THE ECONOMIC IMPACT OF FOREIGN DEBT IN GREECE

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Abstract. The purpose. The impact of foreign debt growth on the social and economic performance of Greece was shown. The parameters of GDP, consumption, interest rates, unemployment and government spendings were analyzed. **Methodology.** Data obtained for 2001-2014 was used for regression analysis, vector autoregression and as well as Kalman filter. **Results.** A multi-faced analysis of the debt for EU-member states and Greece in particular was performed. The events and decisions of Greek authorities leading to the crisis were summarized in structural and logical scheme. The recommendations for the economic policy of Greece, based on the performed analysis were suggested. **The practical applications.** Establishment of all weaknesses and empirical testing of the necessary indicators in this study was the basis for the justification of measures to stabilize the economic situation in Ukraine and Greece. **Value/originality.** The Mandel-Fleming model and the model of balance of savings-investments was used for the first time for the theoretical interpretation of the nature of the debt crisis in Greece, that under the influence of capital inflows caused by the deterioration of the current account balance and interest rate cuts. The increase in foreign borrowings has led to an increase in the budget deficit and reduction in savings. Also for the first time performed regression-correlation analysis, in particular the Kalman filter is used to study the effect of debt on macroeconomic performance of the Greek economy.

Key words: Greek crisis, public debt, economic growth, unemployment, consumption, exchange rate.

JEL Classification: F34, G01, H63, H64

1. Introduction

A growing public debt, being very common phenomenon worldwide, threatens national economic stability, ability to maintain sustainable growth and social welfare. Initial loan is usually aimed to support reforms and to cover temporary lack of financial resources. It is expected that in visible future country will benefit from the economic growth and fiscal revenues will provide the possibility to return the debt easily. However, in real life, especially in democratic countries, government's life is short between elections, and often its policy does not care too much if there is moderate growth of public debt. Pure management of debt, especially if accompanied with external economic shocks (for example unexpected decline in price for important export categories), unfortunately is common. This leads to the lack of ability to pay the debt causing default.

The efficiency of debt management is one of the key factors contributing to the macroeconomic stability in the country. The case of Greece is a striking example of overestimated expectations and populistic growth of government's spendings causing dramatic debt growth and nearly default. The experience of Greece is important for Ukraine, since these countries share many common features. The most important of them include high rate of debt increase due to inadequate spendings on sports infrastructure before a major sports events (2004 Olympics in Athens, Greece and Euro 2012 in Ukraine), as well as inefficient budget planning and huge populistic spendings. In Ukraine it is furthermore complicated by the high level of corruption, trade complications related to the conflict with Russia and urgent need for military budget increase.

The recent debt crisis in Greece has raised serious concerns about the current state of public debt in many industrialized countries. Rising debt seemed to be quite harmless and innocent during the age of optimism as the growth rates of assets and seemingly secure economic development was observed. However, for various reasons in Greece debt bubble has bursted and the future began to look uncertain for many other heavily indebted countries in Europe, North America and Asia. Considering significant potential consequences of public debt research aiming the analysis of the reasons and potential consequences remains to be relevant and important nowadays.

Therefore, the purpose of this paper is to determine the causes and social consequences of the debt crisis in Greece. Objectives are the theoretical justification of the impact of external debt on social development and economic growth as well as econometric evaluation of the impact of this crisis

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on European Union and more generally global economy. We have made an effort to develop theoretical models of the impact of external debt on the socio-economic development and to perform comparative analysis of the socio-economic impact of the crisis in other countries in EU and Ukraine.

2. Recent literature review

The scope of the financial crisis exerts an interest to many foreign economists, including A. Mateus (2009), L. Bakheyt (2011), M. Gulati (2012) who emphasize the necessity of debt restructuring. Among the domestic scholars, the problem considered by O.T. Yevtuh, O.O. Yevtuh (2011) V.V. Byba, R. Mishchenko (2011).

S. Missio and S. Vatska (2001) studied the structure of the profitability of Greek, Portuguese, Spanish, Italian, Dutch, Belgian, Austrian bonds and their influence on the profitability of German bonds: it is found that there is no influence during the Euro crisis on German ones. However, Portuguese, Spanish, Italian Belgian profitability actually increased along with their Greek. Thus, we can assume that there is still a positive effect on a number of negative processes in the economy of the euro area, but these results need careful and detailed study.

