OLS and 2SLS regression analysis are applied with Huber-White standard errors.
Findings:
The theoretical model shows that, while private benefits are generally harmful to minority shareholders, the overall effect depends on the size of large shareholder ownership. The empirical evidence from government ownership is consistent with theoretical analysis.
Research limitations/implications:
The empirical evidence is based on a small number of hand-collected data sets of government ownership. Further studies can be expanded to other types of ownership, such as family ownership and financial institutional ownership
Originality/value:
This study is the first to theoretically analyse and empirically test the effect of private benefits. In general, this study significantly contributes to the understanding of the effect of large shareholder and corporate governance.

1. Introduction

Equity ownership provides shareholders with certain rights to the firm's cash flow. While large shareholders have both the incentive to monitor management and (we assume) enough control to influence management so that cash flow is increased, all shareholders of the firm benefit. These are the shared benefits of control. However, there are also potential private benefits of control, which are available only to those shareholders having a certain degree of control over the firm.

The theoretical literature often identifies private benefits of control as the "psychic" value some shareholders attribute simply to being in control (Aghion and Bolton, 1992). Another traditional source of private benefits of control is the perquisites enjoyed by top executives (Jensen and Meckling, 1976). The use of a company's money to pay for perquisites is the most visible, but not the most important way in which corporate resources can be used to the sole (or main) advantage of the controlling party. Another important method is "tunnelling", defined by Johnson et al. (2000). Tunnelling comes in two forms. First, a controlling shareholder can simply transfer resources from the firm for his own benefit through self-dealing transactions. Such transactions include outright theft or fraud, which is illegal everywhere, but also includes transfer of assets from a firm to the controlling shareholder at non-market prices loan guarantees using the firm's assets as collateral, excessive executive compensation, expropriation of corporate opportunities, etc. It can also take the form opposed to the above real transactions, such as dilution of minorities. It can be claimed that much of the tunnelling is legal (i.e. consistent with both the statutes and the basic principles followed by judges). Although some tunnelling (especially in emerging markets) constitutes theft or fraud, legal tunnelling taking place in developed countries is also substantial.

One main focus of the literature on investor protection (La Porta, Lopez-de-Salines, and Shleifer 2000) is on the amount of private benefits that controlling shareholders extract from companies they run. Two methods have been used in attempting to quantify them. The first one, pioneered by Barclay and Holderness (1989), focused on privately negotiated transfers of controlling blocks in publicly traded companies. The price per share an acquirer pays for the

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controlling block reflects the cash flow benefits from his fractional ownership, and the private benefits stemming from his controlling position in the firm. By contrast, the market price of a share after the change in control is announced reflects only the cash flow benefits non-controlling shareholders expect to receive under new management. Hence, as Barclay and Holderness have argued, the difference between the price per share paid by the acquiring party and the price per share prevailing on the market reflects the differential payoff accruing to the controlling shareholder. In fact, after an adjustment, this difference can be used as a minimal measure of the private benefits of control accruing to the controlling shareholder. Dyck and Zingales (2004) used the Barclay and Holderness (1989) method to infer the value of private benefits of control in a large (39) cross section of countries. Based on 393 control transactions between 1990 and 2000 they found that on average, corporate control is worth 14 percent of the equity value of a firm, ranging from a -4% in Japan to a +65%in Brazil. The second method relies on the existence of companies with multiple classes of stock with differential voting rights. In this case, one can easily compute the market value of a vote. Based on a similar approach, Albuquerque and Schroth (2010) also discussed why many negotiated block trades occur at a discount. The second method relies on the existence of companies with multiple classes of stock with differential voting rights (Ehrhardt and Nowak, 2015).

As to the effect of private benefits on minority shareholders, almost all previous research simply assumes that private benefits are harmful. However, as well as the shared benefit, private benefit also provides extra incentive to the manager/owner to work harder. Holderness (2003) said "it must be cautioned, however, that private benefits need not reduce the wealth of minority shareholders. This is an assumption of some analyses, but it is wrong. For example, neither the non-pecuniary pride that some individuals feel in controlling a public corporation nor the synergies in production that can result if a corporation is the blockholder (a common situation) will reduce the wealth of minority shareholders. Indeed, both of these private benefits could redound to the benefit of minority shareholders; both types of private benefits of control could, in other words, produce shared benefits of control." Albuquerque and Schroth (2010) stated that "the presence of private benefits of control does not mean that dispersed shareholders have nothing to gain from having a controlling shareholder".

Rather than simply assuming that private benefits of control are harmful, this study is the first to quantitatively analyse the effect of private benefits on small shareholders. Following a simple theoretical model, some empirical evidence from government controlling ownership is also provided.

2. A Simple Model

To be simple, the traditional agency problem, i.e. the conflict between shareholders and managers, is ignored. It is simply assumed there is only one large shareholder and it is also the manager. Holderness (2010) also found that even in the US, large shareholders are typically managers, not monitors. This assumption is thus consistent with the evidence.

Notations:

f A proportion of the firm's total products which are produced by purchasing raw materials through related parties, or which are sold to a related party

Δ The cash flow stakes (shared benefit) held by the large shareholder

$C(f)$ *The* cost of production, which is a function of f

$C_f > 0$ The cost increases as the fraction of related transactions f increase

$P(f)$ Selling pricing of product, which is a function of f

$P_f < 0$ The price of products decreases with the increase of f

$P_{ff} < 0$ The marginal effect of related transactions on price is decreasing

s Private benefit of control

Q Tobin's Q, which is the corporate value and also reflects the minority shareholder's interest

Suppose:

Cost of production function: $C(f) = a \cdot (1-f) + b \cdot f$

$b \succ a \succ 0$

Then $C_f = b - a \succ 0$, which means that cost of production is an increasing function of f

Revenue function:

$P(f) = (1 - c \cdot f - d \cdot f^2) \quad 0 \prec c \prec 1 \quad 0 \prec d \prec 1$

Then $P_f = -(c + 2 \cdot d \cdot f) \succ 0$

$P_{ff} = -2 \cdot d \prec 0$

(A) No private benefit.

Large shareholder will then maximize the following objective function:

$Max_f \quad v = P(f) - C(f) =$

$(1 - c f - d f^2) - a(1-f) - b f \qquad f^* = 0$

$Q = 1 - a$ Tobin's Q for f=0 is

(B) There are private benefits

Under these conditions, the large shareholder will maximize the following objective function:

$$\underset{f}{Max}$$
$$v = f\cdot(b-a)+\Delta\left[P(f)-C(f)\right]= \\ = f\cdot(b-a)+\Delta\cdot\left[\left(1-c\cdot f-d\cdot f^2\right)-a\cdot(1-f)-b\cdot f\right] \quad (1)$$

After doing the First Order Condition, the optimal f is:

$$f^* = \frac{(b-a)\cdot(1-\Delta)-\Delta c}{2\cdot\Delta\cdot d} \quad (2)$$

Now considering the large shareholder to choose Δ to maximize the following function:

$$\underset{\Delta}{Max} \qquad \underset{f}{Max}$$
$$v = f\cdot(b-a)+ \\ \Delta\cdot\left[b\cdot\left(1-c\cdot f-d\cdot f^2\right)-a\cdot(1-f)-b\cdot f\right] \quad (3)$$

Differentiating (2) to Δ, then we can get:

$$\frac{\partial f^*}{\partial\Delta} = -\cdot\frac{(b-a)}{2\Delta^2\cdot d} \prec 0 \quad (4)$$

The price to buy Δ of the company is:

$$v_1 = f\cdot(b-a)+ \\ \Delta\cdot\left[\left(1-c\cdot f-d\cdot f^2\right)-a\cdot(1-f)-b\cdot f\right] \quad (5)$$

Price per share for the controlling shareholder then is:

$$P_1 = \frac{v_1}{\Delta} = \frac{f\cdot(b-a)}{\Delta}+ \\ +\left[\left(1-c\cdot f-d\cdot f^2-a\cdot(1-f)-b\cdot f\right)\right] \quad (6)$$

The price to buy $(1-\Delta)$ of the company is:

$$v_2 = (1-\Delta)\cdot\left[\left(1-c\cdot f-d\cdot f^2\right)-a\cdot(1-f)-b\cdot f\right] \quad (7)$$

Price per share for minority shareholders is:

$$P_2 = \frac{v_2}{1-\Delta} = \left[\left(1-c\cdot f-d\cdot f^2\right)-a\cdot(1-f)-b\cdot f\right] \quad (8)$$

The private benefit of control s, which is defined as $\left(\frac{P_1}{P_2}-1\right)\cdot\Delta$, is as follows:

$$s = \frac{f\cdot(b-a)}{\left(1-c\cdot f-d\cdot f^2\right)-a\cdot(1-f)-b\cdot f} \quad (9)$$

The Tobin's Q, which is defined as

$$\left(\frac{market\cdot value\cdot based\cdot on\cdot \min ority\cdot shareholders'\cdot interest}{accounting\cdot valuation}\right)$$

is as follows: (10)

Differentiating (10) to Δ, then we can get:

$$\frac{\partial q}{\partial\Delta} = -\left(c+b-a+2d f^*\right)\frac{\partial f^*}{\partial\Delta} \succ 0 \quad (11)$$

$$q = \left(1-c f-d f^2\right)-a(1-f)-b f = \\ = (1-a)-\left[(c-a+b)f+d f^2\right]_{f=f^*} \prec 1-a$$

From this part, two basic hypotheses are concluded:

Hypothesis 1: (from equation 10) private benefit enjoyed only by the large shareholder is harmful to minority shareholders.

Equation 11 shows that the higher cash flow ownership by the controlling shareholder is associated with higher valuation. Combining this point and Hypothesis 1, the second hypothesis is drawn as follows:

Hypothesis 2: The negative effect of the private benefits on valuation (Tobin's Q) is higher when the large shareholder holds a small fraction of cash flow rights (the large shareholder enjoys the private benefit but only bears a small fraction of the cost).

3. Data

The primary source of ownership data sets is OSIRIS, and is provided by Bureau Van Dijk (BvD); OSIRIS is a database containing financial information on globally-listed public companies. As to the shareholder information, it consists of data on 35,098 firms with a total of 304,366 shareholders. In this section, only state ownership data items are identified, analysed and collected.

3.1 State Owner Identification

Because BvD never computes weighted averaged percentage of indirect ownership between a shareholder and a subsidiary, double checking and calculation of the ultimate ownership value is necessary. The alternative data provider is Lexix/Nexis (through which, we can access WorldScope, the Major Companies Database and Thompson Financials Extel Cards/ Holderness (2006) used Lexis-Nexis, and Claessens et al. (2000) and La Porta et al. (1999) used WorldScope. They claimed that the differences between the results with different data vendors are not significant.). All these three vendors only provide direct ownership information; however, one can trace the direct shareholders upward and finally find the ultimate owners. Besides annual reports, the official websites are also very useful in finding share information in some countries. However, if the ownership information in OSIRIS is very suspicious, such as the overall ownership size is greater than 100% or the date of multiple ownership is greatly different and no other options are available, these observations are deleted. The result of state owner identification is presented in Table 1.

Table 1: Identification of State Owner

Institution Name	Country	Original Identity	New Identity	No of Firms	No of Obs
Public Investment Commission*	South Africa	State, Public authority	Mutual & Pension fund/Trust/Nominee	16	68
Social Security System**	Philippine	State, Public authority	Mutual & Pension fund/Trust/Nominee	6	21
General Organization for Social Insurance GOSI***	Saudi Arabia	State, Public authority	Mutual & Pension fund/Trust/Nominee	3	9
Public Pension Institution	Saudi Arabia	State, Public authority	Mutual & Pension fund/Trust/Nominee	1	2
National Insurance Board (NIB)	Trinidad and Tobago	State, Public authority	Mutual & Pension fund/Trust/Nominee	1	2
National Social Security Authority	Zimbabwe	State, Public authority	Mutual & Pension fund/Trust/Nominee	1	3
National Council for Social Security	China	State, Public authority	Mutual & Pension fund/Trust/Nominee	1	2
Public authority for Social Insurance	Oman	State, Public authority	Mutual & Pension fund/Trust/Nominee	3	15
State Board of administration of Florida Retirement System	USA	State, Public authority	Mutual & Pension fund/Trust/Nominee	1	9
Treasury Stock	Japan	State, Public authority	Owed by Itself	1	1
Treasury Stock	Korea	State, Public authority	Owed by Itself	1	5
Bureau of Crown property****	Thailand	State, Public authority	Individual(s) or family(ies)	2	3

Institution Name is the largest shareholder name which appears in OSIRIS. Country is the origin of institution. Original Identity is the type of shareholder classified by OSIRIS. New Identity is its new classification of shareholder after double-checking. No of Firms is the number of firms that the institution invests in as blockholder(s). No of Obs is the total number of shareholders of all the firms invested in by this institution.

'Public Investment Commissions (PIC) (south Africa) are a non-banking financial intermediary responsible for the investment of social security and trust funds, but more particularly for the investment of public sector pension and provident funds placed with it. Source: http://www.pic.gov.za.

''The Social Security System (SSS) Philippine administers social security protection to workers in the private sector. The SSS administers two programs namely: (1). The Social Security Program; and (2) The Employees' Compensation (EC) Program. Social security provides replacement income for workers in times of death, disability, sickness, maternity and old age. Source: http://www.sss.gov.ph

'''General Organization for Social Insurance. Source: www.gosi.gov.sa

''''Bureau of the Crown Property or Crown Property Bureau (Thai:) is a Thai non-government agency responsible for managing the personal assets of the King of Thailand and his immediate family. According to Section 8 of the Royal Assets Structuring Act of 1936, the CPB is exempt from taxes. Source: http://en.wikipedia.org/wiki/Bureau_of_the_Crown_Property

From Table 1, we can see that the state organizations which operate private capital (social security capital) are excluded from being state shareholders. They are reclassified as pension funds. Treasury stocks are also excluded, being state shares. Another "fake state agency" is the "Bureau of Crown Property", which is reclassified.

Because the stock markets in West Asia, Africa and former USSA regions are immature, the data from countries such as United Arab Emirates, East Caribbean Terri, Ghana, Kenya, Kuwait, Morocco, Nigeria, Oman, Saudi Arabia, Serbia and Montenegro, Moldova and Suriname are excluded. As to Singapore, since all state ownership data is not available, sample firms from Singapore are also excluded. Firms from financial industry (3-digit SIC codes ranging from 600 to 700) are also excluded.

Finally, the data sample includes a total of 75 firms with 381 observations from 16 counties spanning from 2007-2008.

3.2 Independent Variables

As far as the interest of minority shareholders is concerned, Tobin's Q is used as a proxy variable. Q measures the valuation of the firm from the perspective of minority shareholders that do not receive any private benefits. It is defined as the ratio of market value of stock, preferred stock (current stock price times the number of outstanding shares) and debt to book value of assets, which is the same algorithm as Davies et al. (2005).

As to private benefits, the basic idea is that private benefits provide extra incentive to the manager/owner to work harder. Table 2 presents the country-level average private benefits, which are from Dyck and Zingales (2004).

The block premium is computed as the difference between the price per share paid for the control block and the price on the Exchange two days after the announcement of the control transaction, divided by the price on the Exchange after the announcement and multiplied by the proportion of cash flow rights represented in the controlling block.

Table 2. Private Benefits of Control by Country

Country	Mean value of block premium as percent of firm equity
Australia	0.02
Israel	0.27
Malaysia	0.07
New Zealand	0.03
Thailand	0.12
United Kingdom	0.01
Brazil	0.65
France	0.02
Italy	0.37
Germany	0.1
Japan	-0.04
South Korea	0.16
Switzerland	0.16
Taiwan	0
Finland	0.02
Norway	0.01

State Ownership is the fractional equity owned by the state/government. Previous research suggests that relation between equity ownership and Tobin's Q maybe nonlinear (Villalonga and Amit, 2006). The regression specification id developed by including state ownership and the square of state ownership as continuous variables.

In addition, the legal system has a significant effect on corporate valuation (minority stakeholder's interest). Dyck and Zingales (2004) said that "since LLSV's (1998) seminal paper, the origin of country's legal system has played an important role in all the institutional explanations of cross-country differences" and they found that legal mechanisms are dominant explanation variables. La Porta et al. (2002) claimed that the legal system can have two proxy variables which are "Common Law' and "Civil Law". "Common Law" equals one if the origin of the company law or commercial code of the country is English Common Law, and zero otherwise. Civil Law equals one if the company law or commercial code of the country originates in Roman Law, and zero otherwise. The below Table 3 presents the classifications of legal system.

Table 3.Common Law or Civil Law around the World

Country	Common Law	Civil Law
English-Origin		
Australia	y	
India	y	
Israel	y	
Malaysia	y	
New Zealand	y	
Pakistan	y	
Thailand	y	

United Kingdom	y	
French-Origin		
Belgium		y
Brazil		y
France		y
Greece		y
Italy		y
Jordan		y
Germany-Origin		
China		y
Germany		y
Japan		y
South Korea		y
Switzerland		y
Taiwan		y
Scandinavian-Origin		
Finland		y
Norway		y

Corporate valuation is controlled, in line with the relevant finance literature; large firms may have scale economies and better access to bank credits, which could improve corporate profitability (Chhibber and Majumdar, 1999). Here one can proxy Firm Size with the natural log of the book value of total assets.

Asset structure or Tangibility is also argued to influence corporate valuation. Tangibility is approximated by the fixed asset ratio: the net fixed assets over total assets. It is expected that the fixed asset ratio has a negative impact on corporate value, as firms with a high proportion of intangible assets tend to belong to the new economy.

Jensen's (1986) free cash flow theory predicted that corporate performance increases as the debt/equity ratio increases because the managers of indebted firms are less able to invest in projects with negative net present values.

Capital Structure: total long-term liabilities over total asset, is also controlled.

Furthermore, significant literature argues that, given the enterprise life cycle, the age of a firm is related to corporate profitability and market value. It is measured as the natural log of the number of years since the firm's inception.

R&D/Sales is used to proxy for growth opportunity. Year Dummies are also used to capture rapid institutional change and macroeconomic shocks in different years. Industry Dummies are also controlled.

4. Regression Results

The regressions models and results are presented in table 4.

Model 1 only considers the relations between Tobin's Q and Private Benefits, non-linear state ownership, common law dummy as proxy for investor protection and other control variables. Model 2 furthermore considers the interaction term of Common Law*Ownership. Model 3 adds the interaction term of Common Law*PrivateBenefit. Model 4 additionally consider the interaction term of PrivateBenefit*Ownership. Model 5 adds two other variables: Common Law*Ownership and Common Law*PRVBenefit. Model 6 considers other two of PRVBenefit*Ownership and Common Law*Ownership. Model 7 adds two interaction terms related with "Private Benefit" as Common Law*PRVBenefit and PRVBenefit*Ownership. Model 8 adds all these three interaction terms.

The table 4 reports of regressing Tobin's Q on private benefits. Private Benefit is the privately shared benefit by large shareholders, which is proxied with the premium of block transactions. State Ownership is the fraction of stake held by government or public authority. Common Law is a dummy variable that equals 1 if the origin of the company law or commercial code of the country is English Common Law, and 0 otherwise. R&D/Total Sales is research and development expenses divided by net sales. Capital Structure is measured as the book value of long-term debt divided by the book value of total assets. Firm size is Log Total Assets (/1,000, 000), which we measure as the nature log of book value of total assets divided by 1,000,000. Tangible is approximated by the fixed asset ratio: the net fixed assets over total assets. We proxy Firm Age using the Log value of the number of years since the firm's inception. P-values are in parentheses (with white standard errors).

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Table 4 Tobin's Q and Private Benefits: The Case of State Ownership

	1	2	3	4	5	6	7	8
Intercept	2.329	2.594	2.349	2.592	2.642	2.775	2.609	2.816
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Private Benefit	-0.028	-0.413	0.104	-3.384	-0.259	-3.272	-3.241	-3.065
	(0.927)	(0.207)	(0.751)	(0.002)	(0.447)	(0.002)	(0.003)	(0.004)
State Ownership	-2.631	-3.503	-2.477	-3.286	-3.358	-3.916	-3.136	-3.773

	(0.010)	(0.001)	(0.015)	(0.001)	(0.001)	(0.000)	(0.002)	(0.000)
State Ownership*State Ownership	2.104	3.381	1.890	2.227	3.183	3.255	2.022	3.076
	(0.035)	(0.002)	(0.063)	(0.021)	(0.003)	(0.002)	(0.040)	(0.004)
Common Law	0.535	1.315	0.635	0.552	1.519	1.187	0.647	1.378
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(<.0001)
Common Law*PRVBenefit			-0.799		-1.125		-0.760	-1.036
			(0.283)		(0.125)		(0.291)	(0.148)
Common Law*Ownership		-1.544			-1.670	-1.263		-1.386
		(0.006)			(0.003)	(0.022)		(0.013)
PRVBenefit*Ownership				6.647		5.800	6.612	5.669
				(0.001)		(0.005)	(0.001)	(0.006)
R&D/Total Sales	12.361	13.329	12.649	5.947	13.813	7.556	6.256	8.133
	(0.003)	(0.001)	(0.003)	(0.180)	(0.001)	(0.088)	(0.160)	(0.067)
Ln(Total Assets)	-0.024	-0.034	-0.022	0.003	-0.033	-0.009	0.004	-0.008
	(0.231)	(0.084)	(0.262)	(0.886)	(0.094)	(0.671)	(0.839)	(0.689)
Ln(Firm Age)	-0.032	-0.025	-0.043	-0.021	-0.040	-0.017	-0.032	-0.031
	(0.432)	(0.531)	(0.308)	(0.596)	(0.331)	(0.670)	(0.442)	(0.448)
Tangible	0.491	0.347	0.475	0.258	0.313	0.170	0.244	0.142
	(0.115)	(0.260)	(0.128)	(0.403)	(0.309)	(0.578)	(0.430)	(0.641)
Capital Structure	-0.752	-0.931	-0.713	-0.740	-0.891	-0.888	-0.703	-0.852
	(0.001)	(<.0001)	(0.002)	(0.001)	(0.000)	(<.0001)	(0.001)	(0.000)
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	yes	yes	yes	yes	yes	yes	Yes
Adjusted R-Square	0.454	0.485	0.459	0.495	0.494	0.514	0.499	0.522

All of the eight coefficients of private benefit are negative, indicating that private benefits do harm minority shareholder's interest. This finding confirms Hypothesis 1. However, whether it is significant (within 1% confidence level) or not depends on the interaction term of PRVBenefit*Ownership. This finding confirms Hypothesis 2. For model 4, 6, 7 and 8, which include this interaction term, the coefficients of "Private Benefit" are significantly negative. When "Private Benefit" increases 1%, the Tobin's Q will decrease from 3.07% (model 8) to 3.38% (model 4). However, after considering the interaction terms of "Private Benefit" and "State Ownership", the harmful effect is different. For model 4, 6, 7, and 8, the coefficients of the interaction terms are significantly positive, showing that the private benefits are not necessary harmful to minority shareholders. It will depend on the size of large shareholder ownership, in this case, government (state). For model 4, if private benefits of control increase 1% and the ownership is 10%, then the change of Tobin's Q will be 1%*(-3.384)+1%*10%*6.647=-2.7%. This means that that an increase of 1% in private benefits will cause a loss of 2.7% of Tobin's Q, i.e., minority shareholder's interest is hurt. However, if the ownership is 60%, the Tobin's Q will change 1%*(-3.384)+1%*60%*6.647=0.6%. This means that although there is an increase of private benefits, the Tobin's Q will finally increase 0.6%, and the minority shareholder will be better off from this increase of private benefits. Here the value of turning point of state ownership, at 50.9%, is also obtained. This means when state ownership is below 50.9%, private benefits, which are only enjoyed by the large shareholder, here, government, will be harmful to minority shareholder. However, when the size of ownership increases to greater than 50.9%, private benefits will benefit the minority shareholders. Similarly, the value of turning point of state ownership is found to be 56.4% for model 6. As to model 7 and 8, the value of turning point also depends on the variable "common law". The turning point size of state ownership is 60.5% and 72.3% separately in common law countries and 49% and 54% separately in civil law countries. The rationale is as follows: private benefits provide an extra incentive to managers (large shareholders). When the large shareholder owns a small fraction of equity, even if it gets many private benefits, the total incentive from private benefits and shared benefit is not enough to motivate the managers to work harder. However, if the large shareholder owns a large fraction of the firm's equity, the total incentive will encourage the large shareholder to work harder, improving corporate performance, and at the same time benefiting the minority shareholder.

When considering the effect from the interaction term of "Common Law" and "Private Benefit" (model 3, 5, 7 and 8), it shows that the coefficients of the interaction term are all negative (not significant). This indicates that private benefits are more harmful (if harmful) and less beneficial (if beneficial) to minority shareholders in common law countries (which represent stricter investor protection), although this relation is not significant.

As to the performance of state ownership, the coefficients on state ownership are significantly positive and the coefficients on squared ownership are significantly negative in all 8 models. It shows that there is a u-shaped relation between Tobin's Q and state ownership. The economic explanation lies within the utility function of the government, which contains both financial and political goals. When government is a small shareholder, it has neither the authority nor the incentive to provide the preferential treatment and benevolence that would outweigh the disadvantages of its political interference. If the presence of a government shareholder is to be beneficial to a firm, its shareholding stakes must be large. At the same time, minority shareholders also benefit from that.

