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Greece's Interdependence with the European Union and her Loss to Society Function

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Abstract:

This paper explores the Greek economy since 1974, before and after joining the Economic and Monetary Union and some of the problems that the current global and European debt crises have created to Greek and to all European citizens. A social loss function and a partial equilibrium model are used to determine interdependence and social cost (or benefits) for the country. The most severe problems of Greece are the social chaos, which is increasing every day, due to the current financial crisis and the worst recession since the great depression of 1940s, the economic and political corruption, which are underrated by the officials, and the tremendous uncertainty that the Union has generated to its weak member-nations and their citizens. Europe has a seven thousand years old history, which comes from ancient Greek civilization and is complemented by Christianity. Greece experienced many difficulties, conflicts, and invasions by barbarians and other neighbouring countries, which had and continue to have tremendous negative effects on her economy. But at the same time, many good periods with tremendous contribution to the global scene are recorded. After World War II the nation and citizens enjoyed a huge growth, a stable development, a multiple improvement, and a preservation of their traditional social values. Lately, the European integration, the debt crisis, and the €110 billion loan from the Troika have destroyed the sovereignty of Greece and it is ruling undemocratically an entire continent and Greece, as a member of the EU and EMU. European Union's economic and social policies cannot satisfy the welfare functions for the Europeans, like justice, fairness, allocation, equity, stability, distribution, efficiency, full employment, homogeneity, security, sovereignty, independence, self-sufficiency, certainty, and democracy. Unfortunately, Greece has lost her public and trade policies, which have increased instability and reduced growth and sustainability inside the country.

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1. From the Treaty of Rome to the Present European Union

The two world wars of the 20th century, with their accompanying horrors, show the weaknesses, the poverty, and the malice of our leaders, who have accepted some inferior philosophies and try to impose them on peoples and sovereign nations through integrations and globalization. These controlled leaders did and unfortunately, continue to do much to undermine the values, the hope, and the progress of Greeks and all Europeans. Furthermore, while advances in science, increases in material wealth and goods, and progresses in technology greatly improved the material quality of life, they also increased the uncertainties, the unhappiness, and the threats confronting humanity and they become worse day after day. As a consequence of these experiences of the 20th and the new 21st century, people and especially young are completely disoriented, without traditional values, misinformed, and without true models. Of course, every individual must be optimistic and work hard to become a true person, independently of what the rest of the world is doing. The same must hold for Greece, as a sovereign nation; it must work hard by using its recourses, its civilization, and its peoples to reach the highest welfare, according to its value system and independently from this forced integration of Europe.

Following World War II, the idea of economic integration was promoted in Western Europe. Who were these people and what was their ultimate objective of this experiment were unknown.[1] The world is waiting to see the conclusion of this union of nations, peoples, cultures, dogmas, histories, economies, politics, and civilizations. The majority of Europeans are very skeptical and anxious for the future of their continent and of their nations. In 1950, Jean Monnet convinced Premier Robert Schuman to support a plan for the integration of the coal and steel industries of France and West Germany.[2] Negotiations on the Schuman Plan led to the establishment in 1951 of the European Coal and Steel Community (ECSC). The ECSC included France, West Germany, Italy, Belgium, the Netherlands, and Luxembourg. The success of the ECSC helped advance an even bolder proposal developed also by Monnet. In 1957,[3] the six members of the ECSC signed the Treaty of Rome establishing the European Economic Community (EEC), known as the Common Market. The members of this Common Market committed themselves to eliminate trade barriers and to promote free movement of capital and labor.

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[1] *As the time is passing, this European integration reveals itself; it is actually the predecessor of the global integration.*

[2] *See, Kallianiotis (2011).*

[3] *On March 25, 1957, two treaties were signed in Rome that gave birth to the European Economic Community (EEC) and the European Atomic Energy Community (Euratom): the Treaties of Rome. The Treaties were ratified by National Parliaments over the following months and came into force on January 1, 1958.*
http://www.historiasiglo20.org/europe/traroma.htm).

Proposals for some kind of supranational organization in Europe have become increasingly frequent since 1945 and have been issued from ever more influential and suspicious sources. The proposals spring from unidentified and strange motives and they do not want to make these public because they are afraid of citizens' reactions. What they maintain as motives for the public is political and economic. The political motive, manifested somewhat tenuously in the Council of Europe, is rooted in the belief that only through supranational organization can the threat of war between European powers be permanently eradicated. Some proponents of European political unity further believe that the compact nation-state of the past is now outmoded; if the nations of Europe are to resume their role in world affairs, they must be able to speak with one voice and have at their command resources and manpower comparable with those of superpowers (sic).[4] The economic motive rests upon the argument that larger markets will promote greater specialization and increased competition, thus higher productivity and standards of living. But, countries have different value systems and work ethics and they cannot be equalized. Greeks have lost their jobs, due to competition from the other country-members. Salaries are completely different among the members. Finally, illegal immigrants, drug dealers, terrorists, international mafia, every corrupted person, and every kind of criminality move freely from one nation to the other because borders have been abolished.

The European Union had to have developed a "social dimension" together with the "social free market" model, because of the Maastricht treaty and its serious unemployment and inflation problem and the expected uncertainties of the future. During the 1960-73 periods up until the first oil price shock, the average annual level of unemployment was around 2.6% with an economic growth rate of 4.8%. Between 1974 and 1985 the unemployment rate rose to 10.8% by 1985, while economic growth dropped back to 2%. In the period 1989-90, with an increase in economic growth to 3.2%, the unemployment rate dropped to 8.3% in 1990.[5] In the meantime, it can hardly be said that there have been dramatic improvements in the EU unemployment situation because in 2003 it was over 9% with an economic growth of 0.5% for the Euro Area.[6] In Fall 2007, the unemployment was also 9% and the real GDP growth 2.2%.[7] Now, (end of 2010), due to the global financial crisis, the unemployment became double digits (over 10% on the average) and the growth negative (recessions). Greece had an unemployment rate of 14% and a growth of -6.6% (deep recession) at the 4th quarter of 2010. The integration has increased unemployment further as Roberts (1996, p. 205) had said. Also, the

[4] *See, Blum, Cameron, and Barnes (1970, p. 1032).*
[5] *See, Roberts (1996, p. 205).*
[6] *See, International Economic Trends, August 2003, p. 3; July 2004, p. 5; and November 2004, p. 3.*
[7] Eurostat, Year Book 2006; forecasting rates.

reduction of National Debt, through privatization[8] of public enterprises and the current austerity measures, will contribute to the growth of unemployment. The uncontrolled illegal migration has caused unemployment, too[9] and it would be worse in the future. Ljungqvist and Sargent (2006) considered the high unemployment benefits as a factor causing EU unemployment. These benefits do not exist anymore since 2010. Today, the 27-nation EU, with more than 501 million people and 330 million in Euro-zone (EU-17), is the world's largest economic area, but it is insignificant politically and noncompetitive in trade.

2. The Latest Problems

The global financial crisis of 2008 affected negatively Greece and the government tried to reduce this effect on the real sector of the economy by offering a package of 28 billion euros to the banks. This crisis brought to the surface the structural weaknesses of the Greek economy (a capitalistic economy based on governmental support and European subsidies). The governmental debt from 172 billion euros in 2002 reached 252 billion euros in 2008 (a +47% growth). The trade deficit from -27 billion euros in 2005, became -42 billion euros in 2007 (+55% growth). The budget was in deficit of 19 billion euros in the first half of the 2008. The country is, currently, in a recession with a very high unemployment ($u = 13.5\%$, October 2010) and a high inflation ($\pi = 5.2\%$, December 2010).