Ch. Dritsaki (2013) performed an empirical analysis of the link between economic growth, export and external debt during 1960 to 2011 in Greece. His study proved that there is "direct positive" relationship between exports and economic growth and also between economic growth and foreign debt in the short term. This study confirms earlier observations that sufficient export and budget discipline are essential for sustainable economic growth.

A. Ouyang and R. Rajan (2014) in their study examined the relationship between external debt and exports growth. The authors found out that countries with flexible currencies, large reserve assets, a solid credit history, a well-developed bond market and highly concentrated banking system (to a limited degree of deregulation), are likely to have accumulated large levels of external debt (relative to GDP) without a negative effect on the export growth.

K. Amoatengand and V. Amoako-Adu (1996) investigated the relationship between exports, external debt and economic growth for 35 African countries using Granger test. The results revealed a causal relationship between unilateral debt service and economic growth. G. Karagol (2002) investigated the long- and short-term bond debt and economic growth for Turkey for the period 1956-1996. Research shows that there is a negative relationship between external debt and economic growth in the long run. Results of causality using Granger tests found one-way relationships between debt service and economic growth.

M. Abdelmavla (2005) studied the effect of external debt on economic growth over the years 1978-2001 in the Sudan. Research shows that external debt and inflation adversely affects the economic performance of the country. B. Saad (2012) examined the relationship of external debt, exports, economic growth and exchange rate stability in Lebanon 1970-2010 years. To investigate this relationship, he used a vector error correction model (VECM) and Granger test, the results of which revealed that there are both short and long-term relationships between these variables.

General analysis of these studies reveals a strong evidence that the growth of public debt does not leas to economic growth. The case of Greece is not an exception. Its economic situation on the eve of 2008 did not raise any concerns regarding the further development until the global financial crisis has begun. When the budget deficit of Greece has grown to a value of 12.7% of GDP, it turned out to hit a pretty strong European economy which was just about to sink, however it remains mysterious how such a dangerous threat was not recognized on the early stage. After EU integration the costs of borrowings suddenly plunged, which has further caused a number of other events that have made the situation critical: the falsification of financial statements, over lending into the economy, high social component of the economy and low industrial production respectively. All these factors have been amplified and delayed by reluctant help of EU member states. This turned a relatively stable economy into a drowning in debt nation which threatened the integrity of the EU and the stability of the euro currency.

The problems of the EU regional imbalances cause serious challenges to the global economy through the considering the deep integration of the world economy. Detailed study of the reasons and consequences of Greek crisis remains to be important model of crisis development in indebted economy.

3. The effects of growth of external debt of Greece

The financial crisis in Greece uncovered EU's major problem in providing strict control over the financial discipline of particular countries. Facing crisis in Greece experts analyzed the performance of the EU countries. Threatening situation has been observed in other Southern European countries like Spain, Portugal, and Italy. Their government's spendings were found to be inadequate to the economic performance. Moreover the scale of Spain and Italy is incomparably bigger than only a 10-million Greece. Despite the fact that in February 2010 at the EU summit it was suggested to solve the Greek problem by Greece itself, following on insistence of Germany, Greece was provided with the support of the IMF. The involvement of the Fund was caused not so much by the desire to pass on his part of the cost, which remains one of the problematic issues in the European community as by a desire to use standards and external oversight IMF to force Greece to reduce the budget deficit to the rules defined by the European Union.

Efforts around the world have focused on finding more efficient ways of recovery. Countries, that are the world leaders, tried to develop and offer the most effective tools by public efforts. Thus, the Joint Declaration of the summit of the world 's leading G-20 has stated five areas

of implementation of anti-crisis measures to restore confidence, growth and employment, strengthening the control and regulation of the financial system, increasing capitalization and the reform of international financial institutions, promotion of international trade and international investment, avoiding protectionism, providing comprehensive, sustainable recovery and the formation of "green economy" (Monitoring of anti-crisis measures, 2009).