However, the u-shaped relation may be influenced by reverse causality of the government shareholding, which is determined by Tobin's Q (corporate performance). Moreover, since the government will also benefit from increase of Tobin's Q (the shared benefit for both large and minority shareholder), the improvement of corporate performance may lead to changes in state ownership. This suggest that state ownership may be an endogenous variable. The simultaneity issue needs to be addressed with the 2SLS model. In this simultaneous equation system, Tobin's Q and the size of government shareholding are jointly dependent variables. Lagged Tobin's Q, R&D/Sales, Private Benefit, Firm Age, Tangible, financial leverage, firm size, and the industrial sector dummies and Common Law Dummy are taken as instruments. In the first stage regression, the coefficients on lagged Tobin's Q are always insignificant (even after changing the control variables), which suggests Tobin's Q (as proxy for corporate performance) was not actually an important determinant of state ownership. Gugler and Weigand (2003) also found that the largest shareholder affects performance exogenously in the US and German, the endogeneity of state ownership is not found in their study.

As far as these control variables are concerned, the coefficients of R&D/total sales are all positive (although not significant in model 4 and 7). This is consistent with previous analysis. Firm size is not significant. Firm age is negatively related with Tobin's Q although the relation is insignificant. Both of these two conclusions are consistent with the analysis presented in Section 3.2.1. Variable "Tangible" has a positive, but not significant relation to Tobin's Q. Capital Structure is negatively related with Tobin's Q. This indicates that the use of debt as external financing sources is harmful to minority shareholder's interest when state is the large shareholder.

5. Conclusions

This study finds that while private benefits are generally harmful to minority shareholders, the overall effect depends on the size of ownership. Almost all of previous research simply assumes that private benefits are harmful. This study is the first to theoretically analyse and empirically test the effect of private benefits. Empirical evidence from government ownership also confirms my theoretical analysis. This study significantly contributes to the understanding of the effect of ownership structure and broad corporate governance issues

Further empirical studies can be expanded to other types of ownership such as family ownership and financial institutional ownership.

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ABSTRACT

Purpose:
The purpose of this paper is to empirically examine from the resource-based perspective, the relationship between the use of management control systems (MCS) and organisational capabilities in the Greek context.
Design/Methodology/Approach:
The study follows Henri's (2006) methodology and explores the relationships between the diagnostic and interactive uses of performance measurement systems (PMS) and the five capabilities (e.g. market orientation, organisational learning, entrepreneurship, innovativeness and market responsiveness) leading to strategic choice. Structural equation modelling represents the relationships between the variables and data collected from the survey, which was analysed as a statistical tool with AMOS. **Findings**:
Results revealed that diagnostic use of PMS negatively influence only the organisational learning, while the interactive use positively interacts with most of the capabilities.
Research limitations/implications – This study can be further extended by incorporating more factors in the proposed model, such as environmental uncertainty, size and organisational culture, and examine their possible effect on the relationship between PMS uses, organisational capabilities and performance.
Originality/Value:
There is no similar empirical research in the context of Greece.

1.Introduction

Danneels (2002) argues that since the business environment is rapidly changing in terms of customers, technologies and competition, firms should continuously renew themselves if they want to survive and succeed, both in the short and long term. Hurley and Hult (1998) believe that innovation, market-orientation and organisational learning are the primary capabilities that lead a company to competitive advantage and the creation of wealth. Ireland *et al.* (2001) add one more; entrepreneurship. All of these ideas come out of the so-called resource-based view (RBV) of the firm which has its roots in the theory of the growth of the firm developed by Penrose in 1959. Since then, many writers contributed to the development of this theory, which has become a very powerful theoretical framework and one of the most prevailing theories in the field of strategic management (Wernerfelt, 1984; Barney, 2001; Barney, Wright and Ketchen, 2001; Fahy, 2002, Hoopes, Madsen and Walker, 2003; and Chuang, 2004). RBV is based on the principle that competitiveness is a function of distinctive and valuable resources and, especially, capabilities controlled by a firm (Henri, 2006).

Up to now, the vast majority of management accounting and strategy literature has examined either the effects of strategy on management control systems (MSCs) or, to a lesser extent, the effects of MSC on strategy (Langfield-Smith, 1977). Both directions of research found, in many instances, ambiguous and contradictory results. According to Simons (1990) and Langfield-Smith (1977) these contradictory results are mainly due to the variety of definitions, concuptualisations and operationalisations used for the measurement of the complicated constructs of MCSs and strategy. Henri (2006) adds two more reasons for these contradictory results: first, the absence of a theoretical background which tries to explain these relationships and especially the non use of the prevailing strategy theory based on the RBV, and second, the rather small attention that is paid to the dynamic tension steaming from the different uses or roles of MCS.

Ittner and Larcker (2001) suggest that one key point that must be considered when one tries to study the relationship between MCSs and strategy, is the determination of all those factors that lead to strategic success. According to the RBV approach, the

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relationship between MCSs and strategy should be examined at the capabilities level rather than the strategic choice level, since the RBV is based on the principle that competitiveness is a function of the strength, expert exploitation, and leveraging of specific internal recourses and capabilities controlled by a firm (Lengnick –Hall and Wolff, 1999).

On the other hand, based on Simons' work (1990; 1991; 1994; 1995), many studies explored the role of MCSs in terms of strategy-formulation and the strategic change implementation (see: Chenhall and Langfield-Smith, 2003; and Bisbe and Otley, 2004 among others).

Others examined how the organisations balance the traditional and more active roles of MSCs (see: Dent, 1987; and Ahrens and Chapman, 2004).

However, up to now, the effects of dynamic tension resulting from the balanced use of MCSs in different ways have not yet extensively examined (Henri, 2006). He (Henri, 2006) suggests that a more complete understanding of the link between MCSs and strategy requires the integration of the theoretical and empirical analyses of both traditional and more active roles of MCSs, and also the tension/interaction resulting from those uses.

The present study, following Henri's design (2006) for comparison purposes, explores only one component of MCSs, namely the performance measurement system (PMS), which represents a group of measures (financial or non-financial, internal or external, short or long terms, etc.) used to quantify actions (Neely, Gregory and Platts, 1995).

It aims to examine, from a resource-based perspective, how the use of PMS by top management teams can act as an antecedent to organisational capabilities leading to strategic choices. It focuses on the traditional feedback role of PMS to support the implementation of strategy ('diagnostic use') and the more active role of PMS associated with the signals sent throughout the firm to focus organisational attention, stimulate dialogue and support the emergence of new strategies ('interactive use'). Moreover, these two types of use work simultaneously but for different purposes. However, collectively, their power lies in the tension generated by their balanced use which simultaneously reflects a notion of competition and complementarity. Consequently, it also explores the influence of the dynamic tension emerging from the join use of PMS in a diagnostic and interactive mode on *capabilities* leading to strategic choices (Henri, 2006).

The rest of the paper is organised as follows. Section two briefly discusses the use of MCS and the resource-based view and capabilities. Accordingly, the research model is presented, followed by the hypotheses development. Section three refers to methodology, while the results coming from the structural equation modelling analysis are presented and discussed in section four. Section five concludes the study.

2. Theoretical Background

2.1. Constructs definition

2.1.1. Use of Management Control Systems

Management control systems are viewed typically as tools of strategy implementation (Simon, 1991). More analytically, MCSs are broadly defined as 'the formalised routines and procedures using information to maintain or alter patterns in organisational activity, and include formalised information-based processes for planning, budgeting, cost control, environmental scanning, competitor analysis, performance evaluation, resource allocation, and employee rewards' (Simon, 1987a, p. 49). Simons' (1987a, 1990, 1991, 1994, and 1995) studies on the levels of controls focus mainly on the concept of *tension*, which in turn, conceptualise that the aim of MCSs is to manage the inherent organisational tension between creative innovation and predictable or pre-established goal accomplishment. Consequently, management teams use MCSs either as positive or negative forces to produce dynamic tension that may deal with the inherent organisational tension (Henri, 2006).

The broad literature on MCSs (see: Simons, 1991, 1994, 1995; Langfield-Smith 1997; Haas and Kleingeld, 1999; and Kaplan and Norton, 2001, among others) distinguish the use of MCSs in *diagnostic* and *interactive* use. According to Green and Welsh (1988) MCSs are described as information feedback systems, where goals are set in advance, outcomes are compared with preset objectives, and important variances are given to management teams for amendments, adjustments and follow-up (Anthony, Dearen, and Bedford, 1989). Since this type of systems is considered as the primary tool for management-by-exception, the literature characterises them as *diagnostic control systems* (Simon, 1991).

Moreover, *diagnostic use* of control systems represents a negative force mainly for two reasons: (a) it is focused on mistakes and negative variances, and (b) the derived sign of the deviation when outcomes and preset goals are compared is reversed in the feedback signal to adjust the process (Henri, 2006). Simons (1991) mentions that MCSs are not always used to manage by exception. In many cases, top management uses MCSs for day-to-day issues to support organisational decision making. Thus, MCSs can be characterised as *interactive* when top management teams use them to 'personally and regularly involve themselves in the decisions of subordinates' (Simons, 1999, p. 49). The *interactive use* of MCSs represents a positive force, since they are utilised to encourage opportunity-seeking and learning throughout the firm (Henri, 2006).

The *diagnostic* and *interactive uses* of MCSs, including the PMS, form two complementary and nested uses. Although they function simultaneously, they are focused on different purposes. The diagnostic use constrains the role of PMS to a measurement tool, while the interactive use expands its role to a strategic management tool (Kaplan and Norton, 2001). On the other hand, according to Simons (1990, 1991, 1994, and 1995) framework, diagnostic and interactive uses of MCSs represent countervailing forces used to balance the inherent organisational tension. Thus, as Lewis (2000) argues, the join use of MCSs in a diagnostic and interactive manner to manage inherent organisational tensions creates *dynamic tension.*

In the present study, following Henri's design (2006) for comparison purposes, only one component of MCSs is explored, namely the performance measurement system (PMS), which represents a group of measures (financial or non-financial, internal or external, short or

long terms, etc.) used to quantify actions (Neely, Gregory and Platts, 1995). In other words, the present study explores the influence of the dynamic tension emerging from the join use of PMS in a diagnostic and interactive mode on *capabilities* leading to strategic choices (Henri, 2006).

2.1.2. Resource-based view and capabilities

According to Amit and Schoemaker (1993) the resource-based view-RBV considers firms as bundles of resources heterogeneously distributed across firms, and that resource differences remain over time. Barney (1991) stresses that resources that are valuable, rare, difficult to imitate, and, moreover, non-substitutable, almost certainly lead to the achievement of competitive advantage, that cannot be copied and adopted by competitors. Resources include different components that can be utilised to apply wealth-creating strategy. These might be: (a) specific physical assets, (b) organisational assets, (c) human resources, and (d) competencies (Eisenhardt and Martin, 2000).

Day (1994) argues that capabilities create a link between resources and allow their deployment. Moreover, dynamic organisational capabilities illustrate the ability of an organisation to implement repeatedly, or replicate productive activities that encourage an organisation's capacity to generate value by influencing the transformation of inputs into outputs (Teece, Pisano and Shuen, 1997).

Market orientation, *organisational learning*, *innovativeness*, *entrepreneurship*, and *market responsiveness* are recognised as primary capabilities to gain competitive advantage and create market change. However, although each capability can to positively contribute, it is not sufficient to develop competitive advantage.

Market orientation is regarded as a common way of satisfying market demand and originating superior value for customers. It is described as a complex of beliefs that evolutes long-lasting profit, taking firstly the customers' interests and secondly that of stakeholders' into great consideration. Narver and Slater (1990) and Kohli and Jawoski (1990) discuss the importance of market-orientation, clearly linking it with business performance. According to Fiol and Lyles (1985) o*rganisational learning* develops insights, knowledge and links among past actions. Moreover, it refers to the efficacy of these actions, and, in turn, to future actions. Organisational learning is considered as a very important factor of strategic management in terms of gaining competitive advantage, since it aids in enhancing the information processing activities within a firm in a faster way than the competitors, and thus, it's strongly associated to the firms' performance (Baker and Sinkula, 1999).

Hurley and Hunt (1998) argue that i*nnovativeness* is the firm's positive attitude towards new ideas, processes and products, and its focus on innovation. Moreover, they stress that innovative firms can easily gain competitive advantage and consequently achieve high levels of performance.

Naman and Slevin (1993) and Daily *et al.* (2002) consider *entrepreneurship* as a firm's ability to constantly renew, innovate and take risks in its area of operation. Many other studies discuss the *entrepreneurship's* strengths and clearly point out its contribution to firm's survival and performance (see: Miller, 1983; Hitt *et al.*, 2001, among others).

Finally, *market responsiveness*, refers to the firm's capability to change its attitudes in a speedy manner, due to the appearance of market demand shifts. As a result, market responsiveness happens in cases the organisation not only regards the necessity but also is able to act, relying on market stimuli. This may lead to competitive advantage and enhance the firm's performance (De Geus, 1988; Slater and Narver, 1999; Griffith, Noble and Chen, 2006; Garrett, Covin and Dennis, 2008).

Many scholars (see: Ireland *et al.*, 2001; Hult and Ketchen, 2001; Bhuian, Menguc and Bell, 2005) argue that capabilities, only when acting collectively, can make an organisation unique and competitive.

2.2. Theoretical model and hypotheses

Consequently, the theoretical model of the present study is formed as in Figure 1. It reflects the relationships among two PMS use (diagnostic and interactive), five capabilities (market orientation, organisational learning, innovativeness, entrepreneurship, and market responsiveness), and organisational performance.

Diagnostic use of PMS supports the attainment of pre-established goals and is described as a negative force that creates constraints and ensures compliance with orders (Simons, 1995; Henri, 2006). According to Simons (1995) diagnostic systems constrain innovation and opportunity-seeking to ensure predictable goal achievement needed for intended strategies. Diagnostic use of PMS is used to signal when productivity and efficiency have fallen, and when innovation needs to be curbed (Miller and Friesen, 1982). Hence, PMS is used diagnostically to limit the deployment of the five capabilities by providing boundaries and restrict risk-taking. Hence:

Hypothesis 1: A diagnostic use of PMS tends to negatively influence capabilities of market orientation, entrepreneurship, innovativeness, organisational learning and market responsiveness.

On the other hand, interactive use of PMS supports the development of ideas and creativity. It has the power to represent a positive impetus that fosters creative and inspirational forces. 'Senior managers use interactive control systems to build internal pressure to break out of narrow search routines, stimulate opportunity-seeking, and encourage the emergence of new strategic initiatives' (Simons, 1995, p.93). Relying on organisational dialogue and signalling, interactive use of PMS represents an adequate means to foster the five aforementioned capabilities because it reflects two important features associated with organic controls: (a) loose and informal control reflecting norms of cooperation, communication and emphasis on getting things done, and (b) open channels of communication and free flow of information throughout the organisation (Burns and Stalker, 1961). Globally, there is a natural fit between the requirements of the five capabilities and organic use of control systems (Chenhall and Morris, 1995; Van de Ven, 1986). Hence:

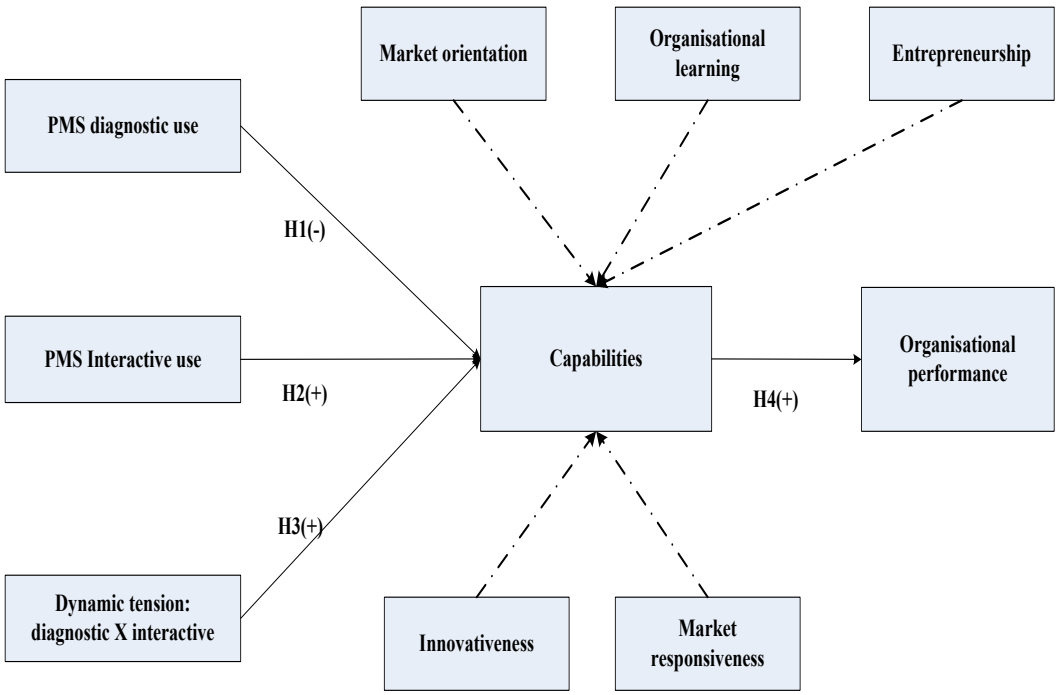

Figure 1: The theoretical model

Hypothesis 2: An interactive use of PMS tends to positively influence capabilities of market orientation, entrepreneurship, innovativeness, organisational learning and market responsiveness.

Together, diagnostic and interactive uses create a dynamic tension which has two effects: (a) ensuring that positive effects of interactive use on capabilities will be achieved; and (b) expanding these positive effects of interactive use (Henri, 2006).

In some circumstances, the potential benefits of interactive use may disappear due to insufficient diagnostic use to set boundaries and to highlight effectiveness issues. This can produce a loss of direction, wasted energy and a disruption of continuity (Chenhall and Morris, 1995). Similarly, the potential benefits of interactive use can be lost due to excessive diagnostic use, which constraints innovation and risk-taking. This can produce stagnation, loss of energy and declining morale (Chenhall and Morris, 1995). More importantly, a diagnostic use of PMS helps to increase the positive effects of an interactive use on capabilities: Beyond the underlying assumptions that conflict and tension are negative and destructive, growing evidence from the conflict literature suggests that they may be beneficial to individual and organisational performance, and that avoiding and suppressing conflict reduces creativity, decision quality, product development, and communication (DeDteu, 1991; Nicoreta, 1995 in Henri, 2006). Hence:

Hypothesis 3: The dynamic tension resulting from a balanced use of PMS in a diagnostic and interactive fashion tends to positively influence capabilities of market orientation, entrepreneurship, innovativeness, organisational learning and market responsiveness.

According to the RBV of the firm, valuable, rare, inimitable, and non-substitutable resources and capabilities lead to a sustained competitive advantage, which in turn contributes to performance differences among firms (Wernerfelt, 1984; Barney, 1991). Market orientation, market responsiveness, organisational learning, innovativeness, and entrepreneurship constitute five capabilities that have all the above-mentioned attributes. They are considered to be key drivers of organisational transformation and strategic renewal, by manipulating resources into new value-creating strategies (Bhuian *et al.* 2005; Eisenhardt and Martin, 2000; Ireland *et al.* 2001). Empirically, previous studies provide evidence showing that these five capabilities contribute positively to performance (Hult and Ketchen, 2001; Lee, Lee, and Pennings, 2001; Naman and Slevin, 1993; Narver and Slater, 1990; Spanos and Loukas, 2001; Garrett, Covin and Dennis, 2008).

The diagnostic and interactive uses of PMS, as well as the dynamic tension resulting from their balanced use have been already linked to the five capabilities (Hypotheses 1-3). Also, these five capabilities are expected to lead to positive organisational performance. Hence, the diagnostic and interactive use of PMS and the dynamic tension resulting from their balanced use influence the five capabilities, which in turn increase performance. Therefore, the following two hypotheses are put forward:

Hypothesis 4a: The diagnostic and interactive use of PMS has an indirect effect on organisational performance via their contribution to capabilities of market orientation, entrepreneurship, innovativeness, organisational learning and market responsiveness.

Hypothesis 4b: The dynamic tension resulting from a balanced use of PMS in a diagnostic and interactive fashion has an indirect effect on organisational performance via its contribution to capabilities of market orientation, entrepreneurship, innovativeness, organisational learning and market responsiveness.

3. Methodology

3.1. Measurement of constructs - the questionnaire

This study adopts the questionnaire used by Henri (2006), adds one more capability (market responsiveness), and adjusts it to the Greek context by translating it into the Greek language.

Henri (2006) developed his instrument based on (a) an adapted version of Vandenbosch (1999) to measure *diagnostic* and *interactive* uses of PMS, (b) a well-established MKTOR instrument of Narver and Slater (1990) to measure *market orientation* (c) an instrument proposed by Naman and Slevin (1993) to measure *entrepreneurship*, (d) a framework suggested by Hult (1998) to measure *organisational learning*, and (e) the instrument proposed by Burke (1989) to measure *innovativeness*.

In the present study *market responsiveness* is measure based on the argumentation of Griffith, Noble and Chen (2006). Finally, o*rganisational performance* is measured with an instrument using five indicators: (a) sales volume, (b) ROI, (c) profitability, (d) market share, and (e) meeting budget targets.

Content validity is ensured using existing and validated scales and by the pre-test of the first draft of the questionnaire. Three academics were asked to scan the questionnaire, several CEOs contributed by adjusting the questions to their 'language' and more than ten M.Sc. students tried to answer the questions. *Convergent validity* was established via confirmatory factor analysis (CFA). The detailed results are shown in Appendix 1.

3.2 Research design and the sample

A survey was undertaken to gather all the appropriate data by use of a structured questionnaire. The design of the survey follows that of Henri (2006), who developed his instrument based on (a) an adapted version of Vandenbosch (1999) to measure *diagnostic* and *interactive* uses of PMS, (b) a well-established MKTOR instrument of Narver and Slater (1990) to measure *market orientation* (c) an instrument proposed by Naman and Slevin (1993) to measure *entrepreneurship*, (d) a framework suggested by Hult (1998) to measure *organisational learning*, and (e) the instrument proposed by Burke (1989) to measure *innovativeness*. In the present study *market responsiveness* is measured based on the argumentation of Griffith, Noble and Chen (2006). Finally, o*rganisational performance* is measured using five indicators: (a) sales volume, (b) ROI, (c) profitability, (d) market share, and (e) meeting budget targets.

In order to achieve sufficient sample size and generalizability of the result, the target population consisted of all 157 large-size Greek manufacturing companies that employed at least 250 people. The population was drawn from a database compiled by ICAP, which is a well-known and reliable source of data for Greek companies. The size-limitation was introduced for the reason that small and medium firms present some difficulties and mostly, these companies do not have the appropriate management accounting tools (Chenhall and Langfield-Smith, 1998). Especially in those small firms, information is rare, and in some cases, is far from reliable. In Greece, as anywhere else, larger companies are expected to use most of the tools and proposed practices. The questionnaire items used in this survey are exactly the same with those used by Henri (2006).

The survey was implemented in four steps: pre-notification, initial mailing, first follow up, and second follow up. In the first step, and to generate early interest, the respondents were notified in the form of a letter, phone call or e-mail. A mail-out package including a cover letter, the questionnaire and a business reply envelope was then sent to every contact name. In a few cases, the questionnaire was sent by fax or e-mail. The first follow up consisted of a postcard reminder that was sent to every respondent, while the second was a phone call or replacement questionnaire sent only to those who had not answered. From the 157 firms conducted only 120 accepted to participate in the survey. The rest CEOs were either too busy to participate or didn't participate because of company privacy policies.

A total of 103 questionnaires were finally completed, generating a response rate of 85.83%. After excluding four questionnaires with missing data, the final sample decreased to 99 responses, corresponding to a response rate of 82.50%.

Generally speaking, researchers normally work to 95% certainty. This actually means that, with a total population of 157 firms, the minimum sample size should be around 108 instead of 99 firms (Saunders, Lewis and Thornhill, 2000: 156) a small difference of 9. Although the smaller size could be considered as one of the limitations of this research, we could defend it on the grounds stated by the famous scholar, Shelby Hunt : '*No manuscript should be rejected on the basis of potential nonresponse bias—no matter what the response rate is—unless there is good reason to believe that the respondents do in fact differ from the nonrespondents on the substantive issues in question and that these differences would make the results of the study unreliable*' (Hunt, 1990: p.174).

To test whether our respondents were different from the non-respondents, we examined if there are any differences in the mean of all variables used in this study, between early and late respondents. The rationale behind such an analysis is that late respondents (i.e. sample firms in the second mailing) are more similar to the population, from which they were drawn, than the early respondents (Armstrong and Overton, 1977). No statistically-significant differences were found, thus suggesting that non-response bias is not a serious issue in the study.

The demographic features of the respondents and their firms are analyzed in the following Table 1:

Table 1: Demographic Data

	Number	%
Listed in Athens Stock Exchange		
Listed	69	70
Non Listed	30	30
Total sample	99	100
Size of Organizations:		
Turnover - m Euro		
<100	24	24
>101-200	33	33
>201-301	23	23
>301	19	20
Total sample	99	100
Position of Respondent		
CEO	45	45
CFO	43	43
COO	8	8
Senior Vice-President	3	4
Total sample	99	100
Size of Organizations:		
Manpower – employees		
250-500	41	41
501-1000	36	36
> 1000	22	23
Total sample	99	100

3.2.1 Measurement of the constructs

Descriptive statistics and Pearson correlation matrix are presented in tables 2 and 3 respectively.