The agricultural problems in Greece are many and require immediate solutions. Globalization plans to reduce the agricultural sector and increase dependency of individuals and thus, it will be easier to control them. EU tries with its policies to satisfy this objective and with its directives plans to reduce the Greek agricultural population below 5% and unfortunately for Greece the two parties in power (PASOK and N.D.) agree to this destruction of our villages, towns, and the foundations of the Hellenic nation.[10] Greece had national elections on October 4, 2009, and the PASOK party won and became government. Prime Minister George Papandreou's[11] government in January 2010 approved a plan to push the deficit below the European Union's budget limit in 2012. Euro-zone finance ministers held Greece to her promise to radically turn around the fiscal deficits that threaten the country with a growing risk of losing her creditworthiness and disrupting the common currency. European Commissioner for Economic and Monetary Affairs

[8] *See, Kallianiotis (2009).*
[9] *See, Kallianiotis (2004b).*
[10] *The agriculture sector is employing, now, 12.4% of the labor force; the industry 22.4%; and the services 65.1%.*
[11] *From December 2009, Papandreou had asked IMF to finance the country and he kept it secret. (Kathimerini, 2/20/2011).*

Joaquin Almunia pushed for more central powers to audit the accounts of the Greek government.[12] Greece is worse off since her entry to the EMU in 2001.

The European Central Bank joined the international rescue of Greece. The decision came less than a day after Greece agreed to a 110 billion-euro ($145 billion) package of emergency loans from the International Monetary Fund and its euro-region allies (Troika). Under the plan backed by the ECB, Greece pledged €30 billion in budget cuts and other austerity measures to bring a deficit of 13.6% of gross domestic product within the EU limit of 3 percent in 2014. Further downgrades from credit-rating companies had threatened to render Greek bonds ineligible for collateral for ECB loans after Standard & Poor's at the end of April 2010 cut the nation to junk status. The yield on Greece's benchmark 2 year bond fell 183 basis points on May 3, 2010 to 11.74%, after reaching almost 23% on April 28 on rising concern about a possible Greek default.

The economy of Greece is the 27th largest in the world by nominal Gross Domestic Product (GDP) and the 34th largest at Purchasing Power Parity (PPP), according to data by the World Bank for the year 2009. Per capita, it is ranked 24th by nominal GDP and 23rd at PPP. Greece is a historical and developed country with the 22nd highest human development and quality of life indices in the world. Her public sector accounts for about 40% of GDP. The service sector contributes 78.5% of total GDP, industry 17.6% and agriculture 4%.[13] Greece is the 31st most globalized country in the world and is classified as a high-income economy. The country's post-WW II development has largely been connected with the so-called Greek economic miracle. According to Eurostat data, GDP per inhabitant in purchasing power standards (PPS) stood at 95% of the EU average in 2008. GDP per capita was $29,663 in 2009. Greece's main industries are tourism, shipping, agricultural products, industrial products, food and tobacco processing, textiles, chemicals, metal products, mining and petroleum. Greece's GDP growth has also, as an average, since the early 1990s been higher than the EU average. However, the Greek economy also faces significant problems, including rising unemployment levels, inefficient bureaucracy, tax evasion, and corruption.

The Greek maritime fleet is the largest in the world, at approximately 18% of the worlds maritime fleet (making it the largest of any other country), and the shipping industry is a key element of Greek economic activity dating back to ancient times. Today, shipping is one of the country's most important industries. It accounts for 4.5% of GDP, employs about 160,000 people (4% of the workforce). During the 1960s, the size of the Greek fleet nearly doubled, primarily through the investment undertaken by the shipping magnates Onassis and Niarchos. The basis of the Modern Greek maritime industry was formed after WW II when Greek shipping businessmen were able to amass surplus ships sold to them by the United States

[12] *See, The Wall Street Journal, January 20, 2010, pp. A1 and A12.*

[13] *This was the objective of the EU, to reduce Greece's agricultural sector and it was successful.*

Government through the Ship Sales Act of the 1940s. According to the Bureau of Transportation Statistics (BTS), the Greek-owned maritime fleet is today the largest in the world, with 3,079 vessels with a total deadweight tonnage (dwt) of 141,931 thousand. In terms of ship categories, Greece ranks first in both tankers and dry bulk carriers, fourth in the number of container ships, and fourth in other ships. However, today's fleet roster is smaller than an all-time high of 5,000 ships in the late 1970s; the global crisis has affected negatively the industry. Companies try to cancel their orders, sell the ships, or even convert them to tankers or cruise vessels. EU countries with huge shipping industries will face high risk in this sector of their economies.[14]

Lastly, Greece attracts more than 16 million tourists each year, thus contributing 15% to the nation's Gross Domestic Product. In 2008, the country welcomed over 16.5 million tourists. The number of jobs, directly or indirectly related to the tourism sector, were 659,719 and represented 16.5% of the country's total employment for 2004. The overvalued euro has caused serious reductions in the industry since 2003 and lately, the global financial crisis came to deteriorate the existing problem. Now, many hotels and other touristic businesses are suffering or going bankrupt.

3. Greece's Social Loss Function and her Interdependence with the EMU

(i) A Loss to Society Function

A loss to society function[15] can be expressed as a weighted average of deviations of unemployment from its target, of risk, interest rate, inflation, output, saving, money supply, trade balance, national debt, and financial market from their potential levels,[16]

$$L = w_u(u-u^*) + w_R(d-d^*) + w_i(i-i^*) + w_\pi(\pi-\pi^*) + w_q(\dot{q}^*-\dot{q}) + w_s(s^*-s) + w_m(\dot{m}^s-\dot{m}^{*s}) + w_{ta}(t\dot{a}^*-t\dot{a}) + w_{nd}(n\dot{d}^*-n\dot{d}) + w_{SMI}(g_{SMI^*}-g_{SMI}) \quad (1)$$

where, $\Sigma w = 1$, L = the loss to society, u = the unemployment rate, d = risk ($RP=i_{GB}-i_{TB}$), i = nominal short-term interest rate (Treasury bill rate or overnight deposit rate of the ECB), π = inflation rate, $\dot{q}$ = growth of real output, s = saving rate (as percentage of the disposable income), $\dot{m}^s$ = growth of money supply, $t\dot{a}$ = growth of trade account balance, $n\dot{d}$ = growth of national debt, g_{SMI} = growth of the stock market index, an "*" on a variable denotes the target rate of the variable ($u^* \cong 0$, $d^* \cong 3\%$, $i^* \cong r^*$, $\pi^* \cong 0$, $\dot{q}^* \cong 3\%$, $s^* \cong 25\%$, $\dot{m}^{*s} \cong 4\%$, $t\dot{a}^* \cong 0$, $n\dot{d}^* \cong 0$,

[14] *See, The Wall Street Journal, October 8, 2008, p. B1.*

[15] See, Meyer (2001, p. 5) for a two-deviation variables loss function and Kallianiotis (2004c) and Kallianiotis and Petsas (2006).

[16] See, Kallianiotis (2004b and 2005) and Kallianiotis and Petsas (2005).

$g_{SMI^*} = 6\%$), w's = the weights, and r^* = the real risk-free rate of interest ($= i_{TB} - \pi$). Any deviation of the actual value of the above variables from their targets will cause a loss for the society. Of course, the social objective will be the minimization of this social loss (L).[17]

(ii) Interdependence between Greece and EMU

The model is a partial equilibrium open economy Macroeconomic one, which comprises the aggregate supplies, demands, money markets, and the foreign sector (balance of payments) in both entities (Greece and EMU). Its structure contains foreign variables (Euro-zone) that we can test the interdependence between the economies, their transmission mechanism, and policy variables by which the public policy effectiveness will be examined. The theoretical model is taking into consideration the works by Bryant, Henderson, Holtham, Hooper, and Symansky (1988), Dornbusch (1980), Rivera-Batiz and Rivera-Batiz (1985), Sargent (1979), Kallianiotis (1991, 1996 a and b, 1998, 2000, 2001a and b, 2004a and b, and 2007b), Kallianiotis and Boutchev (1996) and Kallianiotis and Petsas (2006 and 2005). The general two-country model is as follows:

(α) The Aggregate Supply (AS):

For the domestic (Greek) economy, it can be written as follows,

$$\begin{aligned} Y &= F[P, w, \frac{EP^*}{P}, P_{oil}, u] \\ F_P > 0, F_w < 0, F_{\frac{EP^*}{P}} &< 0, F_{P_{oil}} < 0, F_u < 0 \end{aligned} \qquad (2)$$

and for the EU,

$$\begin{aligned} Y^* &= F^*[P^*, w^*, \frac{EP^*}{P}, P_{oil}, u^*] \\ F^*_{P^*} > 0, F^*_{w^*} < 0, F^*_{\frac{EP^*}{P}} &> 0, F_{P_{oil}} < 0, F^*_{u^*} < 0 \end{aligned} \qquad (3)$$

where, Y = real income (output), P = the price level, w = wage rate, $\frac{EP^*}{P} = \frac{P_M}{P_X} = TOT$ = the terms of trade (the real exchange rate), E = exchange rate ($/€),[18] P_{oil}= price of oil, u = unemployment rate, and an asterisk (*) denotes the foreign country (EMU as a whole).