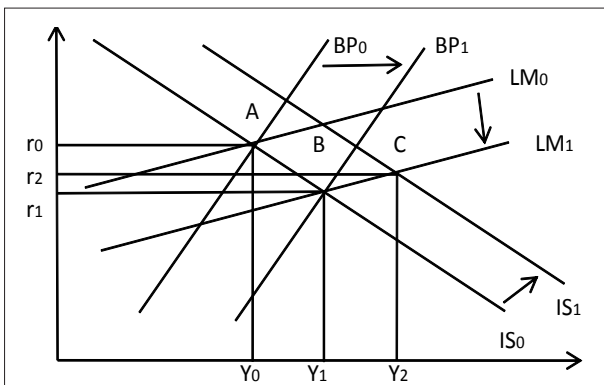We analyzed the problem of the increasing of the debt in Greece using Mandel-Fleming model (equation (1–3):

$$\uparrow Y = \uparrow C(\uparrow Y - \downarrow T, r) + \uparrow I(r) + \uparrow G + \downarrow CA(q, \uparrow Y, Y^*), \quad (1)$$
$$C_y, CA_q, CA_{y^*} > 0, C_r, I_r, CA_y < 0$$

$$\frac{M}{P} = L(Y, r), \qquad L_y > 0, L_r < 0, \quad (2)$$

$$\downarrow CA(q, \uparrow Y, Y^*) + k(\downarrow r - r^*) = 0, \quad 0 \leq k <, \quad (3)$$

Using visual model we can trace the development of events in the Greek economy (fig. 1). In 2004 there was the

Developed by the author from [Shevchuk V. (2008)]
Fig. 1. Growth of external debt in Greece

influx of capital, which caused the increase of investment I. Growth of investment increased the income Y in the country, leading to a negative current account balance CA in point B. Also, the government pursued expansionary fiscal policy by increasing spending G and reducing taxes T, which also affected the amount of income Y. As a result of a significant increase in income Y, IS line increases, which leads to more negative current account CA balance in point C and to lower the interest rate r.

The situation in the Greek economy could also be traced with a Flow Chart (fig. 2). As mentioned earlier, after joining the European Union the doors of many financial institutions offering money in low–interest loans were opened to Greece. Since then, the financial bubble of the Greek economy grew every year almost in double value. This situation was also reinforced by the ongoing Olympic Games for the organization of which funds were borrowed from European financial institutions. But money was not used for proper purposes: some went to the construction of unnecessary number of hotels and entertainment complexes (which, incidentally, supported the domestic construction industry), some settled in the pockets of government officials. Thus, all factors combined contributed to the fact that Greece faces two threats: either default or exit from the European Union because Germany did not intend to continue to support "lazy neighbors".

The longer and deeper the crisis is – the more painful is its resolution. Drastic budget cuts lead to deep recession, people actively resisted the measures that were taken by the government, which put at risk the program of budget savings. For this reason many experts expected that the third package of financial aid will be needed.
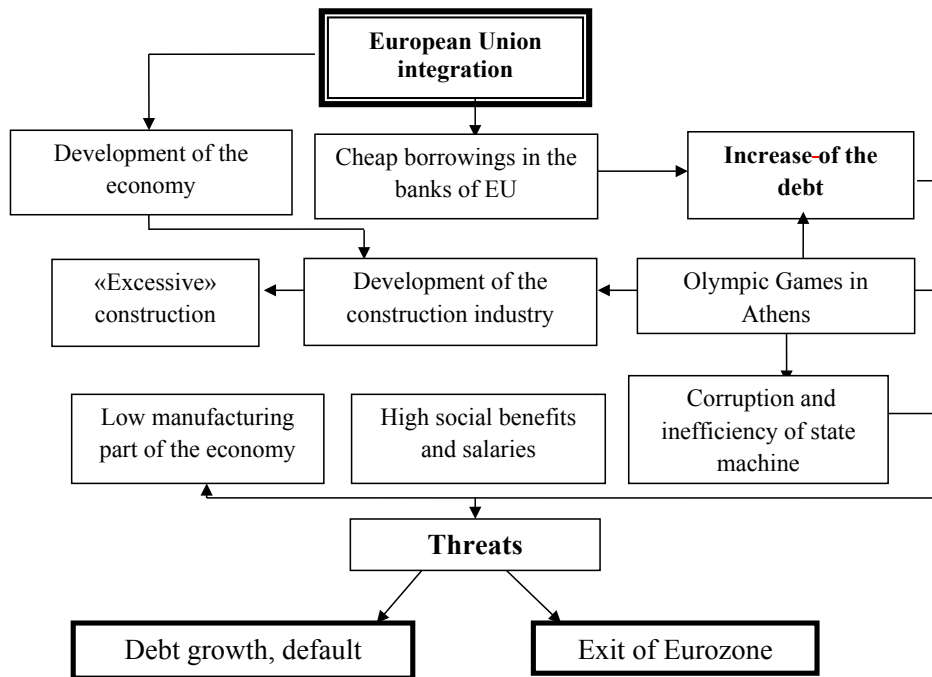
Source: the author's
Fig. 2. Causal relations of debt crisis in the Greek economy after joining EU