Table 2: Descriptive Statistics

	No of Items used	Minimum	Maximum	Mean	Std. Deviation
Diagnostic use	4	2.25	6.75	4.77	1.200
Interactive use	7	3.00	5.57	4.36	0.640
Dynamic tension		-1.47	2.10	0.28	0.077
Market orientation	12	2.50	6.50	4.56	1.205
Entrepreneurship	6	1.67	6.50	4.41	1.395
Innovativeness	4	2.50	6.50	4.37	0.880
Organisational learning	4	2.00	6.25	4.24	1.013
Market responsiveness	4	2.00	6.75	4.46	1.429
Organisational performance	5	2.00	5.60	3.98	1.099

Table 3: Pearson correlation matrix

	Diagnostic use	Interactive use	Dynamic tension	Market orientation	Entrepreneurship	Organi-sational Innova-tiveness	Organi-sational learning	Market respon-siveness	Organi-sational perfor-mance
Diagnostic use	1								
Interactive use	.283**	1							

Dynamic tension	-.360**	-.128*	1						
Market orientation	.656**	.248**	-.098	1					
Entrepreneurship	.614**	.047	-.194**	.888**	1				
Innovativeness	.303**	.267**	.033	.683**	.755**	1			
Organisational learning	.075	.544**	.183*	.510**	.434**	.642**	1		
Market responsiveness	.677**	.196**	-.053	.938**	.870**	.635**	.450**	1	
Organisational performance	.662**	.171*	-.455**	.746**	.789**	.529**	.097	.779**	1

* Significant at the 0.05 level; ** Significant at the 0.01 level.

We notice the following from the Pearson correlation matrix : (a) diagnostic use is positively correlated with all capabilities at the 0.01 significance level (except organisational learning); (b) interactive use is positively correlated with all five capabilities at the 0.01 significance level (except entrepreneurship); (c) dynamic tension is negatively correlated with one capability; entrepreneurship, at the 0.01 level and positively also with one capability, organisational learning, at 0.05 level, and (d) diagnostic use is positively correlated with organisational performance at the 0.01 level, interactive use is also positively correlated with performance at the 0.05 level, but dynamic tension is negatively correlated with three of the five capabilities and also with organisational performance. However, no conclusions can be drawn from such univariate statistical analysis.

Results from the confirmatory factor analysis are presented in Appendix 1. The questionnaire items, Cronbach Alpha for each construct, and other statistics (Goodness-of-fit of the model, non-normed fit index – NNFI, comparative fit index – CFI, and root mean square error of approximation –RMSEA) are emerged. According to the literature (see: Browne and Cudeck, 1993; Hu and Bentler, 1995; and, Tabachnick and Fidell, 2001) the recommended thresholds are: (a) NNFI >0.90; (b) CFI>0.95; and (c) RMSEA<0.10.

Examining the *diagnostic* and *interactive uses*, CFA revealed that all first and second order loadings are significant (p<0.01 and in some cases p<0.05), the Cronbach Alpha exceed 0.70 (see: Nunnally, 1967) and the goodness-of-fit indices are in accordance with recommended threshold values. Similar, if not better, are the results for the five capabilities. As for the organisational performance, we see a rather high Cronbach Alpha, significant χ^2 and remaining indices, with respect to the recommended threshold values.

4. Results from the structural equation models (SEM)

Structural equation modelling represents the relationships between the variables (see figure 1), and data collected from the survey, and analysed with AMOS as a statistical tool. Table 4 shows the results from the two SEM. All five hypotheses are tested via the models A and B, where model A is similar to that of Henri (2006) while model B incorporates the market responsiveness in the organisational capabilities, increasing them from four to five. For both models, goodness-of-fit indices are consistently within the recommended thresholds.

4.1. Hypotheses tests

PMS diagnostic uses and capabilities: *Hypothesis 1* (H1) is partially supported since, as revealed in table 4, only innovativeness and organisational learning are negatively influenced by PMS diagnostic uses (in both A and B models), with only *organisational learning* showing statistically significant values. On the other hand, significant results (p<0.01) are drawn for market orientation in both models and market responsiveness in model B. However, the positive signs do not support *H1*, which expects negative signs. These results are not consistent with those of Henri (2006), which fully supported H1 in the Canadian context.

PMS interactive uses and capabilities: *Hypothesis 2* (H2) is also partially supported since, as shown in table 4, in both models, market orientation (p<0.01), organisational learning (p<0.01) and innovativeness (p<0.10) are positively influenced by PMS interactive uses. Entrepreneurship shows a negative sign, although statistical significant at 10%, while market responsiveness with a positive sign is statistically insignificant (p=0.880). The partial support of this hypothesis is also not consistent with the results of Henri (2006), which also fully supported H2.

Table 4: Structural Equation Models - Results

	Model A		Model B	
	Path Coefficients	p-value	Path Coefficients	p-value
PMS diagnostic use → Market Orientation (-)	.688	***	.688	***
PMS diagnostic use → Entrepreneurship (-)	.657	.128	.657	***
PMS diagnostic use → Innovativeness (-)	-.357	.952	-.364	.953
PMS diagnostic use → Organisational learning (-)	-.05	***	-.05	***

PMS diagnostic use → Market Responsiveness (-)	n/a	n/a	.746	***
PMS interactive use → Market Orientation (+)	.073	***	.073	***
PMS interactive use → Entrepreneurship (+)	-.137	*	-.137	*
PMS interactive use → Innovativeness (+)	.156	*	.154	*
PMS interactive use → Organisational learning (+)	.565	***	.565	***
PMS interactive use → Market Responsiveness (+)	n/a	n/a	***	.880
Dynamic tension → Market Orientation (+)	.162	**	.162	**
Dynamic tension →Entrepreneurship (+)	.028	.740	.028	.740
Dynamic tension → Innovativeness (+)	.237	***	.244	***
Dynamic tension → Organisational learning (+)	.254	***	.254	***
Dynamic tension → Market Responsiveness (+)	n/a	n/a	.220	***
Market Orientation → Org. Performance (+)	.139	.507	.026	.931
Entrepreneurship → Org. Performance (+)	1.708	***	1.706	***
Innovativeness → Org. Performance (+)	-1.560	***	-1.589	***
Organisational learning → Org. Performance (+)	.287	.019	.301	.013
Market Responsiveness → Org. Performance (+)	n/a	n/a	.136	.621
Diagnostic Use → Org. Performance (-)	.663	***	.664	***
Interactive Use → Org. Performance (+)	-.306	***	-.229	***
Dynamic Tension → Org. Performance (+)	-.227	***	-.229	***
Fit indices of the model				
Chi-square	15.808		16.87	
DF	4		4	
NFI	.991		.993	
CFI	.997		.997	
RMSEA	.068		.086	

Note *Significant at the 0.10 level; ** Significant at the 0.05 level; ***Significant at the 0.01 level

Dynamic tension and capabilities: *Hypothesis 3* (H3) is also partially supported, however, with stronger relationships compared to the previous two hypotheses. In both models, dynamic tension positively influences all capabilities except entrepreneurship, which although having a positive path coefficient, its p-value is not statistical significant (p=0.740) in both models. Thus, the collective use of both diagnostic and interactive uses provides a better relationship with organisational capabilities. Alternatively, Henri (2006) didn't find any significant relationship between dynamic tension and the four tested organisational capabilities.

PMS and organisational performance through capabilities: *Hypothesis 4a* (H4a) examines the indirect effects of diagnostic and interactive uses of PMS on organisational performance. The results, in line with those of Henri (2006), do not support this hypothesis. Although the values are statistically significant at 1%, the signs in path coefficients are the reverse of those hypothesised; diagnostic use was expected to be negative and is revealed to be positive, while interactive use was expected to be positive and is revealed as being negative.

Dynamic tension and organisational performance through capabilities: Results from *Hypothesis 4b* (H4b) are also discouraging and *H4b* is also rejected. Analytically, despite the statistically-significant values at 0.01 level in both models, the sign in the path coefficient is negative, unlike the positive sign that was hypothesised. Henri (2006) also rejected this hypothesis.

5. Conclusions

Firstly, the results of the present study partially support that the diagnostic use of PMS negatively affect organisational capabilities (only *organisational learning* is negatively affected – with significant and negative path coefficient).

Secondly, the positive effect of interactive use of PMS on organisational capabilities is also partially supported, since only *market orientation* and *organisational learning* reveal significant and positive path coefficients.

Thirdly, the results suggest that the diagnostic and interactive use of PMS contribute both specifically and collectively to capabilities; the balanced use of both diagnostic and interactive use of PMS creates a dynamic tension that positively affects the five organisational capabilities. Finally, no indirect relationship between PMS use and organisational performance was found.

To sum up, it is important for managers to know the agents of value creation in business and the causal relationships enabling them to reach that value. This study revealed that capabilities play the role of agents, leading to value and, moreover, the ability of PMS to contribute to these capabilities. In addition, capabilities can be deployed with PMS without constraint within the evolution and performance of financial and non-financial indicators.

This study can be further extended by incorporating more factors in the proposed model; environmental uncertainty, size and organisational culture, and by examining their possible effect on the relationship between PMS use, organisational capabilities and performance.

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Appendix 1 – Confirmatory Factor Analysis
Performance measurement systems use

Please rate the extent to which your top management team currently uses performance measures to:
Scale: 1 = not at all to 7 = to a great extent

Constructs and items	Confirmatory factor analysis		Cronbach alpha
	First-order loadings	Second-order loadings	
Diagnostic use		.848**	.888
Track progress towards goals	.830**		
Monitor results	.908**		
Compare outcomes to expectations	.839**		
Review key measures	.698**		
Interactive use		-.155*	
Enable discussion in meetings of superiors, subordinates and peers	.508**		.702
Enable continual challenge and debate underlying data, assumptions and action plans	.807**		
Provide a common view of the organisation	.157*		
Tie the organisation together	.755**		
Enable the organisation to focus on common issues	.740**		
Enable the organisation to focus on critical success factors	.339**		
Develop a common vocabulary in the organisation	.059*		
Goodness-of-fit of the model: $\chi^2(30)$ = 44.14; p < .046; NNFI = .930; CFI = .975; RMSEA = .069			

Note: *Significant at the 0.05 level; ** Significant at the 0.01 level

Internal capabilities

Please rate the extent to which the following items describe your organisation
Scale: 1 = not descriptive to 7 = very descriptive

Constructs and items	Confirmatory factor analysis		Cronbach alpha
	First-order loadings	Second-order loadings	
Market orientation		.957**	.942
Communicate information about customer experience	.930**		
Understanding of customer needs	.699**		
Commitment and orientation to serving customers' needs	.984**		
Integration of functions to serve the needs of markets	.896**		
After-sales service	.894**		
Share of information concerning competitors' strategies	.795**		
Customer satisfaction	.950**		
Managers understand how everyone can create value	.213*		
Target customers where we have competitive advantage	.712**		
Discussion about competitors' strengths and strategies	.913**		
Creation of greater value for customers	.455**		
Visit of current and prospective customers	.803**		

Entrepreneurship		.967**	.918
Wide-ranging acts are necessary to achieve objectives	.946**		
Strong proclivity for high risk projects	.753**		
First business to introduce new products, techniques, etc	.973**		
Cautious, "wait and see" posture	.714**		
Adopt a very competitive, "undo-the-competitors" posture	.909**		
Gradually explore the environment, cautious behavior	.740**		
Innovativeness		.888**	.513 (a)
Innovation is readily accepted in program/project management	.915**		
Technical innovation (research results) is readily accepted	.661**		
(32) Innovation is perceived as too risky and is resisted	-.300*		
Management actively seeks innovation and ideas	.946**		
Organisational learning		.577**	.820
Ability to learn is the key improvement	.703**		
Basic values include learning as a key to improvement	.524**		
Once we quit learning we endanger our future	.641**		
Employee learning is an investment, not an expense	.827**		
Market Responsiveness		.957**	.925
Your company is much better than competitors in relation to responding to new customer needs in a speedy manner	.905**		
Your company is much better than competitors in relation to tailoring products/services to individual customer needs	.953**		
Your company is much better than competitors in relation to the speed at which new markets can be entered	.743**		
Your company is much better than competitors in relation to the rate of introduction of new product/services	.866**		

Goodness-of-fit of the model: $\chi^2(342)$ = 906.987; p < .001; NNFI = .903; CFI = .917; RMSEA = 0.0878

Note: *Significant at the 0.05 level; **Significant at the 0.01 level

(a) When item 32 removed from the construct. Cronbach's alpha = .847

Organisational performance

Please rate the performance of your organisation against initial expectations on each of the following dimensions for the past 12 months

Scale: 1 = not at all satisfactory to 7 = outstanding

Constructs and items	Confirmatory factor analysis		Cronbach alpha
	First-order loadings	Second-order loadings	
Organisational performance		898**	.913
(42) Sales volume	.737		
(43) Return on investment	.979		
(44) Profitability	.955		
(45) Market share	.860		

(46) Meeting budget targets	.630
Goodness-of-Fit of the model: $\chi^2(5)$ = 7.064**; NNFI = .984; CFI = .995; RMSEA = 0.065	

Note: * Significant at the 0.05 level; **Significant at the 0.01 level

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Moldovan Perception of Greece as a Tourism Destination

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ABSTRACT

Purpose:
This research study analyzes Moldovans' intentions to visit Greece, and their perceptions of Greece's image as a tourism destination, according to the following dimensions: (1) environmental beauty and convenience, (2) country's citizens, (3) place and architectural structure, (4) shopping and tourist accommodation and (5) similarity of the local culture and cuisine with the Moldovan one. The goal is split into four objectives.

Design/methodology/approach:
For attaining the goal, a self-administered questionnaire was delivered. The empirical study was conducted in the capital of Moldova. The findings are based upon a sample of 139 respondents.

Findings:
The findings reveal that, overall, Greece's image as a tourist destination among Moldovan consumers is partially positive. The perceptions of the tourism dimensions were evaluated in the descending order as follows: place and architectural structure, shopping and tourist accommodation, environmental beauty and convenience, country's citizens and similarity of the local culture and cuisine with the Moldovan one.

Research limitations/implications:
– As it was undertaken only in the capital of Republic of Moldova and because most respondents are young people and females, the findings of this investigation do not absolutely reflect the perceptions of all Moldovans. Also, because the number of respondents is small, it is not representative of the whole Moldovan population. Hence, the results might not be very realistic and accurate.

Originality/value – This study provides insightful theoretical implications and practical recommendations in creating marketing strategies that would help in managing and improving Greece's image as a destination among Moldovan tourists. Also, no study, at least to the researcher's knowledge, has evaluated Greece's image as a destination among Moldovan consumers. Finally, due to the increasing number of Moldovan tourists in Greece, it is important that Greece grasps this opportunity and positively influences the intentions of the visiting Moldovans via a positive destination image.

1. Introduction

According to the statistics compiled by the World Tourism Organization, the number of tourists travelling abroad has grown significantly from 25 million, in 1950, to 674 million in 2000, and 1186 million in 2015. This astonishing increase is, first of all, due to the improvements in the means of transportation. Secondly, increasing incomes of the consumers have encouraged the demand for tourism services. Finally, the ever-increasing number of destinations that can be visited has positively impacted the rise in demand for tourism services. Hence, tourism has become one of the largest economic sectors in the world. Moreover, tourism has increased more rapidly than world trade over the past years. Additionally, the WTO forecasts continued increase in international tourist arrivals at a growth rate of 3.8% a year for the period 2010 to 2020 (WTO, 2016).

Therefore, the significance of tourism is widely acknowledged, due to its contribution to regional and national economic development (Bozbay & Ozen, 2008; WTO, 2016). Taking into consideration the fact that international tourism has a competitive and dynamic structure, the need to understand consumer needs and their attitudes, becomes critical. Thus, the study of tourism destination image, which is a somewhat recent

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addition to the area of tourism research, has become significant for practitioners involved in tourism activities, particularly in positioning destination images, and also for academics striving to comprehend the destination image construct. Moreover, the competitive character of the tourism industry obliges tourism destinations to build an effective marketing plan and strategy.

"Destinations mainly compete based on their perceived images relative to competitors in the marketplace" (Bozbay & Ozen, 2008, p.14). Hence, tourism image is essential to the success of a destination. A similar finding is reported by Cho (2008), who states that location attractiveness is a major factor motivating travellers into choosing a specific destination.

Based on WTO (2016), Europe is the most visited region in the world, with a 5% growth in international tourist arrivals. Greece, situated in Europe, is one of the Mediterranean countries, which represents a favorite tourism destination for international travelers (Bozbay & Ozen, 2008), with an increasing level of international tourist arrivals (see Table 1). Due to its location in the Mediterranean region, scenic landscapes and nature, rich architecture and preserved ancient history (WTTC, 2016; Nations Online, 2016), Greece has a large touristic potential. Additionally, the tourism industry exerts a strong influence on Greece's national economic development, as travel and tourism constitutes 18.5% of GDP in 2015 (WTTC, 2016). A visual representation of the direct contribution of Travel and Tourism to Greek GDP over the last 10 years is shown in Figure 1.

Table 1: International Tourist Arrivals in Greece

	2013	*2014*	*2015*
Number of persons (in thousands)	17,920	22,033	23,599
Change based on the previous year	15.5%	23%	7.1%

Source: Compiled by the researcher based on WTO (2016)

Since it is widely acknowledged that destination image has a strong influence on tourist behavioural intentions, it appears that the Greek image as a tourism destination is the major factor in the success of this destination. Hence, the creation and maintenance of a positive destination image is an essential task for the Greek tourism services suppliers.

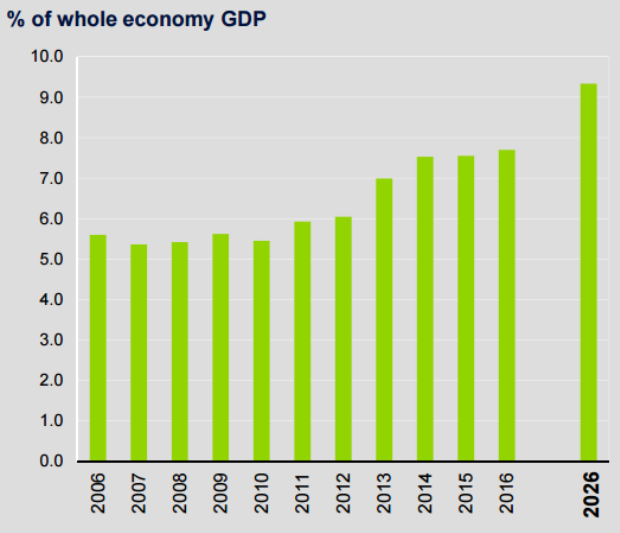


Figure 1: Direct contribution of Travel and Tourism to Greek GDP
Source: WTTC (2016, p.3)

In this context, the Republic of Moldova is becoming an important economic partner for Greece, particularly after the visa liberalization from the 28th of April 2014, when Moldovan citizens were finally allowed to travel to the European Union, including Greece, without a visa for 3 months. As a result, according to the National Bureau of Statistics of the Republic of Moldova (2016), the number of Moldovan tourists visiting Greece increased from 4066 tourists in 2011 to 21158 tourists in 2015. Obviously, Moldovans are becoming an important increasing customer base for the Greek tourism industry. Thus, the Greeks must grasp this opportunity and also the advantageous geographic closeness between Moldova and Greece to ensure that the Greek image among Moldovan consumers is positive, due to the fact that, most probably, the Greek image as a tourist destination has a vital importance in influencing Moldovan consumer behavioural intentions.

Hence, the main goal of this study is to evaluate the Greece's image as a tourist destination among Moldovan consumers. It intends to analyse the consumers' distinguishing perceptions about Greece's image as a tourism destination according to the following dimensions, using Bozbay & Ozen (2008) model: (1) environmental beauty and convenience, (2) country's citizens, (3) place and architectural structure, (4) shopping and tourist accommodation and (5) similarity of the local culture and cuisine with the Moldovan one. Further, the study aims to measure Moldovans' intention to visit Greece. Afterwards, the research intends to correlate each of the five tourism destination dimensions and the demographic factors with the intention to visit Greece, in order to identify significant relationships between the independent and the dependent variables. Finally, this research study intends to test if there is any significant difference in perceptions between the Moldovans who have already visited Greece and the Moldovans who have never visited Greece.

This study offers valuable information for academics and practitioners. First of all, no study, at least to the researcher's knowledge, has evaluated Greece's destination image among Moldovan consumers. Only a slight research attempt was made by Magenta Consulting (2015) through its employee's one-week vacation in Greece. Twenty-eight members of the team collected statistics through observations. The conclusion of that small investigation was that "Greeks exploit tourism to its true value and promote culture" by widely selling traditional Greek products, by promoting experiential tourism and by being open to the customers' desires (Magenta Consulting, 2015). Second, the Greek tourism marketers should be interested in determining exactly the image of Greece as a tourism destination, so that, in case of negative perceptions, to adopt the right strategies that would help to overcome the unfavorable country image, or, in case of positive perceptions, to use the country image as a competitive advantage. This is particularly important for the Greek economy, since tourism contributes substantially to the country's GDP. Finally, due to the increasing number of Moldovan tourists in

Greece, it is important that Greece grasps this opportunity and positively influences the intentions of the visiting Moldovans using a positive destination image.

2. Theoretical Background

Since the 1960's, various studies have been conducted on the "country image" concept (Han, 1989). The wide-ranging literature in international marketing offers a diversity of definitions of country image. A clear coherent definition is given by Martin & Eroglu (1993, p. 193), who define country image as "the total of all descriptive, inferential and informational beliefs one has about a particular country". An even simpler definition that is widely adopted is that image "is a set of beliefs, ideas, and impressions that people have of a place or destination" (Bozbay & Ozen 2008, p.15). Moreover, image is comprised of both cognitive and affective components. According to Kleppe & Mossberg (2005), country image is developed using political, economic and technological factors.

Image has been proven to be an essential determinant of the consumers' decision process (Bozbay & Ozen, 2008). More specifically, the country of origin image influences the consumer perceptions towards products originating in certain countries (Bowe, Lockshin, Lee & Rungie, 2013). Hence, the country of origin image has an impact on product image formation. Moreover, the numerous studies found that consumers have different country images and perceptions of products coming from different countries (Han, 1989; Kleppe & Mossberg, 2005). Thus, consumers use the image of a country to infer the quality of the products and services from the respective country, particularly when consumers are not familiar with the specific brand. That is why the international marketers are advised to use the country image as a competitive advantage, in case of a positive image, and should take the necessary steps in overcoming an unfavorable country image (Parameswaran & Pisharodi, 1994). For instance, a study among German consumers found out that the recent image of Greece as a crisis-ridden country is neutral, which has a positive or a negative impact on the image of Greek wines, depending on the consumer (Cazacu & Papadopoulos, 2015).

What is more, for the post-communist countries, which had to change from the command economy to the market economy, country image is critical to economic growth and development (Pătraşcu, 2014). Therefore, governments create a favourable country image by engaging in nation branding campaigns.

Tourism industry researchers have considered that country image has a strong impact on the people's desire to visit a country, either for business, tourism or migration purposes (Bowe, Lockshin, Lee & Rungie, 2013; Jun & Hong-Liang, 2014; Ghada Abdalla, 2007; Lee, 2009). Image is significant in attracting potential visitors. Perceptions, rather than reality, are the motivations behind people's decision to visit a destination (Bozbay & Ozen, 2008). For example, business travellers' perception of India is formed "by its culture and heritage, natural resources, general infrastructures, night life, social environment, and lodging services" (Yen, da Gama & Rajamohan, 2008, p.129)

Thus, an essential concept discussed in this study is "destination image", which is usually defined as tourists' general perceptions of a certain destination (Lee, 2009; Ghada Abdalla, 2007). As the destination marketers are engaged in a tough competition to attract tourists (Upadhyaya, 2012; Ruzzier, Antoncic & Ruzzier, 2014), they must strive to establish a positive image of their destination (Jun & Hong-Liang, 2014; Bozbay & Ozen, 2008; Martin & Eroglu, 1993), first of all, by identifying the strengths and weaknesses of their destination and, secondly, by providing essential approaches in managing and developing the tourist destinations (Lee, 2009). For instance, Australia's image was successfully marketed as an iconic tourism image, even though Australia is "a country of hi-tech development, technological advancement, hard work and great production capacity" (Bowe, Lockshin, Lee & Rungie, 2013, p. 469). Thus, it is important to have a positive destination image, as it directly influences the satisfaction level (Lee. 2009; Ghada Abdalla, 2007).

The marketer's duty is to match the promoted destination image with the perceived destination image in the consumer's mind, in order to avoid a false and inaccurate destination image (Bozbay & Ozen, 2008). This is done through an effective marketing strategy, which starts initially with the evaluation of the destination image among the consumers.

Moreover, destination image was found to play a role as important as service in tourists' decision-making process (Moon, Ko, Connaughton & Lee, 2013), which is one more reason to work on the enhancement of the destination image. Furthermore, the results of a study show that event image has an important influence on the destination image (Kaplanidou & Vogt, 2007). Thus, it is essential to organize successful events in the places where the tourism marketers intend to enhance the number of tourists.

Additionally, a study determined that, out of six information sources, the cognitive wisdom of the tourists plays the most influential role in shaping the image of the Indian destinations. Thus, destination marketers must use long-term strategies, as the short-term strategies cannot work in manipulating cognitive wisdom. Hence, word-of mouth, tourism department publications, PR effort, electronic media and professional sources appear to have only a small influence on the destination image (Sarma. 2007).

It is important to note that several studies have proven that destination image has a strong influence on tourist behavioral intentions (Bozbay & Ozen. 2008; Ghada Abdalla, 2007; Lee, 2009; Jeeyoon, Joon Ho & Yu-Kyoum, 2014). For instance, Bozbay & Ozen (2008) show that people having very high intention levels to visit Greece, rate high all the destination image dimensions, while people who have low intentions to visit Greece, on the contrary, rate very low the destination image dimensions.