[17] *My objective is to minimize the deviations from the target value of the variables. A negative deviation is reducing the loss and a negative loss represents social benefits.*

[18] *For Greece, E=1 (common currency with the EMU).*

Solving eq. (2) for P, we receive the AS function, which is positively sloped in P-Y space,

$$P = AS[Y, w, \frac{EP^*}{P}, P_{oil}, u] \quad (4)$$

and for the Euro-zone, from eq. (3), we get the AS^* curve.

$$P^* = AS^*[Y^*, w^*, \frac{EP^*}{P}, P_{oil}, u^*] \quad (5)$$

(β) The Aggregate Demand (AD):

The Greek aggregate demand can be presented as follows,

$$\begin{aligned} &Y = D[P, \frac{EP^*}{P}, M, C, I, G, X, X^*, Y^*] \\ &D_P < 0, D_{\frac{EP^*}{P}} > 0, D_M > 0, D_C > 0, D_I > 0, \\ &D_G > 0, D_X > 0, D_{X^*} < 0, D_{Y^*} > 0 \end{aligned} \quad (6)$$

and for the European Union,

$$\begin{aligned} &Y^* = D^*[P^*, \frac{EP^*}{P}, M^*, C^*, I^*, G^*, X, X^*, Y] \\ &D^*_{P^*} < 0, D^*_{\frac{EP^*}{P}} < 0, D^*_{M^*} > 0, D^*_{C^*} > 0, D^*_{I^*} > 0, \\ &D^*_{G^*} > 0, D^*_X < 0, D^*_X > 0, D^*_Y > 0 \end{aligned} \quad (7)$$

where, M = the money supply, C = private consumption, I = private investment, G = government spending, X = exports, and an asterisk (*) denotes the foreign country (EMU).

By solving eqs. (6) and (7) for P and P^*, we determined the AD and AD^* function, which are negatively sloped in P – Y space.

$$P = AD[Y, \frac{EP^*}{P}, M, C, I, G, X, X^*, Y^*] \quad (8)$$

and

$$P^* = AD^*[Y^*, \frac{EP^*}{P}, M^*, C^*, I^*, G^*, X, X^*, Y] \quad (9)$$

(γ) The Money Market equilibrium (LM):

The domestic money market equilibrium shows that real money supply is equal to real money demand and equal to the stock of money,

$$\frac{M}{P} = L(Y, i, E)$$
$$L_Y > 0, L_i < 0, L_E > 0 \qquad (10)$$

and

$$\frac{M^*}{P^*} = L^*(Y^*, i^*, E)$$
$$L^*_{Y^*} > 0, L^*_{i^*} < 0, L^*_E > 0 \qquad (11)$$

where M = the money supply.

Eq. (10) can be solved for i and the LM curve is provided:

$$i = LM\ (Y, M, P, E) \qquad (12)$$

For the EMU the LM^* locus is:

$$i^* = LM^*(Y^*, M^*, P^*, E) \qquad (13)$$

(δ The Balance of Payments equilibrium:

The Greek balance of payments can be written as,

$$BP = T(Y^*, Y, i - i^*, E, \frac{EP^*}{P}) + K(i - i^*, E)$$
$$T_{Y^*} > 0, T_Y < 0, T_{i-i^*} < 0, T_E > 0, T_{\frac{EP^*}{P}} > 0, K_{i-i^*} > 0, K_E < 0 \qquad (14)$$

And the Euro-zone one as follows,

$$BP^* = T^*(Y, Y^*, i - i^*, E, \frac{EP^*}{P}) + K^*(i - i^*, E)$$
$$T^*_Y > 0, T^*_{Y^*} < 0, T^*_{i-i^*} > 0, T^*_E < 0, T^*\frac{EP^*}{P} < 0, K^*_{i-i^*} < 0, K^*_E < 0 \qquad (15)$$

where, BP=balance of payments, T=current (trade) account, and K=capital account.

From eq. (14), solving for i, we can determine the BP locus for Greece:

$$i = BP(Y, Y^*, i^*, E, \frac{EP^*}{P}) \qquad (16)$$

From eq. (15), we can determine the BP^* locus for the EMU (Euro-zone).

$$i^* = BP^*(Y^*, Y, i, E, \frac{EP^*}{P}) \qquad (17)$$

In order to solve the system, we can utilize Keynes' (1936) and Hicks' (1937) apparatus. This simply entails adopting the strategy of collapsing the equations of the model into a system of two equations, the AD and AS functions, one the money market (LM), and the balance of payments line (BP) for each economy. The ultimate objective will be to estimate the coefficients of these variables and to find the size of these effects (transmission mechanism) between each of the two entities (Greece with Euro-zone). Also, to determine the size of the effects of the external shocks on our endogenous variables and the effects of the policy variables (instruments) on the variables in question.

In other words, we want to examine the effects of a supply shock (oil prices, austerity, risk, taxes, etc.), demand shock (austerity measures), and money supply shocks on output and prices. Also, capital flow shocks will be important; especially lately, due to the Iraqi war many Muslims are investing their funds in EU instead of the U.S. because they are afraid that U.S.A. might freeze their funds in the future,[19] borrowing, privatization, sales of public wealth, etc. We will try to identify the effects of the different shocks and the ineffectiveness of public policies (due to Euro-zone and EU) with a structural VAR framework and to see their impulse responses on the target variables.

4. Data, Vector Autoregression (VAR) and Empirical Results

(i) Data

The data are monthly mostly from 1999:01 to 2008:12 (there are some series from 1974:01 to 2008:12) and are coming from economagic.com, imfstatistics.org, and Eurostat. They comprise the variables, income or GDP (Y), consumption (C), government spending (G), money supply (M^s), a variety of interest rates (S-T and L-T, but emphasis will be given to ECB overnight rate, as policy instruments), exports (X) and imports (M), prices (CPI), wages and salaries (w), unemployment rate (u), exchange rate [E ($/€)], price of oil ($P_{oil}$), and a few others. In the first analysis, we look at some empirical evidence of interdependence between Greece and the EMU, macroeconomic shocks (P_{oil}, wages, etc.), and the ineffectiveness of monetary (M, i) and fiscal (G) policies. Such evidence can be provided by correlations, causality, regression analysis, and a Vector Autoregression (VAR) to test the dynamic impact

[19] *This might be a factor of the overvaluation of the euro after 2003. Of course, speculators play a major role in this overvaluation of the euro. See, Kallianiotis (2007a) and Kallianiotis and Frear (2006). The euro reached 1.6001 $/euro in April 22, 2008. (Bloomberg.com).*

of the econometric models presented in the theory. Consider now an EMU expansion. We noted that when the income in the EMU will rise, Greece's economy is improved.[20] But we also see spillover effects of the EMU expansion. In Greece, income will rise, too. This is evidence of a strong interdependence through induced changes in imports and due to integration and common currency.

(ii) A Vector Autoregression (VAR) and its Impulse Responses

In addition, a Vector Autoregression (VAR) is used, for the above forecasting system of the interdependent variables between Greece and EMU and the policy variables, to analyze the dynamic impact of random disturbances on the system of variables. The VAR approach sidesteps the need for structural modeling by treating every endogenous variable in the system (Y, Y*, P, P*, M, M*, etc.) as a function of the lagged values of all of the endogenous variables in the system.