The external debt, if wisely utilized could boost the economic growth and could have positive general impact on the GDP growth. However growing costs of debt repay caused a negative impact on the ability of the government to provide social services by creating an additional burden on the state budget. Whether such an effect exists and how strong it will depend on many factors. First of all, it is the performance of the economy and the value of debt burden. The combination of these factors determine the cost of attracting new loans and service of existing, domestic interest rate, the level of the tax burden, the country's capacity to attract foreign investment etc. Therefore, the research of the socio-economic impact of public debt requires consideration of the development of the economy and public finances.

4. Empirical research

For empirical investigation of Greece quarterly data for the period 2001-2014 were used, as it is more appropriate in this study to take into account the performance of the economy in Greece after joining EU. All data is taken from the statistical databases of the International Financial Statistics. In order to validate the source data all variables are defined as logarithms and cleared of seasonality.

In an empirical study we used a statistical model (4):

$$lny = a_0 + a_1 lny_{t-1} + a_2 lnDEBT_t, + u_t, \qquad (4)$$

where a_0, a_1, a_2 – factors; y – the dependent variable; $DEBT_t$ – public debt of Greece; u_t – error model.

We studied the following parameters for Greece: $DEBT_t$ – public debt, millions; G_t – government spending, thousands of euros; GDP_t – Gross Domestic Product, millions of euros; $CONS_t$ – household consumption,

thousands of euros; $RATE_t$ – exchange rate, EUR/USD; $UNEMPL_t$ – unemployment, thousands.

Granger test (table 1) was applied to determine the direction of causality between the indicators of public debt, GDP, consumption, interest rate, unemployment and government spending of Greece.

According to the Granger test results (table 1) all the indicators would have the causality connection with public debt $DEBT_t$, but rather weak causality effect is observed of the public debt $DEBT_t$ on unemployment $UNEMPL_t$, and for interest rate $RATE_t$ and debt in the long run.

Consumption $CONS_t$ has causality effect the debt as well as a reverse effect is observed, while the hypothesis about the lack of causality between government expenditure G_t $DEBT_t$ can be discarded at the level of statistical significance of 5%. There is an evidence of mutual influence of causality between GDP and government debt.

For a meaningful characteristics of the impact of government debt on GDP, consumption, interest rate, unemployment and government spending we used the following regression model (5-9). The results showed the rejection of the hypothesis of autocorrelation of the residuals. In all equations except the equation of the impact of debt on consumption the adjusted coefficient of determination R^2 is in the range 89-98%.

$$GDP_t = 1,988 + 0,603GDP_{t-1} + 0,189DEBT_{t-1} - 0,143RATE_t - 0,078UNEMPL_t,$$
$$(6,307^*) \quad (2,980^*) \quad (-3,291^*) \quad (-2,707^{**})$$
$$R^2 = 0,99 \qquad (5)$$

where R^2 –adjusted coefficient of determination.

From the results of the regression analysis (5) it is implied that an increase in public debt $DEBT_t$ by 1%

Table 1

Granger Test for $DEBT_t$, G_t, GDP_t, $CONS_t$, $RATE_t$, $UNEMPL_t$ of Greece (quarterly data)