Finally, destination image is a complex notion, as it is made up of several elements: cognitive, affective (Jun & Hong-Liang, 2014) and behavioral elements (Lee, 2009). Yahya (2000) distinguishes between (1) primary elements of a tourist destination, such as climate, ecology, culture and traditional architecture, and (2) secondary elements of a tourist destination, i.e. attractions, facilities, infrastructure, transportation, and hospitality. Additionally, Yahya (2000) proposes three dimensions as the main determinants of the attractiveness of tourist

destinations: hotel factors, restaurant factors and transportation factors. Further, Upadhyaya (2012) study reveals that destination image contains (1) functional features, i.e. accessibility, physical atmosphere etc. and (2) psychological features, i.e. friendliness, relaxation etc. Bozbay & Ozen (2008) consider that the destination image has five dimensions: (1) environmental beauty and convenience, (2) country's citizens, (3) place and architectural structure, (4) shopping and tourist accommodation and (5) similarity of the local culture and cuisine.

As shown above, the classification of destination image elements and the measurement of destination image have been of significant interest to many tourism researchers and marketers. Some researchers used structured methods; others used unstructured methods, though preference was given to the structured measurement techniques (Bozbay & Ozen, 2008). Similarly, this study will use a structured model, more specifically, the one proposed by Bozbay & Ozen (2008), due to its wide successful usage, ease of use and simplicity of measurement.

The main goal of this study is to evaluate the Greek image as a tourist destination among Moldovan consumers. The goal is split into four objectives:

1. Evaluate the Greek image dimensions as a tourist destination;
2. Measure Moldovans' intention to visit Greece;
3. Identify significant relationships between:
    a. the destination image dimensions and intention to visit Greece;
    b. demographic factors and intention to visit Greece.
4. Identify significant differences in perceptions between the Moldovans who have already visited Greece and the Moldovans who never visited Greece.

The study uses Bozbay & Ozen (2008) model (see Figure 2). Thus, the following dimensions are evaluated: (1) environmental beauty and convenience, (2) country's citizens, (3) place and architectural structure, (4) shopping and tourist accommodation and (5) similarity of the local culture and cuisine with the Moldovan one.

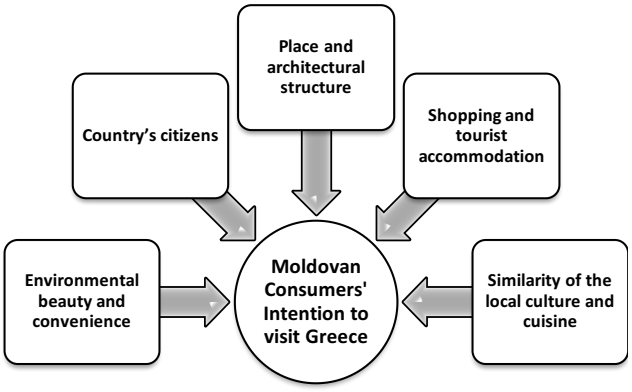


Figure 2: The Conceptual Model Used
Source: Adapted based on Bozbay & Ozen (2008)

3. Methodology

For attaining the goal, a self-administered questionnaire was delivered both online and printed. The empirical study was conducted in the capital of Moldova in February-May 2016. The population of this research study is Moldovan citizens who have an interest in travel and tourism activities. The respondents were asked to express their opinion as regards the image of Greece as a tourism destination. Thus, using 27 Likert statements, the respondents assessed their level of agreement or disagreement with the statement. The level of agreement was measured on a seven point Likert scale, where (7) represents absolute agreement and (1) – absolute disagreement. Similarly, their intention to visit Greece was measured using three seven-point Likert statements. Additionally, the questionnaire included a section that asked for the respondents' demographic profile, i.e. age, gender, monthly income and occupation. The findings are based upon a sample of 139 respondents.

4. Results and Discussion

The collected data were statistically analysed using SPSS 17. First, the demographic profile of the respondents was analysed.

As shown in Table 2, young people, aged 18-25 is the largest group of respondents, representing 60.4% of the total respondents. Then, one third of the respondents belong to the second age group of 26-35 years. Hence, together, these two young age groups have a cumulative percent of 95%, which shows that basically young people are interested in travel and tourism activities.

Table 2: Descriptive data for the study sample

MONTHLY INCOME	*Frequency*	*Percent*	*Cumulative Percent*
Below 1001 MDL*	38	27.3	27.3
1001-3000 MDL	29	20.9	48.2
3001-6000 MDL	37	26.6	74.8
6001-9000 MDL	14	10.1	84.9
Above 9000 MDL	21	15.1	100.0
Total	139	100.0	
AGE GROUP	*Frequency*	*Percent*	*Cumulative Percent*
18-25	84	60.4	60.4
26-35	48	34.5	95.0
36-45	4	2.9	97.8
46-55	3	2.2	100.0
Total	139	100.0	
GENDER	*Frequency*	*Percent*	*Cumulative Percent*
Male	40	28.8	28.8
Female	99	71.2	100.0
Total	139	100.0	
OCCUPATION	*Frequency*	*Percent*	*Cumulative Percent*
Student	65	46.8	46.8
Employed	53	38.1	84.9
Self-employed	13	9.4	94.2
Unemployed	1	.7	95.0
Housewife	1	.7	95.7
Another	6	4.3	100.0
Total	139	100.0	

Note: MDL is the currency of Moldova (leu).

Furthermore, as regards gender, the majority of the respondents are females, representing 71%. It appears that women have higher interest in travelling and tourism activities in Greece. Monthly income of the respondents was almost evenly distributed, although the largest group of respondents belongs in the lowest income group, while the two smallest groups of respondents belong in the higher income groups. Finally, as regards occupation, the first rank is occupied by the students, with approximately 47%; afterwards follow by those that are employed - with 38% - and the self-employed at 9%.

Table 3: Factor Analysis Results of all the Variables

Attributes	Factor Loading	Communality
Factor 1 – Place & Architectural Structure		
X1 - There are many interesting places in Greece	.858	.736
X2 - There are lots of natural scenic beauty in Greece	.843	.711
X3 - There are many restful and relaxing places in Greece	.864	.747
X4 - There are lots of places of historical or archaeological interest to visit	.816	.666
X5 - Greece's cities are attractive	.757	.574
Factor 2 - Country's Citizens		
X6 - The local people are courteous	.855	.732
X7 - The local people are hardworking	.799	.639
X8 - The local people are honest	.918	.843
X9 - The local people are friendly	.905	.819
Factor 3 - Environmental Beauty & Convenience		
X10 - Highways and roads are in good condition	.763	.581
X11 - Greece has well-developed transport system	.805	.648
X12 - It is easy to get good service in restaurants and hotels in Greece	.779	.607
X13 - There are many gardens and parks in Greece	.818	.669
X14 - Greece is clean and green	.795	.632
X15 - Greece is an orderly country	.796	.633
X16 - Greece is a progressive country	.836	.700
X17 - Greece is a safe place to visit	.695	.482
X18 - Greece is a politically stable country	.672	.452
Factor 4 - Shopping & Tourist Accommodation		
X19 - Greece is a good place to shop	.811	.658
X20 - Good quality of products are available in Greece	.883	.780
X21 - There are a wide variety of products available in Greece	.878	.771
X22 - Good tourist information is available	.876	.767
X23 - Food is varied and exotic in Greece	.748	.560
X24 - Good tourist facilities and services are available	.852	.681
Factor 5 - Local Culture & Cuisine		
X25 - The lifestyles and customs in Greece are similar to those in my home country	.851	.725
X26 - The food in Greece is similar to ours	.879	.772
X27 - The architectural styles of the buildings are similar to those in my home country	.808	.654
Factor 6 – Intention to visit Greece		
X28 – I plan to visit Greece this year	.698	.487
X29 – My dream is to visit Greece & I intend to do it	.897	.804
X30 – I want to visit Greece	.853	.727

Further, as regards reliability or internal consistency, it was measured using Cronbach's alpha coefficient. It was run for six question sets, as in factor analysis. The results are summarised in Table 4. The lowest accepted Cronbach's alpha was 0.700. For the majority of the question sets, the results pointed out a good level of internal consistency. However, as regards the Intention to visit Greece items grouping, the item *"I_plan_to_visit_Greece_this_year"* was removed; consequently, the Cronbach's alpha for this variable increased from 0.704 to 0.790.

Table 4: Cronbach's Alpha Results

Variable	*Cronbach's Alpha Value*
1. Place & Architectural Structure	.884
2. Country's Citizens	.886
3. Environmental Beauty & Convenience	.914
4. Shopping & Tourist Accommodation	.913
5. Local Culture & Cuisine	.801
6. Intention to visit Greece	.704

After completing the data requirements steps, i.e. validity and reliability tests, the actual analysis was performed. The answers from the question sets were averaged for each survey, in order to get a general score for every variable.

Objective 1

The descriptive statistics results for the five Greek image dimensions are detailed in Table 5; these statistics help in completing the first objective of this study, which is to evaluate the Greek image dimensions as a tourist destination. The dimension assessed the highest by Moldovan consumers is Place and Architectural Structure, with a mean score of 6.02. It is no surprise that Moldovans consider Greece as a country with beautiful nature, relaxing places and attractive historical and archaeological places of interest, taking into consideration the fact that Moldova does not have these kinds of natural and historical beauties. This result is confirmed by WTTC (2016) and Nations Online (2016). Moreover, the minimum score for this dimension was 3.40, which is the highest minimum in comparison with the other dimensions, which once more confirms Moldovans' strong positive perceptions of this dimension

Before undertaking the actual analysis, several validity and reliability tests were performed; as regards validity, each set of questions was tested using factor analysis. Taking into consideration the fact that all the questions loaded a factor above 0.650 (see Table 3), while the minimum required is 0.500, it can be concluded that the data matched the theoretical grouping of items into separate variables. The five dimension variables and the intention variable demonstrated an excellent fit, thus confirming the core dimensions of Greece's destination image.

of Greece's image. As shown in Table 6, out of five items that are grouped into this dimension, Greek cities were evaluated the lowest, which explains the fact that this dimension of the Greek image didn't get the maximum score of 7.

Table 5: Descriptive Statistics – The Greek Image Dimensions

	Dimension	N	Minimum	Maximum	Mean
1	Place_and_Architectural_Structure	139	3.40	7.00	6.0187
2	Shopping_and_Tourist_Accommodation	139	2.17	7.00	5.1631
3	Environmental_Beauty_and_Convenience	139	1.78	7.00	4.6683
4	Country_Citizens	139	2.00	7.00	4.4910
5	Similarity_of_Local_Culture_and_Cuisine	139	1.00	7.00	3.1463
	Valid N (listwise)	139			

The second on the list is Shopping and Tourist Accommodation Dimension, with a mean score of 5.16. On average, Moldovans somewhat agree with the fact that Greece has a variety of good-quality products available, varied and exotic food, that in Greece there are available good tourist facilities, services and tourist information (see Table 7). The lowest mean score from this grouping was obtained by the item "Greece is a good place to shop", with a mean of 4.53, which shows a neutral towards positive tendency. Hence, the shopping experience of the tourists should be improved.

Table 6: Descriptive Statistics – Place and Architectural Structure Items

Item	N	Minimum	Maximum	Mean
Many_interesting_places_in_Greece	139	3.00	7.00	6.1439
Lots_of_natural_scenic_beauty_in_Greece	139	3.00	7.00	6.1295
Many_restful_and_relaxing_places_in_Greece	139	3.00	7.00	6.0216
Lots_of_places_of_historical_or_archaeological_interest	139	3.00	7.00	6.1871
Greek_cities_are_attractive	139	2.00	7.00	5.6115
Valid N (listwise)	139			

Further, Environmental Beauty and Convenience Dimension is placed third, with a mean score of 4.67, which is neutral towards positive. Moldovans somewhat agree with the statements that highways and roads in Greece are in good conditions, that the transportation system is good, that it is easy to get good service in the restaurants and hotels

Table 7: Descriptive Statistics – Shopping and Tourist Accommodation Items

Item	N	Minimum	Maximum	Mean
Greece_is_a_good_place_to_shop	139	1.00	7.00	4.5252
Good_quality_of_products_are_available_in_Greece	139	2.00	7.00	5.0432
There_are_a_wide_variety_of_products_available	139	2.00	7.00	5.1727
Good_tourist_information_is_available	139	2.00	7.00	5.4029
Food_is_varied_and_exotic_in_Greece	139	2.00	7.00	5.3741
Good_tourist_facilities_and_services_are_available	139	2.00	7.00	5.4604
Valid N (listwise)	139			

. However, the respondents reveal a slightly neutral perception of Greece as an orderly, progressive and safe country to visit. The Moldovan perceptions that Greece is somewhat politically unstable (mean score of 3.27) have significantly lowered the overall score for this dimension (see Table 8).

Table 8:
Descriptive Statistics – Environmental Beauty and Convenience Items

Item	N	Minimum	Maximum	Mean
Highways_and_roads_are_in_good_condition	139	1.00	7.00	5.1871
Greece_has_a_well_developed_transport_system	139	1.00	7.00	4.9712
It_is_easy_to_get_good_service_in_restaurants_and_hotels	139	2.00	7.00	5.2230
There_are_many_gardens_and_parks	139	2.00	7.00	5.1079
Greece_is_clean_and_green	139	1.00	7.00	4.8993
Greece_is_an_orderly_country	139	1.00	7.00	4.3885
Greece_is_a_progressive_country	139	1.00	7.00	4.2374
Greece_is_a_safe_place_to_visit	139	1.00	7.00	4.7266
Greece_is_a_politically_stable_country	139	1.00	7.00	3.2734
Valid N (listwise)	139			

Country Citizens component is the fourth on the list, with an average score of 4.49. It appears that Moldovans reveal a neutral towards partial agreement with the statement that Greeks are courteous, honest and friendly (see Table 9). The lowest score was obtained by the item that evaluates Greeks' diligence, with an average of 3.91.

Table 9: Descriptive Statistics – Country Citizens Items

Item	N	Minimum	Maximum	Mean
The_local_people_are_courteous	139	2.00	7.00	4.8633
The_local_people_are_hardworking	139	1.00	7.00	3.9137
The_local_people_are_honest	139	2.00	7.00	4.4604
The_local_people_are_friendly	139	2.00	7.00	4.7266
Valid N (listwise)	139			

Finally, the lowest score was obtained by Similarity of Local Culture and Cuisine Dimension, with a mean of 3.15. As shown in Table 10, Moldovans consider the Greek and Moldovan culture and cuisine as somewhat different, especially the architectural styles of the buildings. However, the difference in culture and cuisine shouldn't be always considered an obstacle in creating a positive image of a tourist destination. On the contrary, it should be one more reason for the Moldovans to have the desire to visit Greece and to explore its different cultural aspects.

Overall, the Greek image as a tourist destination among Moldovan consumers is partially positive. The perceptions of the destination image dimensions were evaluated in the descending order as follows: place and architectural structure, shopping and tourist accommodation, environmental beauty and convenience, country's citizens and similarity of the local culture and cuisine with the Moldovan one.

Table 10: Descriptive Statistics – Similarity of Local Culture and Cuisine Items

Item	N	Min.	Max.	Mean
GR_lifestyles_&_customs_are_similar_to_those_in_MD	139	1.00	7.00	3.5612
The_food_in_Greece_is_similar_to_ours	139	1.00	7.00	3.4317
Architectural_styles_of_the_buildings_are_similar_to_those_in_MD	139	1.00	7.00	2.4460
Valid N (listwise)	139			

Objective 2

The second objective of this research study is to measure Moldovans' intention to visit Greece. As shown in Table 11, Moldovans display relatively high intentions to visit Greece, with a score of 5.8 out of 7.0. The highest contribution to this overall score was given by the item "I want to visit Greece", with a mean of 6.23. Thus, it appears that the partially-positive Greek image as a

tourist destination among Moldovans has positively influenced the intentions, or at least the desires, of the respondents to visit Greece. Hence, the chosen model is a good one and can be used in future research studies. At the same time, the applicability of the chosen model will also be tested further as part of the third objective of the study, by correlating each of the five tourism destination image dimensions and the demographic factors with the intention to visit Greece, in order to identify significant relationships between the independent and the dependent variables.

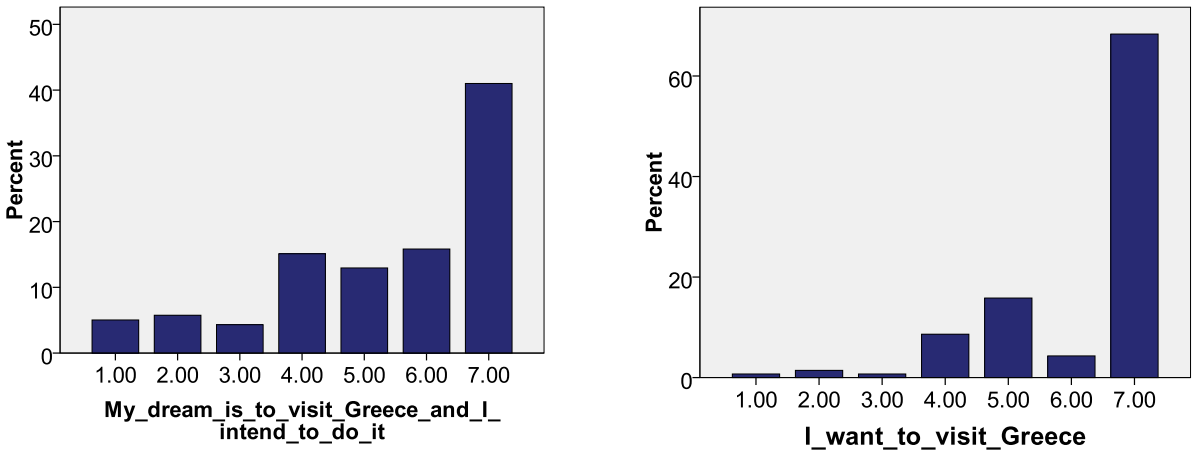
If analysed separately, the items of the Intention Variable reveal interesting information. For instance, as illustrated in Figure 3, the distribution of the results "My dream is to visit Greece and I intend to do it" has a negative skewness of -0.928. The data are moderately to highly skewed, showing that the majority of the values are concentrated to the right of the mean. In simpler terms, this means that the majority of the respondents have an intention higher than 5.37. Similarly, Moldovans' desire to visit Greece is very strong, as shown by 72% of the respondents who affirm strong desire to visit Greece, evaluating their wishes with either a 6 or 7. Moreover, the skewness of this distribution is substantial, negative and far from symmetrical of -1.658, which is one more indicator of the Moldovans' strong desires of visiting Greece.

Obviously, intentions do not always translate into actual behaviour. But, if the optimistic scenario is observed, then Greece has a very high potential of being visited by a significantly large number of Moldovan tourists, proven by the fact that the number of Moldovan tourists in Greece has been constantly increasing, as reported by National Bureau of Statistics of the Republic of Moldova (2016).

Table 11: Descriptive Statistics – Intention to Visit Greece Variable

	N	Minimum	Maximum	Mean
Intention_to_Visit_Greece Variable	139	1.50	7.00	5.8022
1. My_dream_is_to_visit_Greece_and_I_intend_to_do_it	139	1.00	7.00	5.3669
2. I_want_to_visit_Greece	139	1.00	7.00	6.2374
Valid N (listwise)	139			

Figure 3: Frequency Charts for Intention Items



Objective 3

The next objective is the identification of significant relationships between destination image dimensions and intention to visit Greece and then between demographic factors and intention to visit Greece. As shown in Table 12, all the *destination image dimension* variables are significantly and positively correlated with the *intention to visit* Greece variable. Therefore, this study confirms that destination image plays a strong influence on the tourist behavioural intentions. Similar findings were reported by Bozbay & Ozen (2008), Ghada Abdalla (2007), Lee (2009) and Jeeyoon, Joon Ho & Yu-Kyoum (2014). Hence, this result confirms once more the validity of the selected model.

Table 12: Correlations between the Destination Image Dimensions Variables and Intention to Visit Greece Variable

Independent Variables	Approximate significance value	Correlation value
Place and architectural structure	.000	.646**

Country Citizens	.000	.501**
Environmental beauty and convenience	.000	.641**
Shopping and tourist accommodation	.000	.635**
Similarity of GR culture and cuisine with MD	.032	.182*

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Additionally, this research study intends to test if there is any significant relationship between demographic factors and intention to visit Greece. As revealed by Table 13, the significance value for all the relationships was found to be larger than 0.05. Hence, there is no statistically-significant relationship between demographic factors and intention to visit Greece; it appears that gender, age, income and occupation have no impact on the Moldovans' intention to visit Greece.

Table 13: Correlations between the Demographic Factors and Intention to Visit Greece

Independent Variables	Approximate significance value
Gender	.130
Age	.134
Income	.346
Occupation	.415

Objective 4

The final objective of this research study is to identify significant differences in perceptions between those Moldovans having already visited Greece and those that have never visited Greece. The results show no significant difference in perceptions of the Greek image dimensions between these two groups (see the mean score for each dimension by previous experience in Table 14). It seems that Moldovans, no matter if they visited Greece or not, perceive the Greek image dimensions similarly. Only one dimension is an exception – environmental beauty and convenience (with a *p* value of 0.025), showing that those who haven't visited Greece evaluate this dimension as higher than those who visited Greece.

Also, there is a statistically significant difference between the two groups (Moldovans who visited Greece and those who didn't visit Greece) as regards their intentions to visit Greece, with a *p* value of 0.002. The Moldovans who haven't visited Greece show a higher intention to visit Greece than those who have already visited Greece. Obviously, this finding is explained by the fact that the consumers who have already visited Greece have satisfied their interest in Greece and their need to explore Greece and thus, they might have a higher intention to visit other countries. However, even those who visited Greece still intend to visit it again, confirmed by the mean score of 5.34.

Table 14: Group Statistics – Image Dimensions Evaluations according to Previous Experience

	Previous Experience	N	Mean	Std. Deviation	Std. Error Mean
Place and Architectural Structure	Yes	55	5.9491	.98147	.13234
	No	84	6.0643	.85878	.09370
Country Citizens	Yes	55	4.4045	1.20136	.16199
	No	84	4.5476	1.11903	.12210
Environmental Beauty and Convenience	Yes	55	4.4242	.99245	.13382
	No	84	4.8280	1.04750	.11429
Shopping and Tourist Accommodation	Yes	55	5.0485	1.12248	.15135
	No	84	5.2381	1.08670	.11857
Similarity of Local Culture and Cuisine	Yes	55	3.0970	1.25490	.16921
	No	84	3.1786	1.28262	.13994
Intention to Visit Greece	Yes	55	5.3364	1.62462	.21906
	No	84	6.1071	1.20259	.13121

5. Conclusion

Tourism has become one of the largest economic sectors in the world and its significant contribution to regional and national economic development has been widely acknowledged. Hence, tourism destination marketers are forced to build effective marketing strategies, in order to face the tough competition in attracting tourists. In this context, destination image is the key concept, which must be properly handled. It is an essential determinant of motivation to visit a place.

As Greece is one of the favourite destinations of international travellers, its image as a tourist destination

is crucial to the success of Greek tourism. Due to the fact that the number of Moldovan tourists in Greece has been constantly increasing, it is essential that Greek marketers ensure that Greece's image as a tourism destination is perceived as positive in the minds of the Moldovan tourists, since the image influences their behavioural intentions.

Therefore, this research study had the goal to evaluate Greece's image as a tourist destination among Moldovan consumers. The study used Bozbay & Ozen (2008) model, which considers that destination image has five dimensions: (1) environmental beauty and convenience, (2) country's citizens, (3) place and architectural structure, (4) shopping and tourist accommodation and (5) similarity of the local culture and cuisine.

In this context, the investigation used structured measurement techniques. Overall, 139 usable and complete questionnaires were collected. The empirical study was conducted in the capital of the Republic of Moldova in February-May 2016 among Moldovan citizens interested in tourism activities. It was noted that the majority of the respondents were young people (95%), due to their high interest in travel and tourism.

Before undertaking the actual analysis, the researcher performed the validity and reliability tests, in order to ensure the data requirements. The research study was split into four small objectives.

The first objective was to evaluate each of the five Greek image dimensions. Taken as a whole, the Greek image as a tourist destination among Moldovan consumers was found to be partially positive. The perceptions of the destination image dimensions were evaluated in the descending order of: (1) place and architectural structure, (2) shopping and tourist accommodation, (3) environmental beauty and convenience, (4) country's citizens and (5) similarity of the local culture and cuisine with the Moldovan one.

The second objective was to measure Moldovans' intention to visit Greece. It was found that Moldovans are highly interested in visiting Greece. Hence, as stated by the model used, the partially-positive image of the Greek destination influenced positively the intentions of Moldovans to visit Greece.

Afterwards, the study investigated significant relationships between the dependent variable, i.e. intention to visit Greece and the independent variables, more specifically, destination image dimensions and demographic factors. As regards demographic factors, this investigation found no significant relationship between intention to visit Greece and demographic variables. However, it was found that all the destination image dimensions are significantly and positively correlated with the intention to visit Greece. Thus, this study was able to confirm that destination image plays a strong influence on the tourist behavioural intentions. Hence, these findings confirm that the choice of the used model was a good one.