For example, suppose that real income (y_t), prices (p_t), and unemployment (u_t) are jointly determined by a VAR and let a policy variable (x_t) be the exogenous variable,

$$\begin{aligned} y_t &= a_{11}y_{t-1} + a_{12}p_{t-1} + a_{13}u_{t-1} + b_{11}y_{t-2} + b_{12}p_{t-2} + b_{13}u_{t-2} + c_{11}x_t + \varepsilon_{1t} \\ p_t &= a_{21}y_{t-1} + a_{22}p_{t-1} + a_{23}u_{t-1} + b_{21}y_{t-2} + b_{22}p_{t-2} + b_{23}u_{t-2} + c_{21}x_t + \varepsilon_{2t} \\ u_t &= a_{31}y_{t-1} + a_{32}p_{t-1} + a_{33}u_{t-1} + b_{31}y_{t-2} + b_{32}p_{t-2} + b_{33}u_{t-2} + c_{31}x_t + \varepsilon_{3t} \end{aligned} \qquad (18)$$

where, y_t, p_t, and u_t are k vectors of these three endogenous variables, x_t is a d vector of exogenous variables, a_{ij}, b_{ij}, c_{ij} are the parameters to be estimated, ε_{1t}, ε_{2t}, and ε_{3t} are three vectors of innovations that may be contemporaneously correlated, but are uncorrelated with their own lagged values and uncorrelated with all the right-hand side variables.[21]

If the innovations ε_t's are contemporaneously uncorrelated, interpretation of the impulse response is straightforward. The i^{th} innovation $\varepsilon_{i,t}$ is simply a shock to the i^{th} endogenous variable $y_{i,t}$. Innovations, however, are usually correlated, and may be viewed as having a common component, which cannot be associated with a specific variable. In order to interpret the impulses, it is common to apply a transformation μ to the innovations so that they become uncorrelated:

$$u_t = \mu\,\varepsilon_t \sim (0, D) \qquad (19)$$

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[20] *Today, where the income in the country-members of the EMU is declining, Greece's economy is deteriorated even more.*

[21] *Since only lagged values of the endogenous variables appear on the right-hand side of the equations, simultaneity is not an issue and OLS yields consistent estimates. Moreover, even though the innovations ε_t's may be contemporaneously correlated, OLS is efficient.*

where, u_t=the residual, ε_t =the innovations, D=a diagonal covariance matrix, and μ =the choice of transformation.[22]

We try to identify, first, a vector of structural shocks, $\varepsilon = [\varepsilon_y, \varepsilon_{y^*}, \varepsilon_{m^s}, \varepsilon_{m^{*s}}]$ and we let the VAR consist of real outputs (y and y_t^*) and real money supplies ($m_t - p_t$ and $m_t^* - p_t^*$). Then, other combinations of cost variables and policy variables can be considered, too. The real output is the real GDP ($\frac{GDP}{CPI/100}$), the P is the CPI, w is the wage and salary (index), T are taxes, E is the exchange rate ($/euro), etc. Finally, an Impulse Response is performed, which shows how a shock to the i^{th} variable affects itself and also is transmitted to all of the other endogenous variables through the dynamic (lag) structure of the VAR. The impulse response function traces the effect of a one-time shock to one of the innovations on current and future values of the endogenous variables.

(iii) Empirical Results

We divided the period from 1974 to 2008 into different sub-periods: first, from 1974:01 to 1980:12 (Greece joined the EC on January 1, 1981); second, from 1981:01 to 1992:12 (when the European integration took place and the EU was created); third, from 1981:01 to 2000:12 (where Greece joined the EMU on January 1, 2001); fourth, from 2001:01 to 2001:12 (Greece abandoned her currency, the drachma, and introduced the euro from January 1, 2002; fifth, from 2002:01 to 2008:12 (the period of the common currency and before the destructive debt crisis); and final, the entire period from 1974:01 to 2008:12 (as a L-T average measure). The first results (Table 1) show that the social loss, eq. (1), of Greece was L=3.243 for the entire period and its worst measure was in 2001 (L=17.510). The highest losses are due to inflation, interest rate and unemployment; the lowest loss (actually negative losses=benefits) is due to risk. We started analyzing Greece and the Euro-zone data by looking and comparing their mean values, their natural logarithms, their growth, and their standard deviations. The growth of GDP is higher in Greece than the EMU, the inflation rate, the money supply growth, and the interest rates, too; The unemployment rate ($\bar{u} = 8.16\%$) in Greece is lower relative to EMU ($\bar{u}^* = 8.29\%$). The exports and imports of Greece have a high risk ($\sigma_{\dot{x}} = 350.72\%$). After the introduction of euro, Greece's unemployment has increased ($\bar{u} = 9.55\%$), but trade has improved, inflation has declined, interest rates and consumption have also fallen, government spending has increased.[23]

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[22] *Where,* μ = metamorfwsis *(transformation). These different choices will be considered to some future work.*

[23] *These results are available from the author upon request. They are omitted, here, due to space limitations.*

Table 1: Components of Social Loss (Equation 1)

	Lu	Ld	Li	L π	Lq	L m^s	Lta	Lbd	Lspi	L
					1974:01-1980:12					
$\overline{X}$	-	-	-	1.671	0.222	0.810	-0.704	-	-	**-1.999**
σ_X				1.978	6.590	1.501	35.312			**35.276**
					1981:01-1992:12					
$\overline{X}$	0.638	-0.669	1.832	1.876	0.018	0.387	0.456	-	-	**4.538**
σ_X	0.181	0.352	1.781	1.790	8.007	1.730	43.709			**40.744**
					1981:01-2000:12					
$\overline{X}$	0.840	-0.556	1.333	1.410	0.024	0.265	0.228	0.945	-1.479	**3.010**
σ_X	0.303	0.302	1.763	1.782	6.761	1.628	36.587	12.369	12.627	**24.624**
					2001:01-2001:12					
$\overline{X}$	1.194	-0.197	0.333	0.333	-0.046	0.508	1.209	10.529	3.647	**17.510**
σ_X	0.053	0.074	1.524	1.524	2.178	1.071	65.635	44.387	11.958	**66.215**
					2002:01-2008:12					
$\overline{X}$	1.061	-0.209	0.363	0.363	-0.107	0.400	0.020	-1.745	1.040	**1.186**
σ_X	0.104	0.079	1.392	1.392	2.107	1.009	13.962	17.708	9.636	**26.511**
					1974:01-2008:12					
$\overline{X}$	0.906	-0.440	1.038	1.225	0.037	0.323	0.030	0.106	0.018	**3.243**
σ_X	0.285	0.300	1.719	1.807	6.010	1.483	34.332	21.291	11.348	**32.727**

Note: On January 1, 1981, Greece joined the EC; on January 1, 1993, the European integration took place (EU); on January 1, 1999, the EMU was established; on January 1, 2001, Greece joined the EMU; and on January 1, 2002 the Euro-notes and coins were introduced. Lu=loss to society due to unemployment, Ld=loss due to risk, Li=loss due to interest rate, L π =loss due to inflation, Lq=loss due to production, Ls=loss due to saving (no data available), L m^s =loss due to growth of money supply, Lta=loss due to trade account growth, Lbd=loss due to budget deficit, Lspi=loss due to growth of the stock market, L= the total loss to society, w=1/9, $\overline{X}$ =the mean value of the variable, and σ_X =the standard deviation.

Source: *Eurostat*, http://www.economagic.com, and International Financial Statistics (IMF) http://www.imfstatistics.org.

Next, we looked at the correlation coefficients (ρ_{X,X^*}) between Greece and the EMU macro-variables. The ρ_{X,X^*} is higher than +0.50 between Y^* and Y, Y^* and P, Y^* and M, Y^* and w, Y^* and C, Y^* and M2; Y^* and u have high negative correlation ($\rho_{y^*,u} = -0.865$). The same high positive correlation exists between P^* and Y, P^* and P, P^* and M, P^* and w, P^* and u, P^* and C, P^* and G, P^* and M2. Interest rates have a negative correlation with most of the variables. These reveal a high interdependence between the two economies, the Greek and the EMU one (i.e., $\rho_{Y,Y^*} = 0.990$). At the same time, we test the causality between the variables in the two economies. The EMU Y^* causes Y, E, P, w, X, M, G, and M2. The exchange rate E causes w, i_{TB} , C, X and $P_{oil.}$ Price of oil (P_{oil}) causes w, CE, M^s, X, and i_{GB}. The policy variables (G, M2, and i instruments) cause E, P, X, M, u, and P_{oil}. The most of the series are not stationary. Trace tests and maximum eigenvalue ones indicate that our equations are cointegrating (stationary).