Гіпотеза	Lags			
	1	2	3	4
G_t does not affect $DEBT_t$	1,468 (0,234)	1,133 (0,335)	3,242 (0,036**)	1,790 (0,161)
$DEBT_t$ does not affect G_t	17,018 (0,000*)	5,990 (0,006**)	2,858 (0,054***)	1,081 (0,386)
GDP_t does not affect $DEBT_t$	5,659 (0,023**)	2,250 (0,122)	7,225 (0,000*)	4,774 (0,005*)
$DEBT_t$ does not affect GDP_t	0,137 (0,713)	3,308 (0,049**)	2,306 (0,098***)	1,515 (0,227)
$CONS_t$ does not affect DEBTt	3,446 (0,072**)	3,957 (0,029**)	2,412 (0,087***)	1,899 (0,141)
$DEBT_t$ does not affect $CONS_t$,	9,765 (0,004*)	5,558 (0,008*)	4,451 (0,010*)	1,459 (0,243)
$RATE_t$ does not affect $DEBT_t$	1,095 (0,303)	0,544 (0,586)	6,185 (0,002*)	4,081 (0,010**)
$DEBT_t$ does not affect $RATE_t$	0,111 (0,741)	0,661 (0,523)	0,847 (0,479)	0,892 (0,483)
UNEMPLt does not affect $DEBT_t$	3,026 (0,090***)	4,567 (0,017**)	3,681 (0,023**)	2,263 (0,079***)
$DEBT_t$ does not affect $UNEMPL_t$	8,506 (0,006*)	1,098 (0,345)	1,730 (0,182)	1,359 (0,275)

Note: In parentheses are given p-criteria and statistical reliability (* – 1%, ** – 5%, *** 10%)
Source: the author's own calculations based on [18]

increases GDP by 0.19%. This could be explained by the fact that the loans are taken in the international monetary institutions and banks to stabilize and maintain the sustainable development of the economy and the state. The country increases social spending and at the same time improves living standards and GDP grows.

$$CONS_t = -0{,}247 + 0{,}168CONS_{t-1} + 0{,}551DEBT_t,$$
$$\qquad\qquad (0{,}867) \qquad (2{,}771^*) \qquad\qquad (6)$$
$$R^2 = 0{,}47$$

According to the regression analysis (6) the increase in government debt by 1% increases the household consumption $CONS_t$ by 0.55%. This relationship could be explained the same as the previous one – the bank loans are usually directed to maintain the growth of private consumption.

$$G_t = -0{,}312 + 0{,}426G_{t-1} + 0{,}496DEBT_{t-2},$$
$$\qquad\quad (2{,}571^{**}) \qquad (2{,}914^*) \qquad\qquad (7)$$
$$R^2 = 0{,}89$$

From the results of the regression analysis (7) implies that the increase in external debt by 1% increases the government expenditures G_t by 0.49%. This situation is quite predictable as in order to maintain the debt, the expansive fiscal policy instruments were used leading to taxes increasing and spending reduction.

$$UNEMPL_t = -0{,}9016 + 0{,}9916UNEMPL_t(-1) + 0{,}460DEBT_t - 0{,}482GDP_t,$$
$$\qquad\qquad (15{,}434^*) \qquad\qquad (4{,}115^*)(-3{,}312^*)$$
$$R^2 = 0{,}92 \qquad\qquad (8)$$

The results of regression analysis (8) show that an increase in public debt by 1% increases unemployment $UNEMPL_t$ by 0.46%. As in a economy that works like a single organism, the measures carried out after obtaining foreign loans, do affect all the fields systematically. The increased debt burden makes the government to raise tax rates, but it has a particularly negative impact on SMEs, which, unlike corporations, have no opportunities for efficient tax management. Therefore, a decline in real wages caused by rising of external debt, makes a significant number of employees exempt from work. Choosing between unemployment benefits and free time on the one hand, and full-time employment and low income – on the other, they usually choose the first.

$$RATE_t = 0{,}355 + 0{,}821RATE_t(-1) + 0{,}211DEBT_t - 0{,}298G_t,$$
$$\qquad\qquad (9{,}242^*) \qquad (1{,}953^{***}) \quad (-2{,}784^*) \qquad (9)$$
$$R^2 = 0{,}93$$

From the results of the regression analysis (9) implies that an increase in public debt by 1% increases exchange rate $RATE_t$ by 0.21%, what is actually causes the price effect. Also, there is a strong dependence of the dependent variable from its own lagged values.

In order to verify the robustness of the 2SLS results we used the model of vector autoregression (VAR). The estimation of the relationship between the public debt, GDP, exchange rate, unemployment rate and public expenditures. In order to test the stationary check we use the Augmented Dickey-Fuller Unit Root Test (ADF). The ADF test results indicate that the variables are stationary in the first differences (Table 2).