The final objective was to identify significant differences in perceptions between Moldovans that had already visited Greece and those that had never visited Greece. The results showed no significant difference in perceptions of the Greek image dimensions, except environmental beauty and convenience dimension. As regards intention to visit Greece, it appears that previous experience of visiting Greece had a significant impact on the intentions to visit Greece, i.e. the Moldovans who hadn't visited Greece showed a higher intention to visit Greece than those that had already visited Greece.

Recommendations

This study offers valuable information, both for academics and practitioners in setting the right marketing strategies for attracting Moldovan tourists in Greece. As regards theoretical implications, this is the first study that evaluates the Greek destination image among Moldovan consumers. Also, the model used in this study could be used in evaluating the destination image of other countries. Concerning managerial implications, Greek destination marketers should put significant efforts into creating and enhancing a positive destination image and into overcoming an unfavourable destination image among Moldovans. Based upon the findings, managerial implications are discussed, providing suggestions to tourism marketers.

First of all, based on the demographic profile of the respondents of this study, it is recommended that the tourism marketers create different touristic packages with reference to pricing, as Moldovans showing interest in travel and tourism activities come from all income groups. Second, focus should be put on the young people, especially on the students, as they show high interests in travel and tourism activities.

Furthermore, due to the fact that Place and Architectural Structure Dimension is evaluated the highest, marketers must use it in advertising in a heavy manner, by mentioning in the promotional campaigns the beautiful nature, relaxing places and attractive historical and archaeological places of interest from Greece. However, significant efforts must be put in improving the image of the Greek cities, as their image among Moldovans is partially-positive. How? Greek local city authorities should work on improving the cities' cleanliness, beauty, design, etc.

Another recommendation is suggested regarding Shopping and Tourist Accommodation Dimension. The shopping experience of the tourists must be improved by making sure that the products sold are of good quality and diverse. In addition, stores should be open longer hours, also during the weekends and during several holidays, as these are the days when the tourist inflows in Greece are the highest.

As regards Environmental Beauty and Convenience Dimension, the Greek media and the Moldovan tourism agencies should spread more positive information about the Greek political environment, safety and progress, as it affects significantly the Greek destination image. Also, the advertisements should include the message that Greece is an orderly, progressive, safe and politically-stable country.

Furthermore, as infrastructure is an essential element in the tourism development, Greeks must pay more attention to their transportation systems. For instance, the information about public transportation should be more accessible, simpler and more comprehensible for tourists. Also, vis-à-vis international travel to Greece, flights Moldova-Greece should be operated also towards Thessaloniki, not only towards Athens, as most Moldovans go for vacation in Khalkidhiki peninsula,

which is close to Thessaloniki. Also, flights should be offered at lower prices.

Further, it appears that Moldovans do not consider Greece as very clean and green. Hence, the local authorities and population must spread a culture of cleanliness for public places, as cleanliness is a sign of aesthetics and beauty. Cleanliness should be a fundamental duty of every Greek citizen.

Additionally, the findings show that Greek citizens are slightly perceived by the Moldovans as courteous, honest, friendly and hardworking. Thus, in order to change their perception, an appropriate strategy would be the wide use of small video advertisements showing Greek citizens as simple, friendly and hardworking people.

In the last position, destination image dimensions rank the similarity of the Greek and Moldovan cultures and cuisine. It appears that even though the two countries have different cultures and cuisines, Moldovans have a great interest in visiting Greece, perhaps because of this significant difference in the aspects discussed above. A recommendation to the marketers in this sense is to emphasize the variety and uniqueness of the Greek food, culture, lifestyle, customs and architectural styles of the buildings in marketing campaigns.

With reference to suggestions based on intentions, due to the Moldovans' high intention to visit Greece, the tour operators should make the availability of touristic packages wider to different consumers, belonging from different age, gender, income or occupation segments. Information on the possibility to visit Greece should be spread more intensely through all the distribution and advertising channels possible.

Also, due to the fact that Moldovans that have already visited Greece show high intentions to repeat their behaviour, thus to become loyal customers, the resorts and the tourism agencies should offer additional services to the return customers, e.g. a free mini-cruise, a free trip to a destination in the area, etc. Furthermore, due to the fact that Moldovans who haven't visited Greece evaluate environmental beauty and convenience as higher than those who have visited Greece, marketers should put emphasis in the advertisements on the environmental beauty of Greece and its convenience, thus increasing the potential to enhance the Moldovan customer base. Finally, in order to be more competitive on the Moldovan market, Greek destination marketers should concentrate their efforts on all the destination image dimensions, due to the fact that all of them significantly influence the Moldovans' intentions to visit Greece, independent of their past experience.

As with other research studies, this study has some limitations. Since it was undertaken only in the capital of the Republic of Moldova and because most respondents are young and female, the findings of this investigation do not absolutely reflect the perceptions of all Moldovans. Additionally, because the number of respondents is small, it is not representative of the whole Moldovan population. Hence, the results might not be very realistic and accurate. Beyond these limitations, this study provides insightful theoretical implications and practical recommendations in creating marketing strategies that would help in managing and improving Greece's destination image among Moldovan tourists.

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ABSTRACT

Purpose:
The aim of this study is to examine the quality of hospital services as perceived by patients in terms of patient satisfaction with services.

Design/Methodology/Approach:
A conceptual framework of quality of hospital services, developed by Padma et al. (2009), composed by eight quality dimensions, applied the performance measurement model (SERVPERF), was used for the approach. The Quality Score Tool was a two-part questionnaire that quantified patient satisfaction with benchmarks of the quality dimensions. In order to investigate the above model, the case study method was utilized. The survey was conducted in a public regional hospital.

Findings:
Five (5) quality dimensions (5Qs) have found having a significant impact on overall quality of service, measure of patient satisfaction in the hospital. These dimensions are on a hierarchical scale: "clinical care", "social responsibility", "staff quality", "infrastructure" and "Hospital reliability".

Originality/Value:
The results of this study can be used as a source of feedback to hospital management, meaning that they can essentially lead to improved adjustments or serve as a basis of process reengineering.

1. Introduction

Health is established in the Greek Constitution as a social right. All individuals are entitled to health and genetic identity protection (according to Article 5.5). The state takes care of citizens' health and adopts specific measures to protect the youth, those that are old of age, the disables and care for the most deprived (see Article 21.3).

According to the World Health Organization (1993), "quality in health services is the provision of diagnostic and therapeutic measures capable of ensuring the best possible health outcome, within the scope of modern medical science, which should aim at the best possible results with minimal medical risk, as well as maximum patient satisfaction in terms of procedures, results and human contact."Article 47 of Law 2071/1992 on the modernization and organization of the health system, as amended, provides for the protection of a series of rights for hospital patients. Greece has also signed and sanctioned a Convention with the Council of Europe on the protection of human rights and the dignity of human existence in relation to the uses of biology and medicine (Garanis-Papadatos and Dalla-Vorgia, 2003).

The aging of the population, as well as the constant increase in life expectancy, undoubtedly leads to major healthcare needs. Many countries are confronted with the fact that their most rapidly growing demographic age group is over 80, as the trend of life expectancy seen in the last century is expected to continue.According to OECD data, life expectancy in Greece in 2011 is 80.8 years, i.e. 0.8 percentage points higher than the OECD average.

The Greek economy was going through the seventh consecutive year of recession in 2014. Total health expenditure fell by 2.0% in 2011 compared to 2010 and by 12.6% in 2012, compared to 2011, according to Hellenic Statistical Authority (HSA) data.Public spending on hospitals and nursing care facilities has fallen sharply in 2010 compared to 2009, while in the following years there are fluctuations with a stabilizing trend.

In most industrialized countries, performance measurement of public services has become a key issue as governments are under pressure to reduce tax and at the

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same time confirm that revenues are spent in a cost-effective way (Martin and Smith 2005).
Patients receive various medical care services and rightly judge the quality of the services provided to them (Choi et al., 2004).

The quality of health services is a major problem for both hospitals and patients. Their reported underfunding, coupled with patients' widespread perception of quality of service generally hinders the resolution of the problem.
In the context of health care, one way of overcoming gaps in service quality is to use the patient's views to improve the health care process (Zeithaml et al., 1990 and Duggirala et al., 2008). Furthermore, recognition of the importance of quality of service is imperative, not only to provide better services to patients (Itumalla et al., 2014), but also to ensure the initial viability of the hospital and then its sustainable competitive advantage.

Therefore, it is considered appropriate to study the quality of services based on the measurement of the satisfaction of end users - patients in every Greek hospital, in order to initially weigh the prevailing situation so that through feedback the necessary measures are taken to improve the quality of their provision.

2. Theoretical Background

2.1. Quality of health services

Most scholars use activities, operations or processes and interactions to refer to services (Solomon et al., 1985, Lovelock 1991, Zeithaml and Bitner 2003, Vargo and Lusch 2004b). According to Hill (1977), services can be defined as changes to a person's status or to something owned by the client.

Edvardsson (1997) defines service as part of the broadest concept of the product, as a product may consist of commodities, derivatives, or more commonly a combination of them. The customer is often involved as a co-producer while the service is created during the production process. Quality of service is usually defined as a customer's impression of the relative inferiority / superiority of a service provider and its acceptability range (Bitner and Hubert, 1994) and is often perceived as proportionate to the customer's overall attitude towards the provider (Parasuraman et al., 1988, Zeithaml 1988 and Bitner 1990).

In conclusion, perceived quality of service is interpreted as a consumer's judgment to reach the overall superiority of the product, based on the perception of what they received and what was provided (Zeithaml, 1988).
The researchers tried to understand the measurement of service quality and explain its relationship to the overall performance of businesses and organizations. A common denominator of research on service quality, since services are immaterial, heterogeneous and their "production" is inseparably linked to their "consumption", is that its subsequent assessment by customers becomes extremely complex and difficult to determine.The quality of healthcare is more difficult to identify than other services because it is the clients themselves and their quality of life that gets evaluated (Eiriz and Figueiredu, 2005).

The Health Care customer is the patient, who is the focus of its implementation system. Health, and in particular the relief or treatment of health problems, is a global issue as it is related to the imperative need to provide high quality services, respectively, to medical developments and the desire of health professionals looking for clinical excellence (Sewell, 1997).

More specifically, Donabedian (1996) argued very early that the quality of care provided can be calculated based on patient satisfaction. Patient satisfaction is seen as one of the most important dimensions of service quality and a key success indicator in healthcare (Pakdil and Harwood, 2005). Similarly, according to Chilgren (2008), the definition of quality can simply be referred to as patient satisfaction.

For patients, "quality" means how well the service is provided and not if the actual service is technically superior. It can be considered as one of the desired outcomes of care and therefore information on patient satisfaction is required to assess the quality and planning of healthcare management (Turner and Pol 1995, Naidu 2009, Alrubaiee 2011).Ultimately, Gulas et al. (2014), conclude that, in healthcare units, the aim must be the culture of quality and continuous improvement with a reference point for the citizen.

2.2.Customer - patient satisfaction

There is ambiguity in the literature on the definition of the "customer". Sometimes the customer consists of a purchasing group of different people with different values and views. In the healthcare sector, Ovretveit (1992) proposed that it is a combination of patients, carers (e.g. relatives), counselors (e.g. doctor if they decide that a person needs a hospital service), and the financial authority. Each party has the needs and expectations that the service provider must understand and match when they are different. This of course is only possible if the service provider has a good relationship with all of them.

Milakovich (1995) states that for a healthcare provider, the patient and his / her family should be recognized as consumers in an extended definition of the client during the process where he / she receives the end products of the business. A thorough understanding of their needs and expectations is vital for the development of new products and services. Customer-orientation ensures more securely that the content of the service offered meets their needs and expectations.

The significance of the customer concept has shifted from the simple receiver of the service provided by a producer, to the one involved in creating value in the experience of the service (Bitner et al., 1997, Prahalad and Ramaswamy 2004). Traditionally, the patient has been described as a weak, exposed and person-dependent person considered to be a medical subject (Foucault, 1973).

However, according to the new visibility of the client's position, the position of the patient has shifted closer to that of the client, through market performance and management research over the last decades of the twentieth century (Nordgren, 2003, 2008). It is a process of transformation, whereby the patient becomes subject to the concept of the client, i.e. they acquire information, seek alternatives, move, make choices and participate in the production of value (Nordgren, 2009).

Typically, service quality is considered as a cognitive structure, while satisfaction is a more complex concept involving cognitive and emotional components. More specifically, satisfaction is believed to be a behavioral reaction associated with the perceptions of values that

patients have in contact with health providers (Kane et al., 1997).

Zineldin (2006) defines satisfaction as an emotional response. Although service quality and consumer satisfaction have specific common features, satisfaction is generally perceived as a wider concept, while service quality assessment focuses on the dimensions of the service (Zeithalm and Bitner, 2003). Patient satisfaction is defined as an assessment of a discrete dimension of health care (Linder-Pelz 1982, Hills and Kitchen 2007).

2.3 Dimensions of healthcare quality

A plethora of research in the literature exists on the number and content that constitutes the dimensions that define quality. The researchers, Tomes and Ng (1995) conducted content analysis and concluded that there are eight dimensions in total, such as empathy, understanding of the disease, relationship of mutual respect, nutrition, dignity of the hospitalized, natural environment and religious needs.

Camilleri and O'Callaghan (1998) argue that parameters such as professional and technical care, personalization of services, cost, environment, patient comfort, nutritional accessibility are the appropriate dimensions of hospital quality measurement. Andaleeb (1998), on the other hand, limits them to five dimensions, such as communication, cost, installation, competence, and behavior.

Zineldin (2006) claimed that there are five dimensions of technical, operational, infrastructure, interaction, and atmosphere quality. Choi et al. (2005) additionally support a structure of four factors, including the interest of the physician, the interest of the staff, the ease of the care process and the material elements, reflecting aspects of technical, functional, environmental and administrative quality.

Itumalla et al. (2014) argue that after the support services, the most important factors influencing the overall quality of the hospitalization services are nursing, administrative and medical services, as well as communication with the patient.

After a thorough study of the existing literature, it was considered that the dimensions that adequately describe the overall quality of hospital care are those supported by Padma et al. (2009, 2010), which are broken down as follows:

a. **Infrastructure:** This includes the degree of cleanliness and comfort of the room, the degree of hospital overall safety, the level of availability of the required drugs at the right time, the level of availability of doctors and nurses, the level of availability of medical equipment and good working condition (Thompson 1983, Parasuraman et al., 1988, Reidenbach and Sandifer-Smallwood 1990, Tomes and Ng 1995, Camilleri and O'Callaghan 1998, Andaleeb 1998, Chowdhary and Prakash 2007, Walters and Jones 2001, Arasli et al., 2008, Zineldin 2006, Duggirala et al., 2008, Padma et al., 2010, Itumalla et al. 2014). The Joint Commission International - JCI (2007) has also added "facility management" as a core function in hospitals.

b. **Personnel Quality:** This dimension addresses the patient's experience of communication and the kind of care provided by doctors, nurses, paramedics, nursing staff, and hospital staff. It essentially falls under the quality of services and the human element of three of the four hospital services (Article 5, paragraph 1, No Y4a / house 122819/2012). Gronroos (1990) introduced a comprehensive list of six criteria for the proper understanding of service quality, such as professionalism and skills, attitudes and behavior, accessibility and flexibility, reliability and validity, recovery, reputation and solvency. Padma et al. (2010) argue in their research that staff quality is the main dimension that affects patient satisfaction. Itumalla et al. (2014) suggest in their research that after the support services, the most important factors affecting the overall quality of the hospitalization services are nursing, administrative and medical services, as well as communication with the patient.

c. **Clinical care process**: A critical dimension of the quality of health care is the patient's experience of the different procedures that are part of his entire stay in the hospital. Many studies have been conducted on process management in the service sector. Lewis (1990) reported that the process is concerned with serving the distribution systems, the various physical characteristics associated with the organization and services provided, and the role of the employees of the organization (contact with the customer and the auxiliary staff) in the provision of quality service. Zeithaml et al. (1990) describe the process (within services) as the actual processes, mechanisms and flow of activities with which the service is provided, as well as the operating system. The management of the procedure examines the patient's perception of the treatment and the outcome of the treatment process (Duggirala et al., 2008). In their research, Padma et al. (2010) argue that the clinical care process is the second dimension that has the greatest impact on patient satisfaction.

d. **Administrative procedures:** The administrative procedures when setting up a hospital include admission procedures during the hospital stay, as well as those involved in the patient's discharge and discharge phase. Curry and Sinclair (2002) report that patients will feel less affected by their treatment if access to the service improves. One of the important aspects of administrative procedures is the delay at the different stages of patient hospitalization. Service studies have shown that delays considered unreasonable or unnecessary for patients may lead them not only to dissatisfaction but also to anger. Based on the above, the patient's views on administrative services are an integral part of their understanding of the quality of health care services provided (Duggirala et al., 2008). More generally, the concept of a simple production as a quality-related value-creation process under the limitation of activities that add weight is considered appropriate (Klee and Westgard, 2015). Itumalla et al. (2014) suggest in their research that supportive services are the main factor affecting patient satisfaction.

e. **Safety indicators**: They relate to the type of security measures a hospital has set up to protect patients physically and affect patients' perception of hospital quality. Massaro (2003) reported that healthcare leaders and their managers are required to guarantee

that patient safety is (and remains) one of the primary goals of the hospital. The moral imperative for patient safety is the basic philosophy of medical care, dating from ancient Greece and the Hippocratic Oath. Itumalla et al. (2014) found a statistically-significant impact of safety indices on patient satisfaction during their research.

f. **Hospital image**: This dimension evaluates the patient's view of the overall medical experience they have received in the hospital. De Man et al. (2002) reported that active management of consumer perceptions about the quality of healthcare provided is important for many reasons. The study also shows the strong link between the perception of overall quality services and patient satisfaction. This overall image affects customer expectations when it is important for customers to have realistic expectations. More generally, in the healthcare sector, the reputation of the hospital must be seen as a key element of service quality (Padma et al., 2009, 2010).

g. **Social responsibility**: An important contribution to the satisfaction of patients with regard to the quality of care provided by the hospital is whether the hospital fulfills its responsibility in society. This is manifested in relation to its role as mediator of social prosperity and development. This dimension satisfies the views of patients in relation to the social responsibility of the hospital. Wensing and Elwyn (2003) reported that it is a moral and legal rule that patients should be informed about and involved in their health care. The Malcolm Baldrige National Quality Award - MBNQA (2007) emphasizes that social responsibility is a vital indicator of quality of service. A service provider can not only be concerned about their profitability, but also about society as a whole.

h. Hospital reliability: The hospital's reliability is measured by the sense of well-being felt by the patient in the hospital (safety, etc.) and affects the degree of the patient's confidence in the hospital. This in turn can cumulatively contribute to the overall assessment of the service provided (Padma et al., 2010). Iyer and Muncy (2004) consider that the patient's level of trust was governed by degrees of fluctuation in all patient categories and was apparently segmented to the service provider.

3. Tools

In the quality of services, various theoretical models enable management to identify quality problems, contributing greatly to the initial planning of an improved quality program with improved efficiency and effectiveness (Seth and Deshmukh, 2005). A conceptual model attempts to capture the relationships between the most important variables (Ghobadian et al., 1994) and is a simplified description of actual situations.

The basic service quality measurement models are:

- The technical and functional quality model (Gronroos, 1984), according to which an organization must understand the perception of consumers about the quality and the way in which this quality is affected, in order to succeed in competition. Management of the perceived quality of services implies that the company should adapt to both expected and perceived services in order to achieve consumer satisfaction.
- The SERVQUAL model developed by Parasuraman et al. (1985), who argued that service quality is a function of gaps between consumer expectations and performance across quality dimensions.
- The SERVPERF model (Cronin and Taylor 1992), which measures business performance. Its name derives from "SERVICE PERFORMANCE".

In the form of equation, the quality of services according to SERVPERF is expressed as follows:

$$SQ_i = \sum_{j=1}^{k} P_{i,j}$$

Where:

SQ_i = perceived quality of services for i people

k = number of characteristics/issues

P = Person's i perception of the performance of the provisioning entity in relation to the characteristic j.

"SERVPERF" is a performance measurement of service quality with its symbolic representation in Figure 1 below.

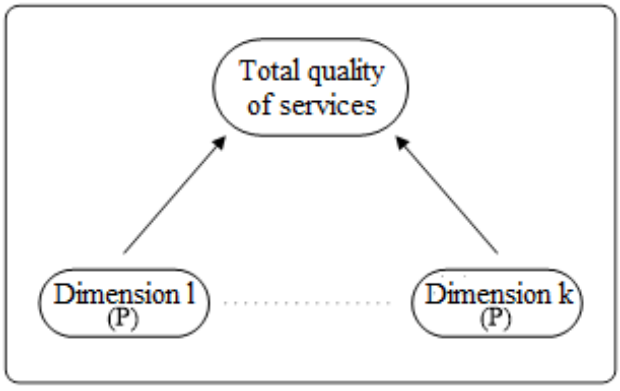

Figure 1: SERVPERF
Source : Martinez και Martinez, (2010)

3.1. Measuring service quality dimensions through the SERVPERF model

Several researchers suggested that service quality should be measured by taking only consumer perceptions into account rather than expectations minus perceptions (Carman, 1990, Cronin and Taylor, 1992, McDougall and Levesque 1994).

The purpose of this study is to measure the quality performance using the SERVPERF model. The reason why this model was chosen, although the SERVQUAL model has been widely used in health care units, is that,

according to Adil et al. (2013) measurement with SERVPERF is superior, not only in capturing the truly perceived quality of service, but also to halve the number of items to be measured. Furthermore, according to Martinez and Martinez, (2010), the performance measurement received a higher psychometric level of service quality assessment, in terms of structural validity and operational efficiency through performance data, and more precisely interpreted the overall measurement of the quality of provided services as measured by SERVQUAL

In the same context, research by Brady et al (2001), which supports the superiority of the Cronin and Taylor quality measurement performance approach and which is correctly modeled as a previous consumer satisfaction, is also included.

3.2. Conceptual framework of research.

The conceptual framework of quality of health services, based on the bibliographic review, is presented in the figure below using the performance measurement model (SERVPERF). In this context, the quality of health services in the various primary and secondary dimensions, i.e. infrastructure, quality of staff, clinical care process, administrative procedures, safety indicators, social responsibility, hospital image and hospital reliability, are described in the work of Padma et al. (2010).

Based on the above, the hypothesis under investigation is defined as H1, in which there is a significant effect of the dimensions of total quality (as perceived by patients) on patient satisfaction as illustrated in Figure 2 below:

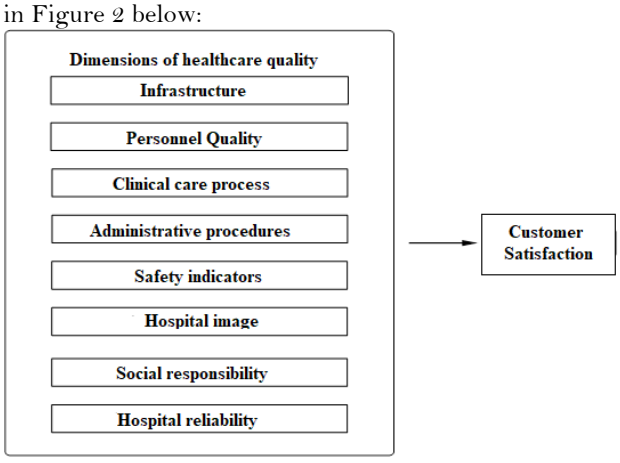

Figure 2: Conceptual model of customer satisfaction measurement in health services
Source: Padma *et al.* (2009)

4. Research methodology

The purpose of the present study is to balance the performance of the quality of hospital services as perceived by patients in terms of patient satisfaction with the services provided through the "SERVPERF" quality performance model and on the conceptual framework developed by Padma et al. (2009).

The Quality Score Tool was a questionnaire consisting of closed-ended questions that recorded the demographics of respondents and quantified their views on the perceived quality of services provided to the hospital.

Initially the questionnaire was divided into a group of twenty patients who were recently hospitalized in order to check whether it is understandable and whether it responds to their opinion on the dimensions of perceived quality. The focal point was only patients, because the study aims to determine the dimensions of service quality and its assessment under the patient's understanding.

4.1 Description of the sample.

In the present case study case, hospital clients are defined as the hospitalized patients, who are considered the focal point of the research. A necessary and feasible condition for participation in the survey was that the respondents were patients who had been hospitalized in the last year in the above hospital.The method of randomized cross-sectional sampling was used. The desired sample was selected by the population of the prefectural hospital, since more than 80% of those hospitalized in the year 2013 came from it (GHK, 2014). The created layers by age were: younger than 18 years, 18-30 years old, 30-45 years old, 45-60 years old, older than 60 years old.

The formation of the sample presented several difficulties especially when determining the ratio of the layer to the population as well as the sample size. One way of selecting a sample size from market research companies is getting the equal the 0.2% of the actual population (Dimitriadis, 2012). Difficulty has been identified in identifying the actual population. If the actual population is considered to be the inhabitants of the prefecture, which amounted to one hundred and thirty-eight thousand, six hundred and eighty-seven inhabitants, the sample should consist of two hundred and seventy-seven (277) persons (138.687 inhabitants x 0.2%) The reasoning is that they are all potential patients, but this does not satisfy the defined condition. If the actual population is considered to be the total number of hospital admissions in the year 2013 of twenty-nine thousand nine hundred and twelve (29,912) hospitalized (GFC, 2014), the sample should consist of sixty people (60), which is too small.

Finally, the research followed the rationale of "five subjects per variable" (Hair et al., 2008 and Itumalla et al., 2014) to determine the total number of individuals of the desired sample. Since the research identifies forty-nine elements, the ideal size of the desired sample should be two hundred and forty-five (49 x 5 = 245).