Further, Tables 2, 3, 4, 5 and 6 show the least squares estimations of the aggregate supplies, aggregate demands, money market equilibrium, and the balance of payments in Greece and EMU. The price of oil is affecting negatively production and positively inflation. The coefficients of y and y^* are highly significant and reveal the interdependence between the two economies. The appreciation of euro increases the demand for money and deteriorates the trade balance. Table 7 shows the Vector Autoregression estimates of the three (3) public policy objective variables (y, p, u) for Greece and EMU and the effectiveness of policy instruments (i^*_{OND}, M^s, G) on the ultimate objective variables. The income (y) is affected positively by G . For this reason, Greece has to use more public investment ($G \uparrow$) to increase the income for the country. Prices (CPI) are affected positively by M^s and negatively by i^*_{OND} .The unemployment rate is not affected by any policy instruments. In EMU, M^{*s}, i^*_{OND} , and g^* are affecting positively Y^*; no policy instrument has any effect on P^*, and i^*_{OND} and g^* have a negative effect on unemployment.[24]

[24] *The impulse responses are available from the author, too.*

Table 2: Least Squares Estimations of the Model - Equations (2) and (3)

Variables	y	y	y	y		y^*	y^*
α_0	-26.673***	-23.201***	-20.998***	-21.554***	α_0	0.546	88.176
	(2.387)	(2.114)	(2.035)	(2.283)		(0.333)	(12.384)
p	3.746***	3.267***	3.431***	2.897***	p^*	1.499***	-0.213*
	(0.162)	(0.167)	(0.171)	(0.205)		(0.152)	(0.122)
w	0.028*	0.137***	w -0.023***	ce 0.203***	w^*	0.259***	1.271***
	(0.015)	ce (0.025)	(0.009)	(0.030)		(0.093)	(0.087)
$e+p^*-p$	18.601***	16.962***	14.719***	15.921***	$e+p^*-p$	1.106**	0.009
	(1.666)	(1.460)	(1.312)	(1.501)		(0.457)	(0.163)
p_{oil}	-0.022**	-0.017**	-0.022*	-0.008	p_{oil}	0.004	-0.001
	(0.009)	(0.008)	(0.013)	(0.013)		(0.005)	(0.004)
u	0.011***	0.008***	0.002	0.002	u^*	-0.016***	-0.008**
	(0.003)	(0.003)	(0.003)	(0.003)		(0.002)	(0.004)
$AR(1)$	-	-	-	0.567***	$AR(1)$	-	0.999***
				(0.093)			(0.013)
$MA(1)$	-	-	0.974***	-	$MA(1)$	-	-
			(0.012)				
R^2	0.993	0.995	0.995	0.996	R^2	0.995	0.999
SER	0.015	0.013	0.013	0.011	SER	0.008	0.003
D-W	1.305	1.063	2.182	2.006	D-W	0.825	2.150
F	2775.91	3560.78	3132.70	3872.43	F	4216.76	22783.07
N	99	99	99	98	N	111	110

Note: See, Table 1. y =ln of gross domestic product, p =ln of CPI, w =ln of wages, ce =ln of compensation of employees, $e+p^*-p$ =ln of TOT, p_{oil} =ln of price of oil, u = unemployment rate, e =ln of spot exchange rate, *** =significant at the 1% level, ** = significant at the 5% level, * = significant at the 10% level, and an (*) denotes the foreign country (Euro-zone).

Source: http://www.economagic.com, http://www.imfstatistics.org, and *Eurostat*, Year Book, various issues.

Table 3: Least Squares Estimations of the Model - Equations (4) and (5)

Variables	p	p	p		p^*	p^*	p^*
α_0	8.173***	8.322***	7.591***	α_0	0.394***	0.631***	1.225***
	(0.304)	(0.270)	(0.326)		(0.151)	(0.197)	(0.276)
y	0.227***	0.205***	0.238***	y^*	0.320***	0.215***	0.057
	(0.010)	(0.013)	(0.014)		(0.033)	(0.060)	(0.078)
w	-0.007*	0.010**	0.011***	w^*	0.202***	0.297***	0.435***
	(0.004)	(0.004)	(0.003)		(0.040)	(0.071)	(0.083)
$e+p^*-p$	-5.657***	-5.725***	-5.291***	$e+p^*-p$	-0.849***	-0.957***	-0.953***
	(0.225)	(0.193)	(0.228)		(0.201)	(0.187)	(0.180)
p_{oil}	0.011***	0.019***	0.015***	p_{oil}	0.008***	0.013***	0.013***
	(0.002)	(0.004)	(0.003)		(0.002)	(0.003)	(0.003)
u	-0.004***	-0.002	-0.002**	u^*	0.004***	0.001	-0.005*
	(0.001)	(0.001)	(0.001)		(0.001)	(0.002)	(0.003)
e	-	-	-0.014	e	-	-	0.032***
			(0.009)				(0.011)
$AR(1)$	-	0.710***	-	$AR(1)$	-	0.502***	0.525***
		(0.089)				(0.092)	(0.087)
$MA(1)$	-	-	0.7834***	$MA(1)$	-	-	-
			(0.076)				
R^2	0.998	0.998	0.998	R^2	0.996	0.997	0.997
SER	0.004	0.003	0.003	SER	0.004	0.003	0.003
D-W	1.226	2.043	1.977	D-W	1.187	2.042	1.984
F	8844.47	8786.26	7845.38	F	5501.88	5390.47	4940.50
N	99	98	99	N	111	110	110

Note: See, Table 1. y =ln of gross domestic product, p =ln of CPI, w =ln of wages, ce =ln of compensation of employees, $e+p^*-p$ =ln of TOT, p_{oil} =ln of price of oil, u = unemployment rate, *** =significant at the 1% level, ** = significant at the 5% level, and * = significant at the 10% level.
Source: See Table 1.

Table 4: Least Squares Estimations of the Model: Eqs. (6), (7), (8), and (9)

Variables	y	y	p	p	y^*	y^*		p^*	p^*
α_0	7.976***	4.301**	8.552***	7.370***	0.039	0.977**	α_0	2.658***	2.899***
	(1.276)	(1.691)	(0.592)	(0.590)	(0.501)	(0.486)		(0.308)	(0.259)
p	-0.079	-0.038	y -0.039	y 0.078	-0.219*	-0.092	p^*	-0.149*	-0.073
	(0.148)	(0.140)	(0.073)	(0.070)	(0.124)	(0.087)		(0.084)	(0.091)
$e+p^*-p$	-0.507	-0.302	-5.186***	-4.950***	0.330	-0.153	$e+p^*-p$	-0.553**	-0.110
	(0.835)	(0.754)	(0.231)	(0.187)	(0.295)	(0.141)		(0.238)	(0.175)
m^s	-0.113**	-0.107**	0.162***	0.256***	0.156***	0.055	m^{*s}	0.191***	0.295***
	(0.050)	(0.051)	(0.032)	(0.025)	(0.043)	(0.035)		(0.032)	(0.027)
c	1.106***	0.627***	0.189**	0.023	1.062***	0.454	c^*	0.169	-0.213*
	(0.037)	(0.065)	(0.083)	(0.075)	(0.093)	(0.108)		(0.118)	(0.120)
g	0.132***	0.009	0.019	-0.004	-0.154**	0.259***	g^*	-0.012	0.038
	(0.021)	(0.035)	(0.017)	(0.022)	(0.061)	(0.072)		(0.052)	(0.069)
x	0.003	0.004*	0.005	0.002	0.024	0.001	x^*	-0.034	-0.003
	(0.005)	(0.003)	(0.003)	(0.002)	(0.027)	(0.010)		(0.022)	(0.010)
m	0.006	-0.004*	-0.005*	-0.002	-0.028	-0.007	m^*	0.033	0.005
	(0.004)	(0.002)	(0.003)	(0.002)	(0.027)	(0.010)		(0.022)	(0.010)
y^*	-0.087	0.610***	-0.051	-0.099	0.039	0.207***	y	0.099***	0.121***
	(0.072)	(0.133)	(0.051)	(0.064)	(0.036)	(0.048)		(0.028)	(0.040)
$AR(1)$	-	0.984***	-	0.539***	-	0.967***	$AR(1)$	-	0.609***
		(0.013)		(0.120)		(0.022)			(0.103)
$MA(1)$	-	-	-	0.372***	-	-	$MA(1)$	-	0.372***
				(0.142)					(0.129)
R^2	0.999	0.999	0.998	0.999	0.998	0.999	R^2	0.996	0.998
SER	0.005	0.003	0.004	0.003	0.005	0.002	SER	0.004	0.003
D-W	0.841	1.971	0.755	1.855	0.534	2.104	D-W	0.671	1.873
F	16121.05	30709.56	6397.27	9512.57	6254.52	21855.88	F	2615.10	4448.17
N	101	100	101	100	102	101	N	102	101