Table 2

Variables	Level	1st difference
$CONS_t$	-0,3212	5,8278*
$DEBT_t$	-0,8620	3,6929*
GDP_t	-1,5757	6,0725*
G_t	-0,2590	6,6682*
$RATE_t$	-2,0953	4,5847*
$UNEMPL_t$	-0,7973	2,7264(***)

Source: the author's own calculations based on [18]

In order to test the cointegration between parameters of five groups the Johansen test was implemented (Table 3).

As the test for long-run cointegration rejected the null hypothesis of the existence of at least one cointegrating among the dependent variables, the use of VAR model is suggested (10):

$$y_t = \sum_{i=1}^{n} A_i y_{t-i} + B x_t + \varepsilon_t,$$

where y_t is a vector of dependent variables, x_t is a vector of independent variables, A_i is matrix of coefficients for the dependent variables, B is matrix of coefficients for independent variables, ε_t is a stochastic factor.

Table 3
Johansen test for *DEBTt, RATEt, UNEMPLt, GDPt, Gt, CONSt*

The amount of equations	Lags				Critical indicators	
	1	2	3	4	5%	1%
DEBTt, RATEt, UNEMPLt, GDPt						
0	39.13306	75.50262	82.92908	96.28154	47.21	54.46
1	21.66716	33.55449	31.17714	49.14485	29.68	35.65
2	9.174384	13.62661	18.37705	25.56878	15.41	20.04
3	4.094871	4.319671	5.944698	9.252830	3.76	6.65
DEBTt, RATEt, Gt, CONSt						
0	34.73452	38.25822	33.82570	58.63629	47.21	54.46
1	18.18343	18.98927	19.32024	33.26596	29.68	35.65
2	9.569494	8.668262	7.362796	11.25112	15.41	20.04
3	2.935861	3.739445	3.127778	1.559133	3.76	6.65

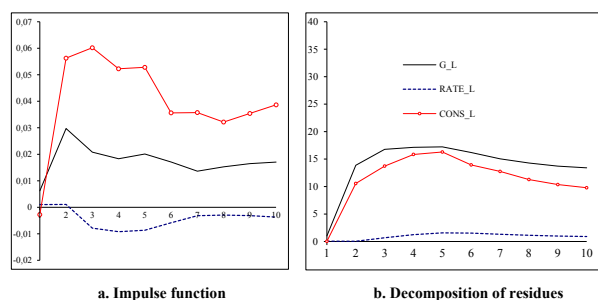*Source: the author's own calculations based on [18]*

VAR model deliver characteristics of short-term dynamics of dependent variable (first differences) with the consideration of its own lags values as well as values of other dependent variables, relative long term (or cointegrative) relationships and independent variables. VAR provides more complete characteristics of functional relationships including causality, change in time and influence among a few interrelated factors (Cherkas N., 2006).

According to the results of VAR (fig. 4), we can confirm the positive influence of the public debt of Greece on the exchange rate and unemployment in the third period. The weight of unemployment rate in the decomposition of residuals is the largest and gradually increases to about 40%, while the share of GDP is about 10%. The results of the analysis by the method of vector autoregression are consistent to the 2SLS estimates above.

a. Impulse function   **b. Decomposition of residuals**
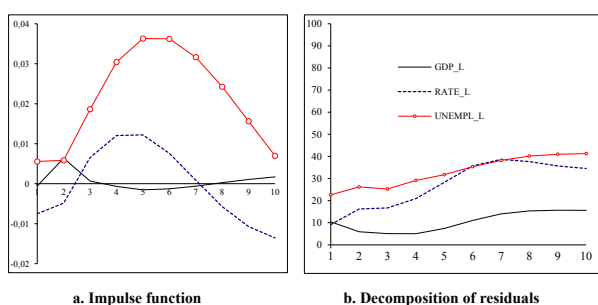
Source: the author's own calculations based on [18]
Fig. 4. Impact of government debt to GDP, exchange rate and unemployment (Model VAR)

As between the variables of government expenditures, exchange rate, consumption and public debt there is a cointegration, we use the model of VEC (fig. 5). This model brings out a description of the short term dynamics of the dependent variable (first differences) based on its lagged values and the other dependent variables, as well as the relevant long-term (or cointegrating) relations and independent variables.


a. Impulse function   **b. Decomposition of residues**

Source: the author's own calculations based on [18]
Fig. 5. Impact of government spending on external debt, exchange rate and consumption (VEC)

Using the autoregressive error correction model, we obtain the following results: growth of external debt leads to increase in expenditures, and therefore, in consumption. The currency depreciates because of public debt growth. The share of household consumption in the decomposition of

residuals is the largest (35%) and expenditures is 30%. As for the exchange rate it is about 1% and does not grow in the next periods.