Based on the above assumption it was difficult to determine the proportion of the layer. Finally, the ratio of the layers was formed on the grounds that the proportion of the elderly (64 years and older) of the Region of Eastern Macedonia and Thrace amounts to 20.5% of the population, that tends to grow (TEE of Thrace, 2013) and they are the more likely to become the Hospital's clients (already hospitalized or potential) along with those at forty-five (45) years or older since the older people are more likely to become hospital clients due to a health burden over time. In this context, it was considered appropriate for the sample to include a greater proportion of ages over forty-five, set at 60-65%.

The attributes of the actual sample obtained are depicted in the Table 1:

Table 1: Real demographic characteristics

Variable	Category	Frequency	Proportion (%) based on sample size (n=213)
Age	<18	4	1,9
	18-30	33	15,5
	30-45	31	14,6
	45-60	80	37,6
	>60	65	30,5
Gender	Male	82	38,5
	Female	131	61,5
Education level	Primary Education Graduate	37	17,4
	Graduate of Secondary Education	100	46,9
	Graduate of Higher Education	68	31,9
	Master of Science – PhD Title	5	2,3
Marital status	Married	155	72,8
	Unmarried	39	18,3
	Divorced	7	3,3
	Widower	12	5,6
Monthly Income	< 300€	8	3,8
	300-500€	27	12,7
	500-700€	43	20,2
	700-1000€	60	28,2
	<1000€	75	35,2
Profession	Public Employee	27	12,7
	Private Employee	77	36,2
	Freelance	34	16,0
	Retired	53	24,9
	Student	3	1,4
	Domestic Work	10	4,7
	Unemployed	9	4,2

4.2. Method of collecting data.

During the period between 15 September and 15 October 2014, two hundred and forty five questionnaires were distributed to residents of the county that had been admitted and treated in the hospital in the last year. Of these, two hundred and twenty-four (91% response) were returned, of which eleven were considered invalid because they did not answer all the questions. Therefore, the total valid sample is n = 213, which corresponds to 87% of the ideal sample.

As a distribution area of the questionnaires, the premises of the hospital were excluded, given the emotional burden of hospitalized patients, associated with positive or negative instantaneous events or the disease that could temporarily affect their perception of quality, positively or negatively. As Oliver (1989) and Gazor et al. (2012) report, satisfaction is defined as a value, emotional response. Therefore, customers can evaluate the subject after interpreting it.

Distribution venues were determined based on matched layers by age group, combined with relevant interests by age.In the total valid sample, the proportion of age groups over forty-five is finally 69%. It exceeds our forecast by four percentage points. This is because there was a relative reluctance to complete questionnaires at younger ages. This finding is not considered to have a negative impact on the present investigation; most hospitals clients are expected to come from the above population group, which is therefore the target group.

4.3 Description of variable measurements.

The Quality Measurement Tool was a two-part questionnaire. The first part included the demographics of the respondents, the analysis of which gave rise to the actual features of the sample mentioned above.

The reliability of the questionnaire is taken for granted, as its elements / themes have been drawn from the recent rich literature. Specifically, they can be found in a number of scientific articles. For example, part of them is found in Zineldin (2006), much more extensive in Dugiralla et al. (2008), similar to Padma et al. (2010). Adaptation to Greek data was achieved through its evaluation by a target group of twenty patients before its final distribution to the final sample population as mentioned above in the introduction to this chapter.

In the first part of the questionnaire the demographics to be filled were age, gender, level of education, marital status, monthly income and occupation. They were measured using a different scale ranging between two points (e.g. gender) and seven points (e.g. a profession).

As reported by Naidu (2009), social and demographic variables show a positive correlation to patient satisfaction and include elements such as age, education, health status, race, marital status, and social order. Individual factors that are positively related to patient satisfaction are health status and education. Atinga et al. (2011), in their respective research, got information on gender, age, education and work.

In the second part of the questionnaire, the dimensions of quality were examined. The dependent variable on the overall measurement of patient satisfaction regarding the hospital services provided basically depicts and quantifies the performance of the overall quality of services based on the SERVPERF performance model.The performance of the overall quality of service is calculated by the contribution to the quality dimensions in terms of patient satisfaction, after first investigating the extent to which these dimensions affect the satisfaction of the patients of the hospital in question.

All subjects measuring the dimensions on the patient's side were recorded through the five points of the Likert scale. The scale ranges from 1 that corresponds to "none

/ insufficient / little" to 5 that corresponds to "very / very good" and was adopted adapted from Tucker and Adams' integrated patient satisfaction models (2001) Atinga et al., (2011). The scale used is as follows:

Disagree	Disagree	Moderate	Agree	Strongly Agree
1	2	3	4	5
Inadequate	Non-satisfaction	Moderate	Good enough	Very good

After the questionnaires were collected, the data was recorded in an excel sheet. The statistical analysis of the data was carried out through the SPSS statistical package, version 20. As a first step in this research, variables are considered questions that explore the dimension / factor. Initially, a frequency table was created for each variable, including the frequency, percentage, valid percent, and the cumulative percentage of the values of the variables to confirm the validity of the sample.

Exploratory factor analysis was then applied for each individual model factor. In each factor, Descriptive Statistics of its variables were performed. We calculated the mean, the standard deviation and the number of observations (N) for all its variables. A total of eight final factorial analyses were performed to investigate the type of relationship of their variables.

According to Hair et al., (2008), the primary purpose of factorial analysis is to determine the underlying structure between the variables by analyzing the structure of the interactions between all variables.
Although the questionnaire was pre-existing, it was considered appropriate to investigate its structural reliability by predetermined factor-dimension. In this context, the Correlation Matrix was originally calculated by factor in order to show the correlations of all the pairs of variables (Dimitriadis, 2012). In the same table on the line Sig. (1-tailed) these correlations appear. If they are deemed significant at a materiality level of 0.05, there are conditions for further consideration of proficiency to perform a factorial analysis.

The Kaiser-Meyer-Olkin Index (KMO) was then considered as a measure of statistical sampling adequacy and shows the percentage of variability of variables that can be caused by underlying factors. This index ranges from 0 to 1, reaching 1 when each variable is predicted without error by the other variables. The CPM value must be greater than 0.50 for each individual variable. The value above 0.8 is considered statistically significant (Hair et al., 2008). In addition, Bartlett's Test of Sphericity was also examined. Since the Sig of this index per variable is less than 0.05, the assumption of no significant correlations at the 5% significance level (Dimitriadis, 2012) is rejected. A confidence analysis was then carried out with a measure of the Cronbach index. Indicator values range from 0 to 1. Values greater than 0.7 show satisfactory consistency and a credible factor (Dimitriadis, 2012).

Once the structural validity of each factor has been confirmed, in the second stage, the linear regression model was tested. The ANOVA test was performed and the significance of the relationships between the variables and the significance of the model was evaluated through the F statistic. If the Sig of the statistical F <0.05 the model variables are linearly correlated (Dimitriadis, 2012).

The VF (Variation Inflation Factor), which is a collinear diagnosis measure, was checked in the Coefficients panel. Values greater than two (> 2) are indicative of a collinearity problem. In addition, the Sig of the coefficients was checked in the t column and which determined which independent variables had a greater effect on the dependent variable. From these results and the coefficients of the Beta column, the equation of the particular model emerged (Dimitriadis, 2012).

5. Results

5.1 Verification of structural validity

In the initial factorial analysis of the factor Infrastructure, and in particular when calculating the correlation table in the sig (1-tailled) line, six of the seven variables were significant at a 0.05 level of significance. The variable "The level at which food served during hospitalization is fresh and healthy" had a value of 0.412> 0.05. In the subsequent statistical analysis, it is finally proved that it determined a further dimension as is depicted in Figure 3 and was subtracted from the investigated factor. Furthermore, it was not considered advisable to create another factor with a single variable.

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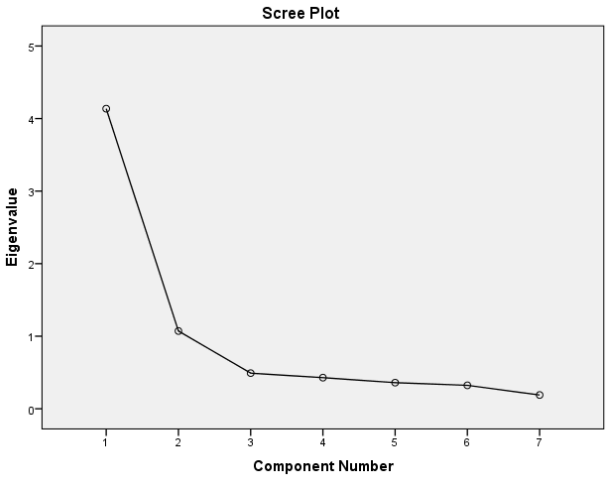

Figure 3: "Infrastructure" Factor (before removing a variable)

A factorial analysis followed again. The KMO of the factor was found to be 0.888, i.e. it is statistically significant and if the KMO sig is 0.000 (less than 0.05), the assumption of no significant correlations at the 5% significance level is rejected. Cronbach's has a value of 0.915 which is greater than 0.7. Based on the above and in addition to a thorough analysis, it appears that the factor is reliable and has good consistency (Figure 4).

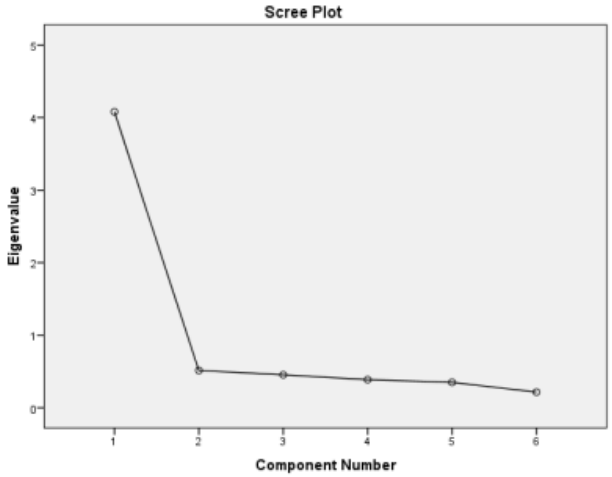

Figure 4: "Infrastructure" Factor (after removing a variable)

Here follows the factorial analysis of the second factor, "Quality of staff". Data analysis shows that the sig (1-tailled) line and the twelve variables are significant at a significance level of 0.05. The KMO of the factor was found to be 0.944, i.e. statistically significant and since the KMO sig is 0.000 (<0.05), the assumption of no significant correlations at the 5% significance level is rejected. Cronbach's has a value of 0.966 that is greater than 0.7. Therefore, the factor is credible and has good consistency. In the following graph, the eigenvalue is greater than one (Figure 5):

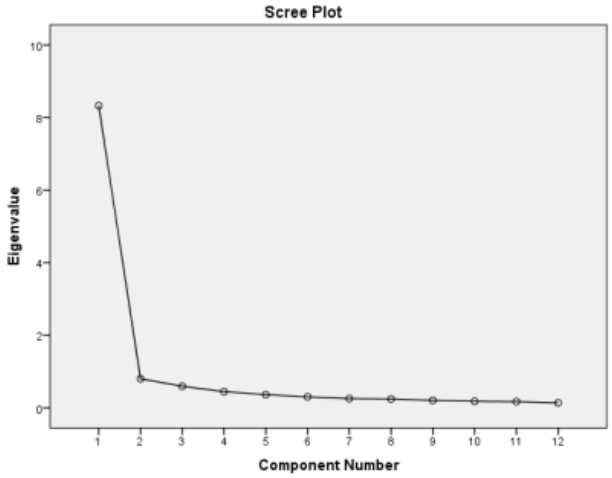

Figure 5: "Quality of Staff" Factor

In the factorial analysis of the third factor, "Clinical care process", it is noted that in the sig (1-tailled) line, the six variables are significant to significance level of 0.05. The KMO of the factor was found to be 0.922, i.e. statistically significant and since the KMO sig is 0.000 (less than 0.05); the assumption of no significant correlations at the 5% significance level is rejected. Cronbach's has a value of 0.964 that is greater than 0.7. Therefore, the factor is credible and has good consistency. In the following graph, the eigenvalue is greater than one (Figure 6)

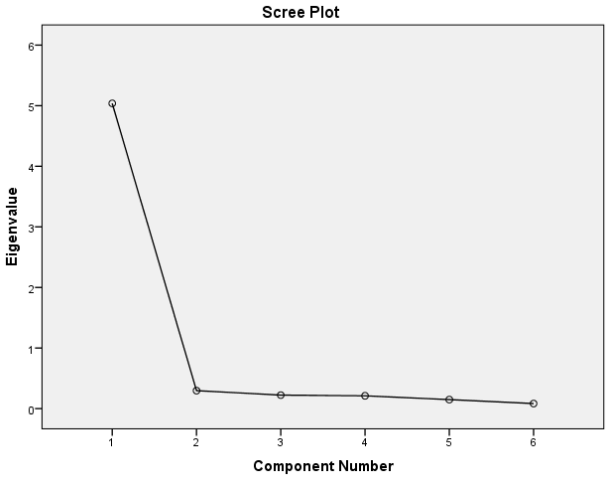

Figure 6: "Clinical Care Process" Factor

In the factorial analysis of the fourth factor, "Administrative Procedure" it is found that in the sig (1-tailled) line and the eleven variables are significant at a significance level of 0.05. The KMO of the factor was found to be 0.918, i.e. statistically significant and since the KMO sig is 0.000 (less than 0.05); the assumption of no significant correlations at the 5% significance level is rejected. Cronbach's has a value of 0.948 that is greater than 0.7. Therefore, the factor is credible and has good consistency. In the following graph, the eigenvalue is greater than one (Figure 7):

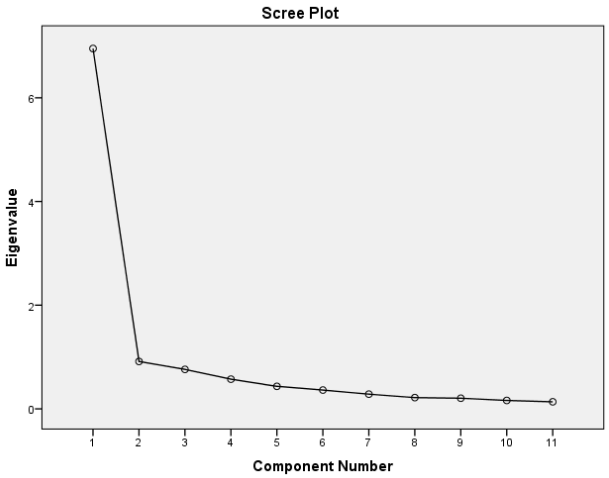

Figure 7: "Administrative Procedure" Factor

In the Factorial Analysis of the Fifth Factor, "Safety Indicators", it is noted that in the sig (1-tailled) line the three variables are significant at a significance level of 0.05. The KMO of the agent was found to be 0.710 (<0.8), i.e. marginally statistically significant given that the KMO sig is 0.000 (less than 0.05). Cronbach's has a value of 0.846 that is greater than 0.7. Therefore, we consider that the factor is reliable with satisfactory consistency. In the following graph, the eigenvalue is greater than 1 (Figure 8):

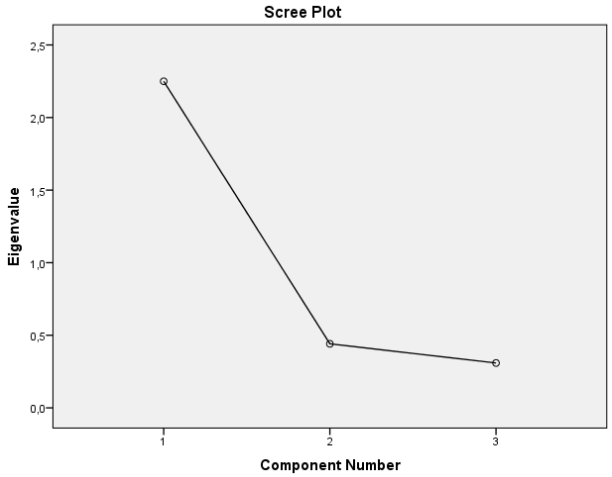

Figure 8: "Safety Indicators" Factor

In the factorial analysis of the sixth factor, "Hospital image", it is found that in the sig (1-tailled) line all three variables are significant at a significance level of 0.05. The factor KMO was found at 0.583, which is slightly above the limit of 0.5. Since the KMO sig is 0.000 (less than 0.05) remains for further investigation, given that Cronbach's has a value of 0.771 (> 0.7). In the following graph, the eigenvalue is greater than 1 (Figure 9):

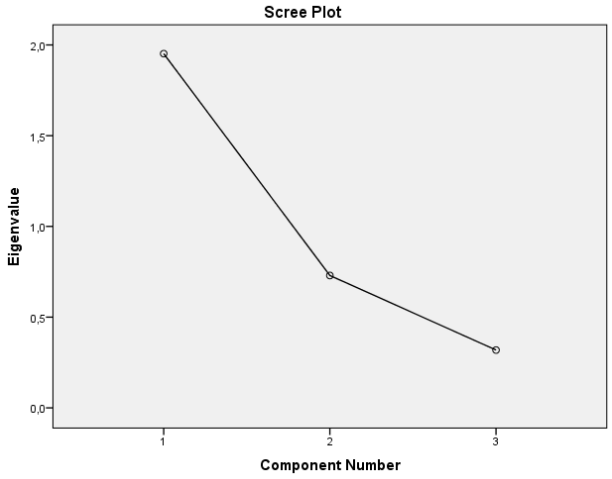

Figure 9: "Hospital Image" Factor

In the factorial analysis of the seventh factor, "Social Responsibility", we find that in the sig (1-tailled) line all three variables are significant at a significance level of 0.05. The factor KMO was found to be 0.500. With the same reasoning mentioned above remains for further investigation, since the KMO sig is 0.000 (less than 0.05), even though Cronbach's has a value of 0.905 (> 0.7). In the following graph, the eigenvalue is greater than one (Figure 10):

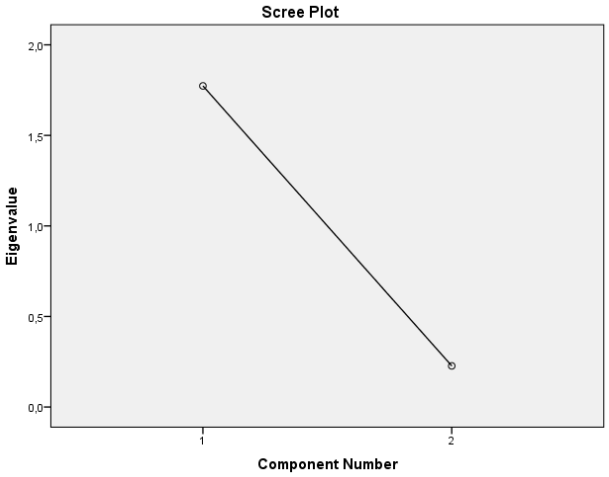

Figure 10: "Social Responsibility" Factor

In the factorial analysis of the "Hospital Reliability" Factor, it is noted that in sig (1-tailled) all three variables are significant at a significance level of 0.05. The factor KMO was found to be 0.795 (< 0.8), so it is considered statistically significant and if the KMO sig is 0.000 (less than 0.05), the assumption of no significant correlations at the 5% significance level is rejected. Cronbach's has a value of 0.920 that is greater than 0.000. Therefore, the factor is credible and has good consistency. In the following graph, the eigenvalue is greater than one (Figure 11):

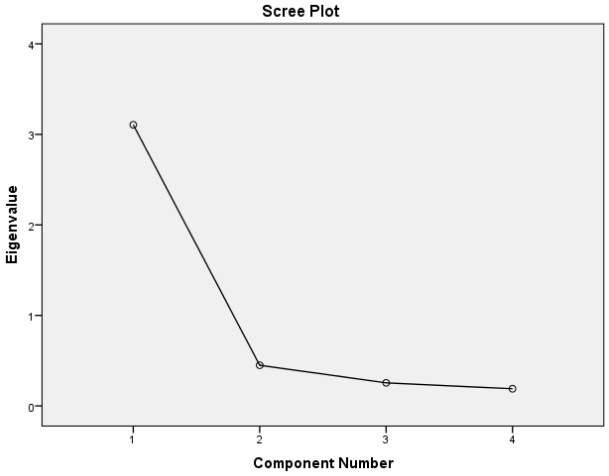

Figure 11: "Hospital Reliability" Factor

5.2. Linear reciprocating model test

During the ANOVA test, the Sig of the statistical F is 0.000 <0.05 and therefore the model variables are linearly correlated. The Coefficients table shows that there is no collinearity, as all the values of the variables are less than 2. Additionally, autocorrelation control was performed using the Durbin-Watson index. The value of (1,747) is close to 2 and indicates that autocorrelation is not intense. In Table 2, titled Model Summary, the process of determination of the R^2 factor is recorded.

Table 2: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,931[a]	,866	,861	,486

[a]Predictors: (Constant), Hospital Reliability, Safety Indicators, Infrastructure, Hospital Image, Social Responsibility, Quality of Staff, Administrative Procedure, Clinical Care Process
[b]Dependent Variable: The degree of evaluation of your overall satisfaction with the quality of the services you received in the hospital

R^2 = 0.866> 0.5, meaning that the percentage of variance of the dependent variable is interpreted satisfactorily by the independent variables.

However, as shown in Table 3, titled Coefficients, the variables "Administrative Procedure", "Safety Indicators" and "Hospital Image" do not significantly affect the dependent variable, as the Sig values in the column of values t are 0.561, 0.602 and 0.372 respectively 0.05).

Table 3: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,537	,033		105,675	,000
	Infrastructure	,243	,064	,185	3,812	,000
	Quality of staff	,250	,084	,190	2,959	,003
	Clinical care procedure	,351	,091	,268	3,876	,000
	Administrative procedure	,048	,082	,036	,583	,561
	Safety indicators	,027	,052	,021	,523	,602
	Hospital Image	-,055	,062	-,042	-,895	,372
	Social responsibility	,263	,070	,201	3,739	,000
	Hospital Reliability	,198	,085	,150	2,338	,020

From column B (Beta) we get the weighting coefficients of the independent variables that affect the dependent variable.
Therefore, the case under investigation, as stated previously:

H1: There is a significant effect of the dimensions of total quality (as perceived by patients) on patient satisfaction. This is verified in this hospital by the following mathematical equation of the particular model:

Patient Satisfaction = 0,351 x Clinical Care Quality + 0,263 x Social Responsibility + 0,250 x Personnel Quality + 0,243 x Infrastructure + 0,198 x Hospitality Reliability

As noted, patient satisfaction in the hospital in question is more dependent on five (5) service quality dimensions, which are on a hierarchical scale: "clinical care", "social responsibility", "staff quality", "infrastructure" and "Hospital reliability". The other three (3) quality dimensions, i.e. "administrative procedure", "safety indicators", "hospital image" have not been found to have a statistically significant relationship with the satisfaction of patients in the hospital. Based on the above, the conceptual model to measure patient satisfaction presented is formulated as follows:

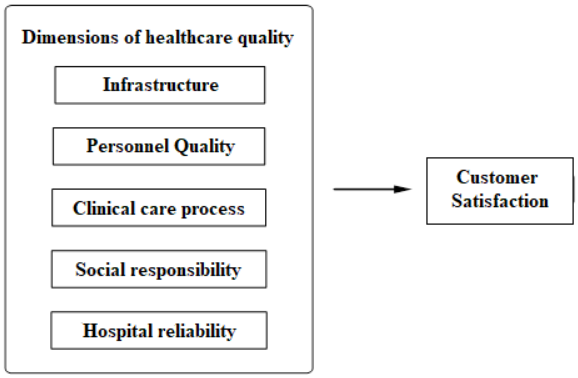

Figure 12: Patient Satisfaction Measurement Model

Since patient satisfaction is a measure of overall quality of service performance, quality dimensions that have a significant impact on overall quality of service are "clinical care", "social responsibility", "quality of staff", "infrastructure" and "hospital's credibility" as shown in Figure 13.

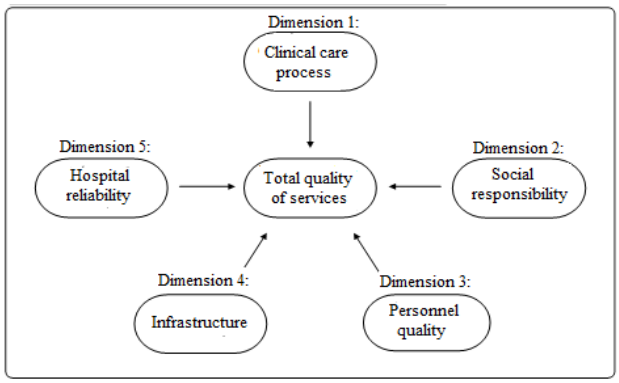

Figure 13: Overall quality of hospital services

6. Discussion

From the Descriptive Statistics Table of the Statistical Analysis and in particular from the Arithmetic Mean (AM), useful information can be drawn on how patients customers perceive the quality of the services, ranging from one to five on the individual subjects of the questionnaire by dimension.

Of course, weight should be given to dimensions that have been found to have a statistically-significant relationship to overall quality, such as the predominant clinical care process.The extensive check does not reveal any special discrepancies in dimensional rating. The overall evaluation in almost all quality dimensions is satisfactory (AM: ~ 3.5), which can be improved at all points.