Note: See, Table 1. y =ln of gross domestic product, p =ln of CPI, w =ln of wages, ce =ln of compensation of employees, $e+p^*-p$ =ln of TOT, p_{oil} =ln of price of oil, u = unemployment rate, *** =significant at the 1% level, **= significant at the 5% level, and *= significant at the 10% level.
Source: See Table 1.

Table 5: Least Squares Estimations of the Model-Equations (10), (11), (12) & (13)

Variab.	$m^s - p$	$m^s - p$	$m^s - p$	i_{TB}	i_{GB}		$m^{*s} - p^*$	$m^{*s} - p^*$	$m^{*s} - p^*$	i^*_{OND}	i^*_{GB}
α_0	-1.546***	-0.641	-0.955***	-61.810***	-63.332*	α_0	-3.751***	-3.878***	-3.861***	-43.181	98.219**
	(0.194)	(0.427)	(0.351)	(20.839)	(33.435)		(0.125)	(0.272)	(0.279)	(33.527)	(46.023)
y	0.556***	0.462***	0.493***	2.306	5.968***	y^*	1.011***	1.029***	1.029***	2.983	7.626***
	(0.020)	(0.045)	(0.037)	(1.513)	(2.057)		(0.017)	(0.037)	(0.037)	(2.273)	(2.471)
i_{TB}	0.014***	0.013***	0.017*** $= i^*_{OND}$	5.105*** $= m^s$	-0.453	i^*_{OND}	0.003**	0.001	-0.004 $= i^*_{GB}$	-1.238 $= m^{*s}$	-0.673
	(0.001)	(0.003)	(0.003)	(1.906)	(2.601)		(0.001)	(0.003)	(0.004)	(2.035)	(2.288)
e	0.017	0.106**	0.091**	-1.688**	-0.171	e	0.137***	0.118	0.105***	-0.481	-1.281**
	(0.021)	(0.041)	(0.037)	(0.768)	(0.772)		(0.012)	(0.024)	(0.024)	(0.608)	(0.658)
	-	-	-	-0.320 $= p$	2.581		-	-	-	7.258 $= p^*$	9.981*
				(1.755)	(1.902)					(5.302)	(5.919)
$AR(1)$	-	0.737***	0.642***	0.946***	0.975***	$AR(1)$	-	0.652***	0.688***	0.984***	0.993***
	-	(0.072)	(0.073)	(0.014)	(0.014)		-	(0.073)	(0.077)	(0.016)	(0.012)
$MA(1)$	-	-	-	0.200**	-0.089	$MA(1)$	-	-	-	0.138	0.231**
	-	-	-	(0.106)	(0.107)		-	-	-	(0.099)	(0.099)
R^2	0.983	0.990	0.990	0.985	0.930	R^2	0.994	0.997	0.997	0.977	0.947
SER	0.014	0.010	0.010	0.161	0.176	SER	0.011	0.008	0.008	0.143	0.151
D-W	0.699	1.891	1.854	1.923	2.010	D-W	0.705	2.047	2.077	1.899	1.956
F	1863.74	2463.32	2447.57	1004.75	204.33	F	6079.30	7714.67	7778.59	734.58	315.08
N	102	101	101	101	99	N	114	113	113	113	113

Note: See, Table 1. y =ln of gross domestic product, p =ln of CPI, w =ln of wages, ce =ln of compensation of employees, $e + p^* - p$ =ln of TOT, p_{oil} =ln of price of oil, u = unemployment rate, *** =significant at the 1% level, **= significant at the 5% level, and *= significant at the 10% level.
Source: See Table 1.

Table 6: Least Squares Estimations of the Model: Eqs. (14), (15), (16) & (17)

Variables	$x-m$	$x-m$	x	m	i_{TB}	x^*-m^*	x^*	i^*_{OND}
α_0	-5.321*	-4.923**	-1.908	3.255	-55.895***	0.751**	-42.582*	-12.222
	(2.923)	(2.453)	(3.194)	(3.145)	(16.383)	(0.383)	(22.569)	(13.435)
y	0.415	0.248	-0.146	-0.579	-2.410	-0.124	-0.986	-8.760***
	(0.734)	(0.609)	(0.798)	(0.782)	(3.323)	(0.095)	(4.089)	(2.776)
y^*	0.031	0.188	1.338	1.351	10.744**	0.063	7.582	13.014***
	(1.011)	(0.820)	(1.121)	(1.074)	(5.289)	(0.128)	(6.943)	(4.842)
$i_{TB}-i^*_{OND}$	0.086***	0.086***	0.089***	0.006	i^*_{OND} 0.381***	$i_{TB}-i^*_{OND}$ -0.001	0.304***	i_{TB} 0.455***
	(0.019)	(0.016)	(0.023)	(0.022)	(0.144)	(0.003)	(0.113)	(0.077)
$e+p^*-p$	-0.082	-0.671	-5.114***	-5.165***	-0.336	-0.181	-2.386	0.230
	(1.587)	(1.440)	(1.577)	(1.708)	(1.877)	(0.218)	(2.386)	(1.684)
e	-0.685***	-0.688***	0.517**	1.176***	-0.995	0.028	-0.036	0.050
	(0.230)	(0.188)	(0.255)	(0.246)	(0.702)	(0.030)	(0.883)	(0.624)
$AR(1)$	-	-0.232**	0.150	0.012	0.912***	-0.121	0.915***	0.847***
		(0.102)	(0.102)	(0.106)	(0.024)	(0.102)	(0.044)	(0.030)
$MA(1)$	-	-	-	-	-	-	-	-
R^2	0.288	0.295	0.887	0.889	0.984	0.151	0.964	0.977
SER	0.127	0.124	0.121	0.132	0.164	0.018	0.211	0.147
D-W	2.437	2.011	1.979	2.011	1.714	2.008	1.738	1.952
F	7.68	6.47	121.71	123.64	966.07	2.78	423.73	671.26
N	101	100	100	100	101	101	101	101

Note: See, Table 1. y =ln of gross domestic product, p =ln of CPI, w =ln of wages, ce =ln of compensation of employees, $e+p^*-p$ =ln of TOT, p_{oil} =ln of price of oil, u = unemployment rate, *** =significant at the 1% level, **= significant at the 5% level, and *= significant at the 10% level.
Source: See Table 1.