Having identified a long-term relationship between the variables (method of least squares and vector autoregression), further we apply the Kalman filter approach to analyze the dynamics of flexible coefficients. The Kalman filter is a recursive algorithm to express dynamic systems (Cherkas N., Shevchuk V., 2008).
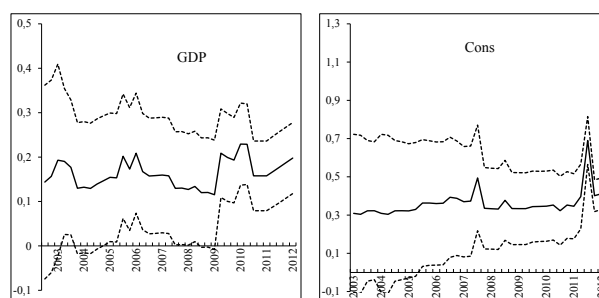
Source: the author's own calculations based on [18]
Fig. 6. Impact of government debt to GDP and consumption (Kalman filter model)

Empirical results of Kalman filter for the GDP and consumption (fig. 6) are in accordance with previously used statistical models and show the impact public debt throughout the period of research.
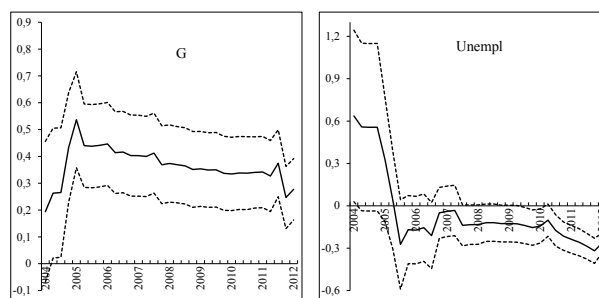
Source: the author's own calculations based on [18]
Fig. 7. Impact of debt on government spending and unemployment (Kalman filter model)

The impact of debt on government spending and unemployment by the Kalman filter model (Fig. 7) show the results which corresponds with two previous models. The government expenditures have increase the public debt whereas unemployment impacts negatively.

Thus, the results of the above used methods (method of least squares, vector autoregression method and the Kalman filter model) are summarized as follows: 1) the growth of public debt in Greece increases the values of consumption, GDP, government expenditures and exchange rate; 2) it is revealed that the debt decreases unemployment rate.

5. Conclusions

The main conclusion to be drawn out, that without any doubt, the crisis in Greece had started much earlier than the world one. The combination of corruption and

inefficient use of budget funds even in the most developed economies would lead to financial ruin, not to mention the Greece. It is clear that the peculiarities of the Greek mentality together with unstable economy had developed into a deep debt crisis. As Greece is unable to pay its debts independently, it pulls a sufficient amount of financial institutions into the same debt hole for several decades.

Through research performance Greece revealed the relationship between indicators of public debt, consumer expenditures, GDP, exchange rate and unemployment in Greece. It was established that the debt has quite a strong effect on the main macroeconomic indicators of the Greek economy. Therefore, the Greek authorities should consider the effects of chronic borrowing in international financial institutions as Greece is not able to service the debt. It could be concluded that external borrowing in Greece were directed not for their original purposes – while the money should be used in the industry, or for the other prospects for economic growth, they were actually used for consumption.

Thus, regarding the diversity and peculiarities of different countries of the Eurozone, for solving the problems which led to the financial crisis, the approach based on the opportunities of the economies must be used. Policies that can help, for example, Portugal and Spain, will not have such an effect on Italy, and especially on Greece. Therefore it is particularly important to select the appropriate macroeconomic tools to improve the situation of national economies.

References

Byba, V., Mishchenko, R. (2011) Analysis of possible ways to overcome the debt crisis in the euro area. [Electronic resource]. – Mode of access: http://www.pdaa.edu.ua/sites/default/files/nppdaa/4.2/063.pdf.