However, it is noteworthy that the "administrative process" dimension in relation to "the level of opinion and complaints from patients to improve the hospital" has a very small arithmetic mean (AM: 2.40 <5), which should concern the Administration. According to Stern et al. (2010) an important and integral part of any management process is the monitoring and feedback on the organization's activities. Each organization needs to know if it is acting effectively and if its activities have been accepted by their recipients in the way they were intended. Management should sensitize customers to make their complaints in order to be able to receive continuous refueling to improve the quality of services provided.An additional basic label could be related to the "level of inpatient infections", where the results are relatively low (AM: 2.90).

7. Conclusions

In order to investigate the above model, the case study method was utilized. The survey was conducted in a public regional hospital, using an appropriately structured questionnaire to quantify patient satisfaction with benchmarks of the above-mentioned quality dimensions.

The hypothesis on the significant impact of critical dimensions on the overall quality of hospital care in the hospital was examined. Research has shown that dimensions that have a significant effect on patient satisfaction, which is a measure of overall quality of health services, are the "clinical care process", "social responsibility", "staff quality", "infrastructure" and "hospital reliability" .

The "clinical care process" dimension was found to be the most important factor in predicting the overall quality of health services, followed in turn by the dimensions of "social responsibility", "quality of staff", "infrastructure" which were found to have a similar effect on overall quality and finally, the "hospital's credibility" dimension.

It is clear that the components of the "clinical care process", i.e. primary quality, technical quality, treatment and outcome, reliability, understanding of the disease, are the key factors for patients' satisfaction and thus the overall quality of hospital care. These should primarily be addressed by the Hospital Administration, and consequently the components of the other four dimensions.Findings can be a source of feedback to hospital management, meaning that they essentially lead to improved adjustments or serve as a basis for process reengineering.

The comparison of the present findings with other corresponding research results presents degrees of difficulty, as the typology of the parallelism should first be investigated and their similarity identified in order to allow their comparability. Additionally, it should be borne in mind that, like Gupta et al. (2011), values and beliefs that have been shaped by the environment or during social interactions evolve into emotional connections that play an important role in the consumer decision-making process. It is therefore justified that there may be some variations with regard to the present findings compared to those that have been bibliographically drawn, as they are part of different cultures.

More generally, research findings are consistent with other surveys, such as Gronroos (1982), Baldwin and Sohal (2003), Rohini and Mahadevappa (2006) and others. In the main part of the bibliographic review and according to Padma et al. (2010), the "clinical care process" dimension is second in terms of its impact on the overall quality of services, while "staff quality" and/or "administrative process" comes first, which has proved to be statistically insignificant in this particular survey.

This finding can be explained by the fact that in Greece and especially in the periphery, the patient is usually accompanied by a relative who somewhat compensates for the human element of the care provided and is usually the one who is performing the administrative procedures. Adding to the above, it is stated in the demographic data that the"Marital status" variable was the highest, as the majority of the sample (72.8%) belonged to this category.

The finding that the "clinical care process" has emerged as the most important dimension in regards to the impact on the overall quality of services can be explained by the fact that in the demographic data in the variable "level of education" the sample rate of primary education graduates was only 37, i.e. it rose up to 17,4% of the sample. Therefore, the highest technical quality requirements may be due to the relatively high level of education of the sample combined with information provided by the internet.

The impact rates on the overall quality of the dimensions of "social responsibility", "infrastructure" and "hospital credibility" can be interpreted in line with the modern trends of developed countries.

7.1 Possible methodological weaknesses and proposal for future research by other researchers.

The present study has limitations due to the

generalization of research results, as it was carried out in a single medium-sized hospital in the region. A further continuation of the research may be the measurement of the overall quality of the hospital services provided by their escorts, since they can also be considered as customers, as discussed in the corresponding section. In addition, useful information can be provided by the measurement of satisfaction of the hospital's staff.

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Labor Income Share Consequences of Global Financial Crisis: Evidence from Turkey*

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ABSTRACT

Purpose:
The aim of this study is to examine the effects of the 2008 financial crisis on the labor share in Turkey, by conducting a comparative analysis of various labor share measures using both micro survey and aggregate data.

Design/Methodology/Approach:
By adopting aggregate data- based labor share measures to micro survey data, four different labor share measures in the total market income were calculated using micro data from the 2006 to 2014 Income and Living Conditions Survey of Turkey. Two additional labor share measures were calculated using aggregated data obtained from World Input Output Database's Socio Economics Accounts.

Findings:
The results of the micro-data calculations indicated a substantial and permanent increase during the crisis due to the labor hoarding in the labor market leading to an increase in skilled employee labor income share at the expense of unskilled employee labor income share. The results obtained from aggregate data-based labor share calculations with two different measures were relatively smaller than micro data-based labor shares due to the large share of informal employment in Turkey. Further, the labor shares obtained from aggregate data decreased during the 2008 financial crisis, in contrast to the labor shares from micro data.

Research limitations/implications –
Due to the lack of the applicable aggregated data, four labor share measures adopted to micro data could not be used for aggregated data-based labor share calculations. Therefore, a straightforward comparison between the micro and macro data based results of the labor share measures could not be made.

Originality/Value:
As the first attempt using micro survey data for calculation of Turkey's factor shares, this study reveals the labor market consequences of global financial crisis in Turkey in search of the evolution of labor share in the market income and provide a comparison between micro and macro data-based results.

1. Introduction

In the post-1980's era, a significant increase in the degree of integration and interdependency of financial markets and world economies resulted in a rise in the frequency and intensity of financial crises around the globe, especially in developing countries. Many studies have examined the fiscal and monetary consequences of these crises. Others have focused on the effects of these financial crises on the personal distribution of income and functional distribution of income, which deals with the distribution of output between the main factors of production (labor and capital). The 2007–2008 global financial crisis, which severely hit developed countries, as well as developing ones, provided an opportunity for researchers to extend the related literature to the experiences of high-income and middle-high income countries.

A financial crisis can affect the labor share through several channels. For example, the distribution of functional income may change in favor of capital income due to decreasing labor demand and wages, with varying influences on different groups of workers having different skills. As explained by the labor-hoarding hypothesis, a decrease in labor demand has the greatest effect on unskilled labor because high turnover costs and low sustainability of trained labor motivate firms to "hoard" their skilled labor (Agenor, 2001; Leitner and

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Stehrer, 2012). Furthermore, the bargaining power of unskilled workers is very limited due to their lack of skills and education. With the diminishing power of labor and labor unions at times of financial crises, workers accept lower wages in order to keep their jobs. Also, financial crisis decreases the real value of money holdings. Since the low-income earning structure is more susceptible to inflation, they are more exposed to income erosion from inflation. The deterioration in labor share following financial crisis examined and verified by several empirical studies (Diwan, 1999; Harrison, 2002; Jayadev, 2007; Onaran, 2008, 2009; Charpe, 2011; Dufour and Orhangazi, 2014). However, functional income redistribution in favor of labor share is also theoretically possible at times of financial crises, especially in labor-intensive sectors, where the labor share may rise in accordance with an increase in exchange rates, leading to increased exports.

Turkey has experienced three major crises in 1994, 2001, and 2008, all of which have had severe impacts on the Turkish economy. The first two of these crises can be characterized as twin crises, as they were a combination of currency and banking crises. Unlike the other financial crises experienced by the Turkish economy in the post-1980s era, the 2008 financial crisis was not an endogenous product of Turkey's internal dynamics. Although the crisis in 2008 was on a global scale and not of Turkey's own making, it had severe impacts on the country because of the vulnerabilities of Turkey's economic structure. Although its economy was booming from 2002 to 2008, a large current account deficit, together with strong dependency on foreign capital inflow and consumer demand, prevented sustainable growth during this period. When the contagion effects of the 2007–2008 global crisis hit the Turkish economy, capital inflows suddenly stopped. Thus, Turkey experienced a significant rise in unemployment and a drastic drop in GDP.

A comprehensive and long-term investigation into the relationship between financial crises and labor share in Turkey for the post-1980 era cannot be conducted due to the lack of available data. Figure 1 indicates the shares of labor compensation and capital compensation in the gross value added in Turkey[1] between 1995 and 2009. From 1995 to 2000, the share of labor compensation in the gross value added increased from 33.3 % to 44.5 %, but started to decrease in 2000 following the deviation from the IMF-supported stabilization program, right before the 2001 financial crisis. The reduction in labor compensation continued from 2000 to 2003 (3.5%).

Unlike the share of employee compensation, the share of labor compensation was affected by the 2007–2008 global crisis by a small percentage (0.5%).

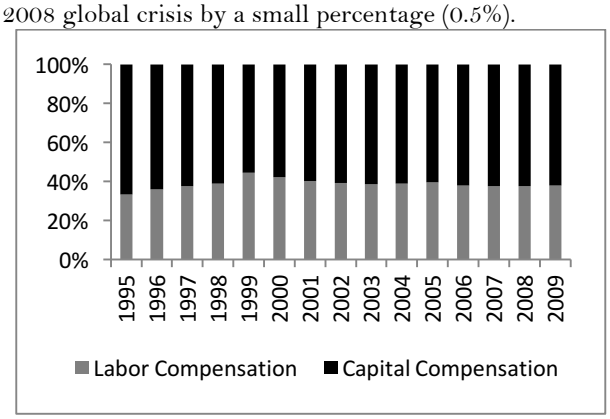

Figure1. Labor Compensation and Capital Compensation in Turkey
Data Source: WIOD's SEA

Figure 2 presents the skill distribution of labor compensation in Turkey[2] between 1995 and 2009. The reduction in the low-skilled compensation share in the total labor compensation is compensated by an upward trend in high-skilled labor compensation and a slight upward trend in medium-skilled labor compensation throughout the period. In 2002, right after the 2001 financial crisis, a break was seen in the patterns of each category with an increase in low-skilled labor compensation and decreases in medium-skilled and high-skilled labor compensation. On the other hand, there was no apparent change in the trends of each skill type before and after the 2008 global crisis.

From 1995 to 2009, the low-skilled labor compensation decreased by 17.3%, while the high-skilled and medium-skilled labor compensation increased by 11.6% and 5.7%. In addition, the gap between the low-skilled labor

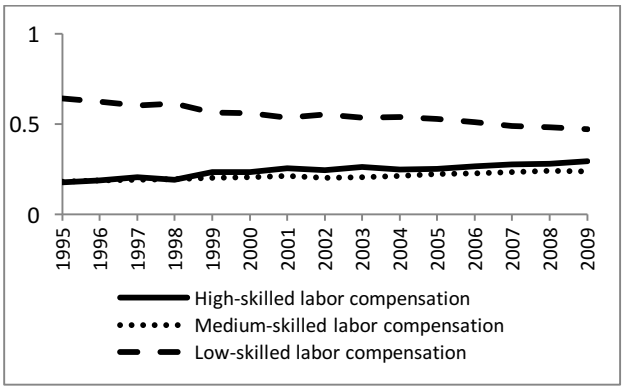

Figure 2. Skill Distribution of Labor Compensation in Turkey
Data Source: WIOD's SEA

[1] In WIOD, labor compensation is computed by using the method proposed by Gollin (2002) (shown as LS_5 in this document). First, self-employed compensation is imputed by assuming self-employed individuals earn the same wage as employees. Then, labor compensation is defined as the total of imputed compensation and the compensation of employees. Capital compensation is obtained as a residual of labor compensation from the gross value added. It is the gross compensation of capital consisting of profits plus depreciation allowances. Along with the conventional fixed (reproducible) assets, such as buildings and machinery, it also includes unreproducible assets, including tangible assets (such as land, mineral resources), intangible assets (such as brand names, software, organizational capital, copyrights, patents, trademarks), and financial capital (Timmer et al. 2015).

[2] Skill types are defined based on levels of education as follows:
•Low-skilled =Below high school (primary, secondary, illiterate, and others);
•Medium-skilled = High school and vocational high school;
•High-skilled =University and above.
The WIOD uses the skill distribution of employment information obtained from Turkish Statistical Institute (TURKSTAT) labor force survey (Erumban et al., 2012, p.30)

compensation and medium-skilled labor compensation began to widen in 1999.

The aim of this paper is to examine the effects of this crisis on the labor income share in Turkey via an analysis of factor shares (labor and capital). In such cases where aggregate labor income decreases, profits decline, and the resulting financial instability places pressure on incomes from property, a comprehensive analysis must be undertaken in order to investigate the changes in the factor shares. In the present study, repeated cross-sectional microdata were used, together with the conventional national account statistics. The data were obtained from the Survey of Income and Living Conditions (SILC) in Turkey for the years 2006 to 2014, which contains detailed information on individual incomes by source. The analysis consisted of two steps. First, we calculated four measures of the labor income share of the working population obtained from microdata and investigated the changes in the labor income based on educational skill differences of individuals. Second, we calculated two measures of the labor income share by using of aggregate data obtained from World Input Output Database (WIOD)'s Socio Economics Accounts (SEA) for comparison.

This paper is organized as follows: Section 2 explains the definition and data issues in measuring labor share. Section 3 presents a literature summary of the effects of the financial crises on labor share. Section 4 presents the data and methodology, and Section 5 presents the results. Finally, Section 6 provides a summary and conclusion.

1.1 Measuring the labor share: Definition and data Issues

Since the labor share is a ratio, the accuracy of the measurement heavily depends on the choice of denominator and numerator. Initially, a few transformations are required for the computation of aggregated income as the denominator of the labor share ratio. Firstly, indirect taxes (Taxes on Productions and Imports) must be subtracted from the Gross Value Added at basic prices for obtaining the factor costs as they can't be considered as return to capital or labor. Secondly, Consumption of Fixed Capital must be removed from the Gross Value Added where data is available, since it is not included in the standard definition of capital income (Guerriero, 2012, p.6).

The choice of numerator for the ratio of labor share has been evolving. Early empirical studies of the functional income distribution relies on calculation of labor share based on the ratio of compensation of employees (payments to labor) to GDP at factor cost (Value added-indirect taxes-fixed capital) derived from national income and product accounts. In this "unadjusted labor share" calculation, capital share is simply obtained as a residual of this ratio. This method has been criticized as being a poor indicator of aggregate labor income since the compensation of employees does not include the labor income of people who are not classified as employees.

Income from self-employed activities[3] includes both returns to labor service and returns to capital. As Gollin (2002) indicated, particularly in developing countries, self-employment which represents a very large fraction of the workforce, accounts for emerging entrepreneurship and business start-ups. Also it represents minor employment and hidden unemployment (Guerriero, 2012, p. 5). Therefore, the use of the compensation of employees as an indicator of labor income may result in incorrect estimations of factor shares and biased cross-country comparisons. Using data from 35 countries, Kuznets (1959) was the first to verify this type of bias in an analysis of the relationship between the share of compensation of employees in GDP and per-capita income. In that study, the countries are grouped by their per capita income level, and the average share of compensation of employees across the groups is then compared. The study found that while the share is higher in developed countries, it is lower in less-developed countries. Harrison (2002) and Jayadev (2007) also confirmed a clear pattern of the share of compensation of employees increasing by per capita income.

In 1953, the United Nations Statistics Division released System of National Accounts (SNA) tables, which has been providing data on the compensation of employees, mixed income from self-employment, and operating surpluses (from rent and capital) for a large number of countries. Using these data, a few adjusted labor share measures have been produced (Guerriero, 2012, p. 7). To distinguish self-employed labor income from mixed income, Johnson (1954) calculated the share of labor income as a sum of the 2/3 of the mixed income and compensation to employees in total value added at factor costs.

Kravis (1959) proposed four alternative calculations to decompose the mixed income. The first one which he identified as "labor-basis" approach calculates the labor component of self-employed income directly and regarded the capital income as residual. This is done by assuming that the labor income of a self-employed individual is equal to that of an employee. The second "economy wide basis" calculation method divides self-employed income for each period, based on the current ratio between labor and capital income of the whole economy, excluding that of the self-employed sector. The third calculation divides mixed income into its labor and capital components in a 0.65:0.35 ratio, respectively, as Johnson (1954) did. The last one which he identified as "asset basis", calculates capital income of the self-employed in national income by applying to the share of other property (the combined share of interest, corporate profits and rent) the ratio of the value of self-employed to other property and treats the residual component of self-employed income as the returns to labor of self-employed.

The important issue with the calculations of Johnson (1954) and Kravis (1959) is that they are based on mixed income. Unfortunately, the mixed-income SNA data is

[3] In the literature, the self-employed are also termed as "entrepreneurs" or "proprietors", and their income as entrepreneur income" or "proprietor's income". In this study "self-employed income" and "entrepreneur income" are used interchangeably.

not available for every country[4] (Guerriero 2012, p. 7). Furthermore, although all measures of labor share covered above have been widely used in the literature, each method has its own drawbacks. "Unadjusted labor share" underestimates the actual value of the labor share, as it does not take into account the labor income component of entrepreneur (self-employment) income. Johnson's (1954) Labor Share measure is criticized for ignoring the possible changes in shares of labor and capital income over time by fixing the ratio in advance. The "Labor-basis" measure of Kravis (1959) overstates the labor share by ignoring the capital income component of entrepreneur income. The "Economy wide basis" measure ignores the scale differences of the private unincorporated businesses and large corporations and the "asset basis" measure requires detailed information on the input and rate of return of each financial income component (the combined share of interest, corporate profits, and rent), which is usually not available.

Gollin (2002) was the first to propose to using data on the composition of the workforce for distinguishing the self-employment income into its labor and capital components. Relying on the assumption that the labor income of self-employed workers is the same as that of employees, he suggested to impute employee compensation for self-employed workers by using the composition of workforce information of the International Labor Organization (ILO) Yearbooks of Labor Statistics. In the method proposed by Gollin (2002), the average employee compensation is obtained by dividing the total compensation of employees by the total number of employees. The average employee compensation is then adjusted for the whole workforce by multiplying it by the number of people in the workforce. According to this calculation, capital income is the part of self-employed income that exceeds the mean wage sum. Using this method, Gollin (2002) obtained relatively stable labor shares in developing countries, and this approach has been widely used in the literature (Bernanke and Gürkaynak, 2001[5]; Bentolila and Saint-Paul, 2003; IMF, 2007; EC, 2007; Ellis and Smith, 2007; Xiang, 2008; Guerriero, 2012).

Guerriero (2012) proposed a further adjustment to Gollin's measure that excludes the income earned by "employers" from the compensation of employees to avoid the overestimation of labor share. This method uses the average wage of self-employed people who were not classified as employers. Guerriero and Sen (2012) used the same methodology to decompose the self-employed income into its labor and capital income components.

The calculation of labor share within the context of the distribution of functional income has been traditionally undertaken via aggregate national account data. However, another line of growing research focuses on calculating factor shares using micro-level survey data (Ryan, 1996; García-Verdú, 2005; Wolff and Zacharias, 2007; Adler and Schmid, 2012; Steffen, 2013; Schlenker and Schmid, 2014).

Atkinson (2009) defined factor shares as an important starting point in establishing links between national accounts and household experience. He pointed out that the assumption that increases in national GDP signifies proportional rises in household incomes does not always hold true. In an economic environment of laborers receiving wages, landlords receiving rents and capitalists receiving profits, an individual's total income may consist of all three categories of income. Therefore, using aggregate data for examining each income category in terms of labor share gives rise to different issues. For instance, using the compensation of employees as an indicator of labor's receipt may result in an overestimation of the wage share because the compensation of employees comprises a number of components, that are not included in the wage packets of workers. These include employers' payments for private pensions and social security, health care, and other benefits. In addition, interest payments on national saving certificates, which are a capital income source for households, have no equivalent in national accounts (Atkinson, 2009, p. 6–7). The use of micro-survey data for examining factor shares enables us to make a link between the aggregate and household dynamics of factor distribution.

In the literature, two types of household or individual income are used to estimate factor shares: i) market income, which is the sum of labor-related income (i.e., income from full-time, part-time, or self-employed work), and capital income, which is the sum before taxes and public benefits, and ii) disposable income (i.e., the income minus taxes and benefits). Market income refers to the sum of incomes from production factors. As such, it is similar to factor shares in aggregate national income and is more suitable for analyses of the distribution of functional income. Disposable income, which is a standard income measure in the economic inequality literature, can be defined as the sum of factor incomes only under the assumption that direct tax payments equals to cash benefit receipts (Ryan, 1996 p. 111). In this study, market income share was used as the denominator of the factor share ratio obtained from the microdata, as we are interested in the distribution of income derived from an individuals' interaction with the economy.

Before presenting the methodology and data sources of the analysis, the literature on labor share and financial crisis will be presented in the next section.

1.2. Labor Share and Financial Crisis: The Literature

Although there have been a large number of studies examining the long-run trend of factor shares, only a few have investigated the effects of financial crises on factor shares.

Diwan (1999) examined labor share in the GDP, using the United Nations data of 135 countries varying from 1975 to the mid-1990s. Using the ratio of the compensation of employees/GDP, he found that the labor share usually dropped drastically after a financial crisis and could not make a full recovery in the following years. He reported 5 cases in which the labor share

[4] For a summary of SNA data compiled for each country, see Guerriero (2012).

[5] They used an earlier version version of the methodology applied by Gollin (2002).

increased following a financial crisis: Israel 1976–86, Sri-Lanka, 1978, Indonesia 1979 and 1983, and Greece 1981.

Harrison (2002) analyzed the share of employee compensation in GDP of over 100 countries using SNA data for various periods between 1950 and 1990, and found a negative effect of financial crises on the labor share. She showed that only the labor share of poorer countries was affected negatively by a financial crisis. When the sum of employees' compensation and self-employed income was used as an alternative measure of labor income, the sample was reduced to less than one-third of the original sample and became primarily weighted toward developed countries and several eastern European countries due to the limited number of countries reporting self-employment income. In this case, no significant effect of financial crises on the labor share was found.

Jayadev (2007) defined the labor share of national income as the ratio of employees' compensation to the GDP from cross-country panel data obtained from the SNA database. According to the results, the occurrence of a financial crisis resulted in an on average 0.5 % reduction in the labor share. Making an adjustment in the labor share, as in "economy wide basis" approach of Kravis (1959), caused a reduction in the sample one-sixth of its original size. An analysis of this new sample, mostly consisting of higher-income countries, showed that the effect of financial crises on the labor share disappeared.

Onaran (2008) used the manufacturing labor share data for Korea, Mexico, and Turkey obtained from the OECD Industrial Structural Analysis Database (STAN) Database and national accounts. For Chile, Thailand, the Philippines, and Brazil, manufacturing data from the Word Development Indıcators (WDI) database of World Bank were combined with SNA data, and for Indonesia, Malaysia, and Argentina, WDI data were combined with data from the Economist Intelligence Unit (EIU) database. The analysis showed that the crises caused a long-lasting decrease in the wage share in all countries.

Onaran (2009) first analyzed the manufacturing wage share for three developing countries—Mexico, Turkey, and Korea—using data from the OECD (STAN) Database (for Mexico and Korea) and the national accounts data (for Turkey) from 1994 to 2004. In all countries, despite the quick recovery period in the year after the crisis, the wage share generally continued to decrease for two to three years. Then manufacturing industry data for six more Latin American and South-East countries with a financial crisis history were included in the analysis. For labor share calculations for the Philippines, Brazil, and Thailand, the SNA manufacturing data were combined with the data from the WDI database, and for Indonesia, Argentina, and Malaysia, the WDI data were combined with the EIU data. The results showed that the crises also caused a strong reduction in the wage share in all these countries.

Charpe (2011) analyzed employee compensation in comparison to the GDP of 119 countries using data from OECD, SNA, and from national statistical agencies (for Brazil and China) and found negative effects of financial crises on the ratio of employee compensation to the GDP for Eastern European and Latin American countries.

Dufour and Orhangazi (2014) investigated the behavior of the labor share of income measured as the ratio of the compensation of labor to the GDP in the U.S. economy after the 2007–2008 financial crisis. Their results indicated that a slight increase in the labor share of income took place in 2008 and then it started to decrease. The same behavior in the labor share was also observed in the corporate sector, with a reduction in employees' compensation as a share of corporate gross value added after the financial crisis.

It is clear that the existing literature on the effect of financial crises on functional income distribution is mostly based on the unadjusted labor share in the GDP (compensation of employees/GDP), and there has been no effort to measure the factor shares using micro data. This study includes an analysis of both micro data and aggregate data to offer an extensive comparative analysis on the labor share in Turkey.

2. Data and Methodology

The analysis in this study is based on individual and household level micro data from the Turkish SILC for the period between 2006 and 2011 and aggregate data from the WIOD's SEA for the period between 2006 and 2009. The SILC has been conducted annually by TURKSTAT since 2006 with the aim of providing comparable data with European Union countries. Since 2007, TURKSTAT has not released the GDP by cost components i.e., GDP by income approach (the compensation of employees plus the gross operating surplus/mixed income plus taxes on production and imports minus subsidies on products and production). Therefore, for Turkey, calculating the net value added by the sum of the factor components (labor and capital) is not possible using the values of GDP by income approach for the period after 2006. Also, mixed income as a distinct account is not available in Turkey's national account statistics. Thus, by following the Penn World Table (PWT) database (Version 8.1) that employed the WIOD's SEA data to calculate the share of labor compensation in the GDP, we use the gross value added (representing the income of labor and capital) and the compensation of employees data from the WIOD's SEA for the labor share calculations at the macro level. The WIOD includes annual time series of factor requirements and input–output tables of 40 countries from 1995 to 2011. It is constructed by merging the national input-output tables with national accounts and international trade data[6] . The WIOD's SEA includes annual data on 35 countries on value added (at current and constant prices), industry output, employment, and wages by skill types and investment and capital stocks. The sum value added of all industries (gross value added) represents the sum of the all labor and capital

[6] The construction of the database was carried out by the cooperation of 12 research institutes with the funding of European Commission, Research Directorate General as part of the 7th Framework Program, Theme 8: Socio-Economic Sciences and Humanities. For detailed information on WIOD, see Timmer et al. (2015).

incomes[7]. Employment status information is also obtained from TURKSTAT.