Table 7: Vector Autoregression Estimates for Greece and Euro-zone

Variables	y	p	u		y^*	p^*	u^*
α_0	0.218	0.593***	19.539*	α_0	0.933***	0.090	-3.278
	(0.220)	(0.198)	(10.234)		(0.231)	(0.124)	(4.094)
y_{t-1}	0.585***	0.018	0.915	y^*_{t-1}	0.416***	0.091*	-0.004
	(0.092)	(0.083)	(4.295)		(0.091)	(0.049)	(1.618)
y_{t-2}	0.294***	0.245***	0.799	y^*_{t-2}	0.155*	0.097*	1.569
	(0.093)	(0.083)	(4.310)		(0.092)	(0.049)	(1.629)
p_{t-1}	0.510***	0.415***	-9.022**	p^*_{t-1}	0.109	0.944***	2.903
	(0.090)	(0.081)	(4.179)		(0.185)	(0.099)	(3.280)
p_{t-2}	-0.268***	-0.520***	6.635	p^*_{t-2}	-0.204	-0.279**	-0.517
	(0.098)	(0.088)	(4.552)		(0.182)	(0.098)	(3.234)
u_{t-1}	0.002	-0.006***	0.797***	u^*_{t-1}	-0.004	0.005*	1.138***
	(0.002)	(0.002)	(0.106)		(0.006)	(0.003)	(0.098)
u_{t-2}	-0.002	0.007***	-0.086	u^*_{t-2}	0.008	-0.002	-0.284**
	(0.002)	(0.002)	(0.102)		(0.005)	(0.003)	(0.096)
m^s	-0.036	0.253***	-2.676	m^{*s}	0.094***	0.004	-0.853
	(0.066)	(0.059)	(3.072)		(0.032)	(0.017)	(0.560)
i^*_{OND}	0.001	-0.004***	-0.047	i^*_{OND}	0.005***	0.001	-0.082**
	(0.001)	(0.001)	(0.067)		(0.002)	(0.001)	(0.030)
g	0.060**	-0.035	0.566	g^*	0.320***	-0.002	-1.837*
	(0.029)	(0.026)	(1.335)		(0.055)	(0.029)	(0.970)
R^2	0.998	0.993	0.900	R^2	0.999	0.998	0.986
SEE	0.007	0.007	0.343	SEE	0.005	0.002	0.081
F	6045.92	1417.10	87.37	F	7648.32	7461.58	812.57
N	97	97	97	N	112	112	112

Note: See, Table 1. y =ln of gross domestic product, p =ln of CPI, w =ln of wages, ce =ln of compensation of employees, $e + p^* - p$ =ln of TOT, p_{oil} =ln of price of oil, u = unemployment rate, *** =significant at the 1% level, **= significant at the 5% level, and *= significant at the 10% level.
Source: See Table 1.

5. Policy Responses and Implications

Greece had major changes in 1974 with the planned Turkish invasion in Cyprus[25] and the restoration of some controlled politicians back in power after seven years (the period of the military government). This year was the landmark of the country's downfall and her intended destruction, with the help of these imposed pseudo-politicians. At that time the national debt was close to zero, the economy was growing, and the country was enjoying her unique culture and indigenous value system in a homogeneous (98% Greek-Orthodox) social, humane, independent, and free environment. Since this year, they have started generating the current financial (debt) and general crises on all aspects of life for the country. Prime minister Andreas Papandreou joined the EU in 1981 and later, another prime minister (Kostas Semitis) put Greece to the Economic and Monetary Union, by abandoning her three thousand years old currency (the historic drachma).

Today, with all these people in power for 37 years, Greece is facing a serious sovereign debt crisis and is losing completely her sovereignty and freedom. It is controlled by foreign powers (Troika: EU, ECB, and IMF). Greece accumulated high levels of debt (due to wastes, frauds, steeling, and every kind of corruption) to satisfy her leaders' objective: maximization of the probability for their reelection. During these periods, the market was very liquid, the EU was offering subsidies to avoid the opposition from the European citizens, who were against the European integration, so the economy was artificially growing. Greece was borrowing and was rolling over her maturing debt obligations without any problem; and of course, a lot of these loans were spending to buy weapon and other military "goods" from Germany, France, England, and unfortunately, from the U.S., too. Then, the 2007 global financial crisis was created and Greece was forced by her "friends" ("markets") to borrow at 17% interest rate and finally, they did not buy even her government securities. Greece was unable to roll over its maturing debt obligations and was closed to default.

On April 23, 2010, Greece was forced to introduce a variety of austerity measures and then, the EU and ECB sent her to borrow short-term from IMF[26] (as a non-European and under-developed country). There are many questions about the merits of the euro and the prospects for the future of the European integration (the prototype of globalization: one nation, one currency, one government). This common currency has created many problems to the countries, in which it has been imposed. These countries have a common monetary policy and diverse national

[25] *The Cyprus file has not opened yet (after 37 years) to see who was responsible for this violation of every international law and human rights (crimes against humanity). It seems that the island was betrayed by some anti-Greek politicians.*

[26] *There were some reports that George Papandreou had asked IMF for its financial support towards the country since December 2009 and the government did not contradict them. (Kathemerini, 2/20/2011).*

fiscal policies. They do not have an independent trade policy and their fiscal policy also depends on their lenders rules. Between 2001, when euro was imposed on Greece as her currency, and 2008, Greece's reported budget deficits averaged 5% per year, compared to a Euro-zone average of 2%, and current account deficits averaged 9% per year, compared to a Euro-zone average 1%. In 2009, the budget deficit was estimated to have been more than 15% of GDP.

Greece's current economic problems have been caused by a mix of domestic, European, and international factors. Domestically, indifferent leaders, government spending, over-consumption, low savings, huge borrowing, destruction of agriculture and manufacture, abandonment of villages and country sides, non-use of domestic natural resources (oil, gas, etc.), tax evasion, corruption, and others, have all contributed to Greece's accumulation of debt over the past four decades. European factors, the European integration of different economies to create the EU, the imposition of euro, the lost of monetary policy, the controlled fiscal policy, the structural changes, and the lack of competition. Internationally, the globalization, the uncontrolled illegal immigrants,[27] the latest financial crisis, and other objectives of the "wise men" are also believed to have contributed to Greece's current crisis (which is not only economic, but it is mostly social, moral, ethical, and spiritual).

Between 2001 and 2007, Greece's GDP grew at an average annual rate of 4.3% (this does not include the huge underground economy), compared to a Euro-zone average of 3.1%. These high economic growth rates were driven primarily by increases in private consumption (fueled by easier access to credit, European subsidies, and embezzlements of public wealth) and public investment, financed by the EU and the government. Over the past six years, while the government expenditures increased by 87%, revenues grew by only 31%, which led to budget deficits. Large and inefficient public administration in Greece (created by the parties in power to get the votes from public employees and their families), costly pension (some people were retiring at the age of 50 years old) and healthcare systems (because of the frauds, due to corruption), tax evasion, political immunity, and absence of any fiscal discipline, are the major factors behind Greece's deficits.

The contractionary fiscal policies, which have been imposed by the Troika will hinder economic growth; the data shown a deep recession for the 4th quarter of 2010 ($g_{GDP} = -6.6\%$) and an unemployment rate very high ($u = 14\%$), which is expected to increase more in 2011. The unemployment for young people is about 30% and in some regions, the unemployment exceeds 40%. Greece has to use an

[27] *It is estimated that Greece must have more than 1.5 million illegal immigrants since 1990s with the fall of communism and the crisis (wars) in Asia. Lately, with the political crises in North Africa Tunis, Algeria, Egypt (after Mubarak left the country), and others (Bahrain, Yemen, Libya, Syria, Oman, etc.) new influx of illegal immigrants are going to Greece, Italy, and the entire Europe, too. See, The New York Times, February 14, 2011, pp. A1 and A9 and The Wall Street Journal, February 14, 2011, pp. A1, A14, and A16 and TV News MEGA and ALTER, February 20 and 28, 2011.*

expansionary fiscal policy; to attract new foreign investment (without selling off public properties and enterprises, especially now that the prices are so low; everything is undervalued in Greece), to boost exports, to increase trade, to do investments in energy and in renewable energy sectors (oil, gas, solar, aeolic, etc.), to improve transportation, to reduce tolls, ticket prices, and taxes on gasoline, to improve the shipping industry and the shipyards, and to improve tourism.

The Greek economy faces some severe instability and there is a very high probability of default, including bankruptcy. The crisis affected negatively (weaken) the euro (reached 1.1960 $/€ on May 7, 2010), but because the U.S. economy[28] is as bad as (unfortunately, worse than) the European, the euro recovered. But, this European crisis spread across European bond markets and drew in countries such as Ireland, Portugal, Spain, Italy, Belgium, England, etc. (as PIIGS at the moment). Of course, Greece's total outstanding debt is relatively low (a little over €300 billion or $400 billion), but the total debt of the other Euro-zone member states is much more. Some observers had argued that allowing Greece to default was preferable to an EU rescue package. Polls showed that a large majority of Germans were strongly against providing financial assistance to Greece and Angela Merkel repeatedly put a brake on EU discussions about formulating a rescue package for Greece.