Cherkas, N. (2006) Technologicalexport and dynamics of the economic growth in Ukraine. International Economic Policy: Science. Magazine,4, 5-28.

Cherkas, N., Shevchuk, V. (2008) Effect of exchange rate and import dynamics of exports, Ukraine. Regionalna Economika, 2: 34-43.

Evtukh, O., Evtukh, O., Sitovska, L. (2011) Current mortgage crisis: financial and legal aspects. Scientific notes Tauride National University named after Vernadsky V. Series: Law, Volume 24 (63), 1: 126-135.

Koltashov, V. (2011) Nespokoynaya Gretsyja. [Electronic resource]. – Mode of access: http://igso.ru/articles.php?Article_id=88.

Shevchuk, V. (2008) International Economics: Theory and Practice, Lviv: Kamenjar, 1-663.

Monitoring of anti-crisis measures and mechanisms to overcome the financial crisis in January-April 2009. [Electronic resource]. – Mode of access: http://www.uf.org.ua/additional/1599198_antikr14.04.09.pdf.23.

Abdelmavla and Mohammed (2005)The impact of External Debts on Economic Growth: An Empirical Assesment of the Sudan:1978-2001. Eastern Africa Social ScienceResearch Review, 21 (2): 53-56.

Amouteng, K., Amoako-Adu, V. (1996) Economic growth, export and external debt causality: the case of African countries.AppliedEconomics 28 (1), 21-27.

Bachheit, L., Gulati, G. (2011) Greek debt – the Endgame Scenarios. New York Office at Duke University, Faculty of Law, 1-13.

Dritsaki, C. (2013) Causal Nexus between Economic Growth, Exports and Government Debt: The case of Greece. Procedia : Economics and Finance, 5: 251–259.

Gulati, M., J. Zetlmeyer (2012) Engineering an Orderly Greek Debt Restructuring. European Bank for Reconstruction and Development and CEPR, 29 January 2012, 1–11.

Karagol (2002) The Causality Analysis of External Debt Service and GNP: The case of Turkey "Central Bank Review, 2(1): 39-64.

Mateus, A. (2009) After the crisis: reforming financial regulation. University College of London College, November 12: 1-24.

Missio, C., Vatska, C. (2001) Financial infection and the European debt crisis. Sesayfo Working Paper: Monetary policy and international finance, 3554 (7), 1–33.

Ouyang, A., Rajan, R. (2014) What determines externaldebt tipping points? Journal of Macroeconomics, 39: 215–225.

Saad, B. (2012) Causality between economic growth, export and external debt: Lebanon. International Journal of Economics and Finance, 4 (11): 134–143.

The International Monetary Fund [Electronic resource]. – Mode of access: www.imf.org.

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ЭКОНОМИЧЕСКИЕ ПОСЛЕДСТВИЯ ВНЕШНЕЙ ЗАДОЛЖЕННОСТИ ГРЕЦИИ

Аннотация. Целью роботы является исследование влияния роста внешней задолженности на социально-экономические показатели Греции: ВВП, потребление, процентную ставку, безработица и правительственные расходы. На основании данных за период 2001-2014 гг., Использованы следующие **методы**: регрессионный анализ, векторная авторегрессия и модель фильтра Кальмана. **Результаты.** Выполнено разносторонний анализ долговой ситуации в странах-членах Евросоюза в целом и Греции в частности. Разработана структурно-логическая схема событий и деятельности власти, предшествовавших наступлению преддефолтного состояния в экономике Греции. Предложены средства и методы для выхода греческой экономики из кризиса. **Практическое значение.** Определение всех слабых сторон и эмпирическое тестирование необходимых показателей в ходе данного исследования стало основой для обоснования мероприятий по стабилизации экономической ситуации в Греции. **Значение/оригинальность.** Впервые использована модель Мандела-Флеминга и баланса сбережений-инвестиций для теоретической интерпретации характера долгового кризиса в Греции, в результате чего выявлено, что под влиянием притока капитала произошло ухудшение сальдо текущего счета и снижения процентной ставки, а увеличение внешних заимствований привело к росту дефицита бюджета и уменьшению сбережений. Также впервые осуществлено регрессионно-корреляционный анализ, в частности использовано фильтр Кальмана для исследования влияния долга на макроэкономические показатели греческой экономики.