The calculation of the labor share with micro SILC data is carried out by adopting unadjusted labor share, measure of Johnson (1959), "labor basis" and "economy wide basis" measures of Kravis (1959) as LS_1, LS_2, LS_3 and LS_4 to micro data[8]. The compensation of employees data in national accounts corresponds to the "salary, wage, per diem incomes (labor income)" category in SILC data, representing the income in cash or in kind that is received by working as an employee. Income related to working overtime, bonuses for job-hazards and business risks, capital bonuses, and premiums is also included in this category. Mixed income in national accounts corresponds to the "entrepreneur income (self-employment income)" category in the SILC data, defined as the income obtained by working as an entrepreneur (employment status is self-employed (own account workers or employer)) net of all expenditures related to the workplace, social insurance cuts, taxes, etc. Capital income is obtained by summing up the rental income (income obtained by renting real estate like apartments, stores, shops, or other properties like fields and gardens, the net of all expenditures such as maintenance, taxes, insurance, and renewals) and property income (income obtained as the share of profits from a company or financial institution, dividend, the interest of bank account, etc., net of taxes). As the micro-level equivalent of the sum of factor shares in national income, individual market income (income before the payment of taxes and the receipt of public benefits), which is the definitional sum of factor shares, is used. Individual market income is approximated by the sum of labor income, capital income, and entrepreneur income. Since the rental and property income variables are only available at household level, capital income is obtained from household-level data while the sum of labor income and entrepreneur income variables are obtained from individual-level data.

Figure 3 presents the shares of labor income, entrepreneur income, and capital income in the total market income by year. In all years, labor income has the largest share of the total market income. The average rate of labor income of the total market income was 58.7% between 2006 and 2014. From 2007 to 2008, the labor income share increased from 50.8% to 56.2% and then showed a gradual increase until 2014. Entrepreneur income has the second-largest share of the total market income with an average rate of 30% between 2006 and 2014. It gradually decreased from 35.8% to 29.1% between 2006 and 2009 followed by a slight increase in 2011 to 29.5%. The share of the entrepreneur income gradually decreased to 25.9% in 2014. Capital income has the smallest share in the total market income with an average rate of 11.3% between 2006 and 2014. From 2006 to 2007, the capital income share in the total market income increased from 12.5% to 15.4%, but it dropped sharply to 11.7% in 2008. After a small recovery in 2009, it decreased gradually until 2014. From these figures, it is seen that the global financial crisis in 2008 resulted in an increase in the labor income share of the total market income, mostly at the expense of the share of financial income.

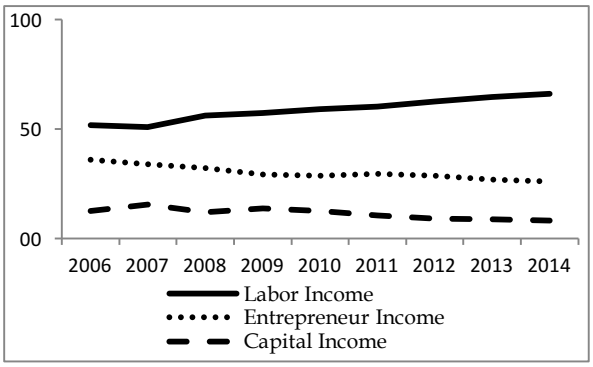

Figure 3. Share of Labor Income, Entrepreneur Income and Capital Income in Total Market Income
Source: Income and Living Conditions Survey, TURKSTAT, Own Calculations

Entrepreneur income is a combination of both capital and labor income components like the mixed income, i.e., self-employed income in national accounts. The main issue in labor share calculations at the micro level is how to divide the entrepreneur income into its capital and labor components, as in the case of self-employed income at the macro-level calculations of the labor share. A good example of this issue is the case of a small-sized grocery store that has no employees apart from its owner, whose employment status is "self-employed." The sales revenue of this grocery store net of all expenditures (entrepreneur income) contains both the labor income and the capital income of the self-employed shop owner. Determining the proportions of labor and capital income in this kind of situation is a key issue, especially for the economies with a high share of small-sized enterprises in total enterprises[9].

Since entrepreneur income is gained by both employers and self-employed people by definition, its unambiguous capital income component must be dropped from entrepreneur income by subtracting the amount of entrepreneur income that is gained by individuals whose employment status is "employer" before imputing it to labor income. Therefore, we only imputed the entrepreneur income gained by people whose employment status is "self-employed." After imputing the unambiguous capital income component of entrepreneur income to capital income, the shares of adjusted capital and adjusted entrepreneur income in the total market income are presented in Figure 4.

[7] For more information on the construction of WIOD's SEA, see Erumban et al. (2012).

[8] "Asset basis" measure of Kravis (1959) could not be adopted since its formulation requires detailed information on the return to interest, rent, and corporate profits.

[9] In Turkish economy, the share of small-sized enterprises with 0–9 employees in total enterprises is 93.6 % as of the 2013 statistics from TURKSTAT.

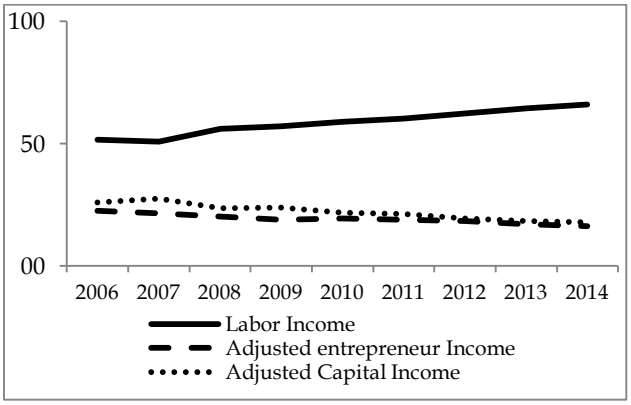

Figure 4. Share of Labor Income, Adjusted Entrepreneur Income and Adjusted Capital Income in Total Market Income

Source: Income and Living Conditions Survey, TURKSTAT, Own Calculations.

After imputing the entrepreneur income of employers to capital income, the adjusted share of capital income is the second-largest share in market income, following the share of labor income. The average rates of the adjusted entrepreneur income and adjusted capital income between 2006 and 2014 are 19.2% and 22.2%, respectively.

Adopting unadjusted labor share, measure of Johnson (1959), "labor basis" and "economy wide basis" measures of Kravis (1959) for the SILC data at the micro level, the LS_1, LS_2, LS_3 , and LS_4 are derived, respectively.

The unadjusted labor share is obtained as the ratio of the total labor income to the total market income as follows:

$$LS_1 = \frac{\text{Total Labor Inc.}}{\text{Total Market Inc.}} \quad (1)$$

Following the common rule proposed by Johnson (1954), two-thirds of adjusted entrepreneur income is imputed to the total labor income as follows:

$$LS_2 = \frac{\text{Total Labor Inc.} + \frac{2}{3}\text{Entrepreneur Inc.}_{\text{adjusted}}}{\text{Total Market Inc.}} \quad (2)$$

Based on the labor basis calculations of Kravis (1959), all entrepreneur income is imputed to labor income as follows:

$$LS_3 = \frac{\text{Total Labor Inc.} + \text{Entrepreneur Inc.}_{\text{adjusted}}}{\text{Total Market Inc.}} \quad (3)$$

The economy-wide bases approach of Kravis (1959) is adopted by considering the entrepreneur income as holding the same proportion of capital and labor components as the rest of the economy's income as follows:

$$LS_4 = \frac{\text{Total Labor Inc.}}{\text{Total Market Inc.} - \text{Entrepreneur Inc.}} \quad (4)$$

For the calculations of the labor share at the macro level, measures developed by Gollin (2002) and Guerriero (2012) are employed as LS_5 and LS_6 respectively by using employment status data from TURKSTAT and WOID' SEA data:

$$LS_5 = \frac{\frac{\text{Compensation of employees} * \text{Total workforce}}{\text{number of employees}}}{\text{Value Added } (-\text{fixed capital} - \text{indirect taxes})} \quad (5)$$

$$LS_6 = \frac{\frac{\text{Compensation of employees}}{\text{Number of employees}} (\text{Total workforce} - \text{employers})}{\text{Value Added } (-\text{fixed capital} - \text{indirect taxes})} \quad (6)$$

3. Results

The results of the calculations of the labor shares using LS_1, LS_2, LS_3, and LS_4 are shown in Table 1. The average labor shares calculated with these measures between 2006 and 2014 are 58.65%, 71.45%, 77.84% and 72.48%, respectively. LS_1, "unadjusted labor share," has the lowest average share among other measures is that it underestimates the actual value of the labor share since it does not take into account the labor income component of entrepreneur (self-employment) income, as indicated above. In addition, the LS_3, having the largest average labor income share, overstates the labor share by ignoring the capital income component of entrepreneur income.

On the other hand, the LS_4 and LS_2 values are quite similar to each other throughout the analysis period. Following a decrease in 2007, a relatively significant increase is observed in 2008 in each measure of the labor share. Then, all labor shares increase gradually until 2014, with the exception of LS_3 decreasing by 0.13% in 2009. Similar trends for each measure can also be seen in Figure 5. Almost overlapping lines of LS_4 and LS_2 lie between the upper line of LS_3 and the lower line of LS_1. On the other hand, the LS_4 and LS_2 values are quite similar to each other throughout the analysis period.

Table 1. Labor Share Measures

Measure	LS_1			LS_2			LS_3			LS_4		
Years	Level	Δ%	∑ Δ	Level	Δ%	∑ Δ	Level	Δ%	∑ Δ	Level	Δ%	∑ Δ
2006	51.7			66.7			74.1			66.7		
2007	50.8	-1.74		65.2	-2.25		72.4	-2.29		64.8	-2.85	
2008	56.2	10.63	8.89	69.6	6.75	4.5	76.3	5.39	3.1	70.4	8.64	5.79

2009	57.2	1.78	10.67	69.9	0.43	4.93	76.2	-0.13	2.97	70.6	0.28	6.07
2010	59	3.15	13.82	71.8	2.73	7.66	78.2	2.62	5.59	73	3.4	9.47
2011	60.1	1.86	15.68	72.6	1.11	8.77	78.9	0.9	6.49	74	1.37	10.84
2012	62.4	3.83	19.51	74.6	2.75	11.52	80.6	2.15	8.64	76.3	3.11	13.95
2013	64.5	3.4	22.88	75.9	1.74	13.26	81.6	1.24	9.88	77.8	1.97	15.92
2014	66.0	2.3	25.21	76.8	1.19	14.45	82.3	0.86	10.74	78.8	1.29	17.21

Δ%: Year-on-year percentage changes., ∑Δ: Cumulative percentage changes.
Source: Income and Living Conditions Survey, TURKSTAT, Own Calculations

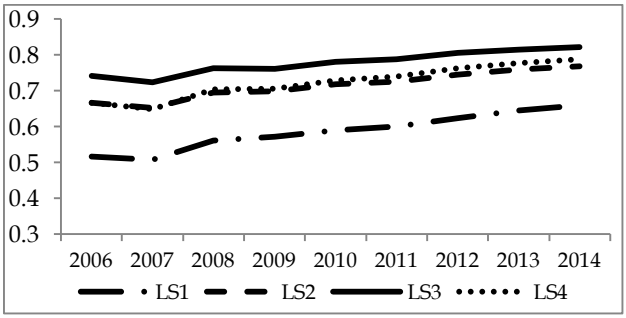

Figure 5. Labor Share Measures
Source: Income and Living Conditions Survey, TURKSTAT, Own Calculations

Following a decrease in 2007, a relatively significant increase is observed in 2008 in each measure of the labor share. Then, all labor shares increase gradually until 2014, with the exception of LS_3 decreasing by 0.13% in 2009.

Before examining the causes for the labor share increase during the financial crisis in detail, LS_1, LS_2, LS_3, and LS_4 are also calculated using a set of individuals and households between the 45th and 55th percentiles of the income distribution to obtain labor share values that are not affected by the extreme observations located in the lower and upper tails of the income distribution. In this way, it is possible to obtain the labor share of those located in the middle of the income distribution that is not affected by the extreme observations, particularly by the ones that declared zero income.

Table 2 presents the labor share measures for those located between the 45th and 55th percentiles of income distribution. After this adjustment, the average labor shares between 2006 and 2014 for LS_1, LS_2, LS_3, and LS_4 increased to 69.40%, 80.67%, 86.30%, and 83.32%, respectivel

Table 2. Labor Share Measures (Between 45th and 55th Percentile)

Measure	LS_1			LS_2			LS_3			LS_4		
Year	Level	Δ%	∑ Δ	Level	Δ%	∑ Δ	Level	Δ%	∑ Δ	Level	Δ%	∑ Δ
2006	59.9			75.4			83.1			78		
2007	61.7	3.01		74.7	-0.93		81.2	-2.29		76.7	-1.67	
2008	67.2	8.91	11.92	79.3	6.16	5.23	85.4	5.17	2.88	82.1	7.04	5.37
2009	65.6	-2.38	9.54	77.6	-2.14	3.09	83.6	-2.11	0.77	80	-2.56	2.81
2010	64.7	-1.37	8.17	77.1	-0.64	2.45	83.3	-0.36	0.41	79.5	-0.63	2.18
2011	71.6	10.66	18.83	82.2	6.61	9.06	87.6	5.16	5.57	85.2	7.17	9.35
2012	75.3	5.17	24	84.9	3.28	12.34	89.6	2.28	7.85	87.9	3.17	12.52
2013	78.6	4.38	28.38	86.6	2	14.34	90.6	1.12	8.97	89.3	1.59	14.11
2014	80.0	1.78	30.16	88.1	1.73	16.07	92.2	1.77	10.74	91.1	2.02	16.13

Δ%: Year-on-year percentage changes, ∑Δ: Cumulative percentage changes.
Source: Income and Living Conditions Survey, TURKSTAT, Own Calculations

The trend of labor shares also changed. The increase in labor shares in 2008 still exists, but it is followed by subsequent decreases in 2009 and 2010. Then, they steadily increased between 2011 and 2014. As shown in Figure 6, the labor share calculations of the four measures do not only increase, they also converge with each other.

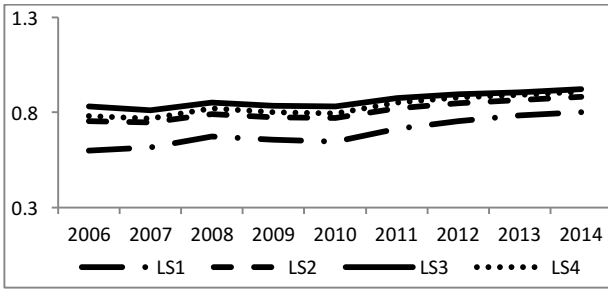

Figure 6. Labor Share Measures (Between 45th and 55th Percentile)

Source: Income and Living Conditions Survey, TURKSTAT, Own Calculations

The increase in labor shares during the 2008 global crisis caused by the increase in labor income was accompanied by a decrease in financial income. Substantial capital losses due to the financial crisis are an expected result. In addition, the nominal wage rigidity due to the long-term contracts in the labor market was accompanied by a relatively stable inflation rate, which in the case in Turkey during the 2008 global crisis, may have prevented a labor income reduction in real terms. But in this case, a substantial increase in the labor share due to the crisis necessitates a detailed investigation of labor income from the human capital perfective. Within this context, the skill -distribution in the labor income based on educational level is examined. As shown in Figure 7, the increase in the share of income gained from high-skilled employees in the labor income started in 2008, corresponding with a decrease in the share of income gained by low skilled employees in the labor income. The shares of the unskilled and high-skilled regular employees in relation to all regular employees also followed the same pattern as the labor incomes of those mentioned above. As illustrated in Figure 8, the number of high-skilled regular employees started to increase in 2008, while the number of low skilled employees started to decrease in the same year.

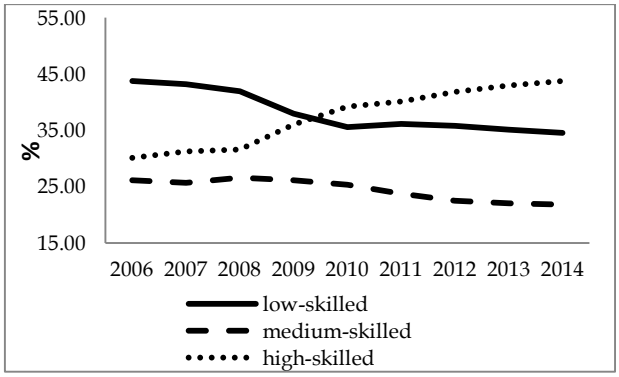

Figure 7. Educational Skill Distribution in Labor Income

Low-skilled =Below high school (primary, secondary, illiterate, and others), Medium-skilled = High school and vocational high school
High-skilled =University and above.
Source: Income and Living Conditions Survey, TURKSTAT, Own Calculations

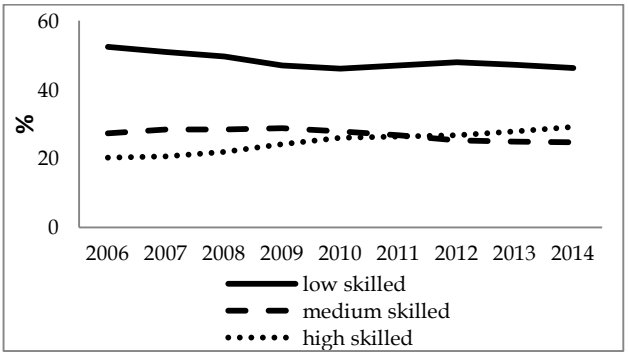

Figure 8. Educational Skill Distribution Among Regular Employees

Low-skilled =Below high school (primary, secondary, illiterate, and others), Medium-skilled = High school and vocational high school
High-skilled =University and above.
Source: Income and Living Conditions Survey, TURKSTAT, Own Calculations

These educational skill-based changes at the time of the financial crisis simply indicate the labor-hoarding phenomenon in the Turkish labor market. As explained above, the labor-hoarding hypothesis suggests that during economic downturns, firms tend to "hoard" their skilled labor due to the their low sustainability and high turnover costs, and a reduced labor demand affects unskilled labor severely due to their reduced bargaining power. Apparently, labor-hoarding reflected an important increase in the labor share in the market income since the magnitude of the average income of high-skilled employees is very large in comparison with the average income of low skilled workers .

The calculations of the labor share with aggregate data with LS_5 and LS_6 are presented in Table 3.

Table 3. Labor Share Measures With Aggregate Data

Measures	LS_5			LS_6		
Years	Level	Δ%	∑Δ	Level	Δ%	∑Δ
2006	44.6			42		
2007	43.4	-2.76		40.9	-2.69	
2008	43	-0.93	-3.69	40.5	-0.99	-1.7
2009	41.2	4.37	0.68	41.2	1.73	0.03

Δ%: Year-on-year percentage changes.
∑Δ: Cumulative percentage changes.
Source: WOID's Socio Economics Accounts and TURKSTAT's Employment Status Statistics of TURKSTAT Own Calculations

The average labor shares for 2006–2009 for LS_5 and LS_6 are 43.7% and 41.2%, respectively. As expected, LS_5 has greater labor share values than LS_6 since LS_5 tends to overstate the labor share, as indicated above. In addition, as can be seen more clearly in Figure 9, the labor shares from both measures have an almost U-shaped trend over the analysis period with the lowest point at 2008, the year of the global crisis. These results indicate that the labor shares calculated by LS_5 and LS_6 are not just relatively small in magnitude, but they also exhibit different behavior from the micro data-based measures during the crisis year.

In fact, before conducting a comparative assessment of the labor shares from micro and aggregate data, it is important to keep in mind that factor shares from aggregate data and micro data cannot be compared directly without taking into account the fundamental differences arising from their definitions. For instance, the capital income share obtained from aggregate data contains measurement error derived from depreciation,

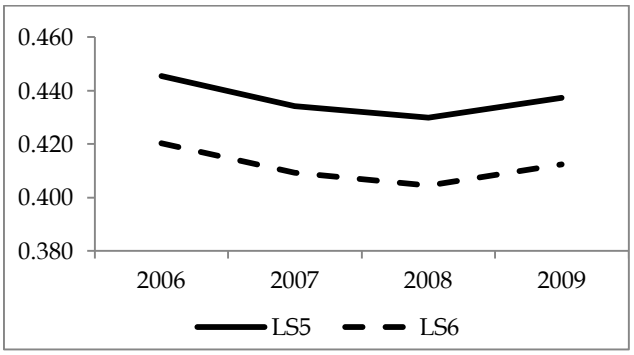

Figure 9. Labor Share Measures With Aggregate Data

Source: Income and Living Conditions Survey, TURKSTAT, Own Calculations

etc. and some income components that cannot be described as capital income in the meaning of flows of capital income to households, such as undistributed corporate profits and central bank profits (Adler and Schmid, 2012, p.5). In addition, employee compensation data from the national income contains some components that are not included in workers' wage packets (such as social security payments), and consequently are not reported by individuals in micro data, as indicated before. Therefore, the total market income of individuals cannot be aggregated implicitly to the gross value added of an economy (see, Ryan,1996; Adler and Schmid, 2012).

In addition, it is well known that informal employment and self-employment in Turkey are widespread. TURKSTAT reported that the average informal employment rate in the labor market between 2007 and 2015 was 40.29%. According to SILC data, the average rate of self-employed people in the labor force between 2006 and 2014 was 20.8%. Moreover, the average rate of regular employees (salaried workers) unregistered in social security institutions (i.e., informally employed) between 2006 and 2014 was 18.8%. Schneider (2015) calculated the average magnitude of the informal sector in the Turkish economy in 2015 as 28.15% which was 10 percentage point higher than European Union average. In fact, as García-Verdu (2005) showed, a low labor share in the gross value added is also a common feature of Latin American countries with similar characteristics to Turkey. In light of such information, a lower labor share is expected in aggregate data than in micro data for Turkey.

Moreover, Turkey's LS_5 and LS_6 values are lower than the averages in a cross-country comparison. Table 4 presents the average LS_5 and LS_6 values by income classification, the level of development, and the region, calculated by Guerriero (2012). Guerriero (2012) computed the labor share measures by constructing a panel dataset of 141 countries for the years; 1990 to 2000. As an upper middle-income country, Turkey has LS_5 and LS_6 values lower than the averages of upper middle-income countries in both developed and developing countries.

Although the labor share reduction during the crisis is compatible with the existing literature on the measurement of the labor share with aggregate data, the absence of the gross value added data calculated with an income approach for Turkey calls into question the accuracy of the results.

Table 4. Average LS_5 and LS_6 Values by Income Classification, Level of Development and Region.

	LS_5	LS_6
Income Classification		
Low income	0.7635	0.7529
Lower-middle income	0.7752	0.7466
Upper-middle-income	0.6684	0.6331
High-income	0.7363	0.6883
Level of Development		
Developing country	0.7015	0.6672
Developed country	0.7363	0.6883
Region		
Africa	0.6482	0.5846
Americas	0.7131	0.6745
Asia	0.6586	0.6356
Europe	0.7662	0.7191
Oceania	0.7992	0.7646

Source: Guerriero (2012)

7. Conclusion

This study attempted to reveal the direction and magnitude of the effect of the 2008 global financial crisis on the functional income distribution in Turkey via the calculation of the labor share using both micro and aggregate data. The main issue with the labor share calculations is how to impute the entrepreneur income or self-employment income in a way that includes both labor and capital income components. Different labor share measures have been proposed to identify the proportions of these components for aggregate data calculations. For Turkey, the absence of the mixed income component that covers the self-employment income in national accounts makes it impossible to calculate a wide range of labor share measures. In addition, no study has attempted to calculate factor shares with micro data for Turkey. This study aimed to fill in this gap by adopting four different labor share measures to micro data, including those based on mixed income. Within this context, imputing the labor income component of entrepreneur income, the labor shares in the total market income were calculated using the Turkish SILC data. Then, two measures of the labor share were calculated using aggregate data. The results obtained from the micro data calculations suggest that, although four measures of labor share have differences in their magnitudes, their trends and, more importantly,

their behaviors during the 2008 global crisis, are the same. Contrary to the literature-based expectations, the labor shares calculated from micro data showed a substantial and permanent increase during the crisis. More surprisingly, a detailed examination of the labor income based on educational skill attributes of the working population showed that labor hoarding i.e., favoring skilled laborers due to their high replacement cost in the labor market, which should lead to a labor share reduction during the crisis, led to an increase in the labor share due to the very large average labor income of skilled employees relative to unskilled ones. The labor shares obtained from aggregate data are not just relatively smaller than those obtained from micro data, but they also exhibit the opposite behavior as the micro-based ones during the 2008 global crisis. Although a comparison of the factor shares obtained from micro data and aggregate data directly is not appropriate due to the differences arising from their definitions, it is not surprising that relatively smaller labor shares were obtained from aggregate data, considering the large magnitude of the informal employment and informal economy in Turkey. This characteristic of the Turkish economy is one potential reason for the relatively lower labor shares compared to the averages of other countries with the same attributes, such as income classification, region, and level of development. The labor share reduction in aggregate data due to the crisis is consistent with the existing literature, but requires a detailed examination using factor cost determination with different approaches, such as income-based GDP computation.

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