It has been reported that Greek government (Kostas Semitis)[29] used complex financial instruments, underwritten by Goldman Sachs and other "prominent" (corrupted and unregulated) financial institutions, to conceal the true level of Greece's debt and to enter the EMU. The U.S. Federal Reserve investigated the role that Goldman Sachs and other U.S. financial institutions played in the building up of Greece's debt, but we have not seen any results.[30] The complex financial instruments that these unregulated investment banks had created, destroyed the global financial system, which affected not only Greece, EU, and the rest of the world, but affected negatively the U.S. economy, which has not yet recovered (its unemployment is still double digit). If there will be no regulations for these corrupted and anti-humane financial institutions, the next crisis will come in five years and at that time the economy that will be affected most will not be the

[28] *Greece's total debt is insignificant [€1 trillion ($1.4 trillion) or $123,894/person] compared to the U.S. total (public and private) debt of over $156.2 trillion or $507,143/person, as of January 1, 2010. (Grandfather Debt Summary).*

[29] *Kostas Semitis had only one slogan during his campaign: "I will put Greece to the EMU". He wanted to "enslave" Greeks to this unnamable beast, the predecessor of the "global enslavement".*

[30] *Goldman Sachs is a hornet's nest in the U.S. socio-politico-economic system. Its employees are going to the Fed and to the government and then, back to Goldman Sachs. They (this club) are in control of the economy, central banking, and politics. See, Wessel (2009) and Nelson D. Schwartz and Sewell Chan, "In Greece's Crisis, Fed Studies Wall St.'s Activities", The New York Times, February 25, 2010.*

European, but the U.S. one.[31] George Papandreou criticized a little this current corrupted financial market by saying: "unprincipled speculators who are making billions every day by betting on a Greek default". Greece's public debt is estimated to be €355 billion by 2013, with an annual interest payment (cost) of €13 billion.[32] The country needs at least a growth of 3% per annum to surpass the current catastrophe.

6. Concluding Remarks

The economic and social indicators reveal that Greece from a moral, ethical, and just society, after 1974 and her European integration is becoming less and less competitive and more and more contaminated from all these foreign influences; and EU is becoming less friendly with its members (especially the small ones) and the rest of the world.[33] European Union (the forced integration of 27 nations, without referenda) is a new "innovation" in human history. It is a mixture of twenty seven nations without domestic public policies, without self-determination, without sovereignty, with huge European subsidies, with enormous debts and deficits, and of course, without any certainty in the future and with different present. All these strange evolutions coupled with the global financial crisis, have increased the global uncertainty and the European crisis, have caused unemployment and recessions in EU[34] and in Greece, have reduced competitiveness, and have augmented anxiety and health problems (mental and physical) to citizens. The free-market system has failed and needs more government regulation and better corporate governance. Governments had to bailout a corrupted financial system, especially when the budget deficits and the national debts are astronomical. But, it had no other option, except to "rob responsible [citizens] and pay the robbers of the financial market".[35] Then, what are the social benefits? Why we need these global changes and "evolutions", which are against humanity? What are the social benefits of the European Union and the EMU?

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[31] *Of course, so far we have not seen any regulations because the financial institutions are more powerful than governments. Then, the next real crisis is certain. This one that we have experienced since 2007, was just a small test and went well. No true reaction from any leader.*

[32] *A provisional tax in the area of 10% on the market value of the financial assets can help the government to increase the revenue and alleviate the burden from the poor and pensioners of the country.*

[33] *The U.S.A. was the biggest economic power in the world and is declining daily. Greece was the biggest spiritual power on earth and is descending daily. We must grieve for the plight of these two nations and someone is responsible for this. The problem must be the bad and controlled leadership in these two "model" nations.*

[34] *The main reason for unemployment in Europe is the illegal and uncontrolled immigration. Europe is in trouble to lose its thousands years old identity.*

[35] *Dr. Shannon Grimes in Tahlequah Daily Press, September 25, 2008.*

The data and the "News" show that the uncertainty is tremendous and is growing. The Greek economy is losing competitiveness and the unemployment is holding steadily (in some regions, it is 40%). The U.S. economy is doing better than the European, but the euro is doing much better than the dollar. Paradox! The current world is a big paradox, so we are not surprised any more. The Greek income is affected by prices, wages, TOT (exchange rate), price of oil and unemployment. Also, it is affected by the money supply, consumption, exports, imports, and EMU income. The Greek unemployment is caused by production, compensation of employees, and money supply. Also, it is caused by EMU prices, European wages, money supply of the ECB, European consumption, overnight deposit rate, and European exports. Also, a tremendous interdependence exists between Greece and the European economy.[36] We see that the U.S. and the EU financial markets rise and fall together (due to globalization), but trade and FDI influence the movement of real economic variables, such as output, prices, and unemployment. The Greek and EMU economies move very close and a demand shock in the one ripples through the other via imports and exports, as correlation coefficients and causality tests are shown.

The introduction of the euro in 1999 is a mismatch between the EU's advanced economic and monetary union and the poorer countries and at the same time, this is an incomplete political union. The Euro-zone has a single monetary policy, but 17 separate national fiscal policies. This unique arrangement is prone to problems and imbalances that threaten the viability of having a common currency for distinctive and completely different countries, like from Germany to Malta.[37] The EU tries to create a European Monetary Fund (EMF), which will respond more smoothly to financial crises within individual member-states, operating like the IMF on a regional basis.[38] Greece's and the other Euro-zone's nations crises have brought to light imbalances within the Euro-zone. Some Northern European and industrial countries, such as Germany, have relied on exports for economic growth and pursued policies that aim to promote such export-led growth (as wage moderation, keep cost of production low, increase competition, use of conservative fiscal

[36] *Unfortunately, this relationship in politics is completely a unilateral dependence. The controlled U.S. is in control of EU, and the controlled EU is in control of Greece.*

[37] *Members: In 1998 eleven European Union member-states "had met" the convergence criteria, and the Euro-zone came into existence with the official launch of the euro on January 1, 1999. Greece qualified in 2000 and was admitted on January 1, 2001. Physical coins and banknotes were introduced on January 1, 2002. Slovenia qualified in 2006 and was admitted on January 1, 2007. Cyprus and Malta qualified in 2007 and were admitted on January 1, 2008. Slovakia qualified in 2008 and joined on January 1, 2009. Estonia qualified in 2010 and joined on January 1, 2011. That makes 17 member states with 330 million people in the Euro-zone.*

[38] *European leaders met in Brussels in February 2011 discussing the creation of the EMF and put an amount of €500 billion as its reserves. TV News ALTER and MEGA, February 15, 2011.*

policies, promote high levels of savings, and large current account surpluses). The Southern European and non-industrial countries, like Greece, have relied on agriculture and tourism, but the euro has negatively affected both these sectors (their products became expensive, due to an overvalued euro; as more socially oriented nations, they have had higher levels of wage growth and more expansionary fiscal policies, leading to less competitive exports and lower levels of savings; have run large current account deficits; and another problem that they have is the high levels of corruption; for all these, they have to borrow to finance these deficits, the economic and the ethical one).

Finally, national sovereignty was formally indisputable and undisputed, and was even aggravated by the deeper involvement of both governments and public opinion in economic, social, educational, and political matters. Lately, national sovereignty is increasingly eroded by growing economic and political interdependence, huge loans (mortgaging of the public wealth) and lack of respect from the more powerful to the less ones. Such contradictions cannot and will not last for very long and the oppositions are observed every day, not only in EU, but all over the world, even though that our "democracies" are using special well trained police forces to suppress such voices and reactions and a very advanced high tech spying system. A necessary improvement and adjustment must be made in the system of international economic and political co-operation and to regulate the financial markets; otherwise there will be a severe deterioration of commercial, financial, political, cultural and other relations. The maturity of Greece debt of €110 billion has to be lengthened to 10-15 years and its interest rate to be reduced to 3%. The immunity that politicians have so far must be abolished and these who are responsible for the debt crisis must go to prison and their assets should be confiscated. This is what the social justice and the "markets" require.

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