

*European Economy*

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**EXTERNAL DEBT
OF THE EUROPEAN UNION COUNTRIES
AND UKRAINE WITHIN THE SUSTAINABLE
DEVELOPMENT COORDINATES****Abstract**

Existing scientific research works regarding external debt had been analyzed. Analysis of the positions of Ukraine and European Union countries on the coordinates of the Quality of life index, Safety of life index, and Sustainable development index grids has been conducted based on the 2012 data with consideration of the external debt of the respected countries. It has been proved that the European Union countries with substantial amount of external debt present somewhat better results in Quality of life index than they do in Safety of life index. A high level of Quality of life index has been noted among the majority of the EU countries along with significant amount of the external debt per citizen. The presence of the the «gravity» effect has been proved for the neighboring countries, which has been reflected by similar values of the complex indicators, quality of life and safety indexes. High value of the correlation coefficient between the Economic dimension index and Sustainable development index has been revealed; this also proved external loans as influence on better performance of the values of both of the indexes.

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European Union, external debt, Quality of life index, Safety of life index, Economic dimension index, Sustainable development index.

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General formulation of the problem and its connection to important scientific or practical objectives. External loans are a worldwide-accepted means of support and development of national economics. National debt is formed by the emergence of the liabilities that follow taking out credit from foreign countries, international organizations and financial banking institutions, carrying out state loans on international financial markets and national external securities regarding private entities' debts coming into effect (Oparina, 2009). Gross external debt also acts as one of the mechanisms of increasing the level of quality of life of the people of a country. Its level (gross value and per capita value) and the expediency of its use are defined by the significant current macroeconomic indices though. On the other hand, the consequences of the «debt loop» can turn out as unexpected for the country.

The topicality of stated problem for national economy is precisely confirmed by the fact that as on the July the 1st, 2013, gross external debt has been estimated as 134,4 billion USD (National Bank of Ukraine), and the GDP of the first half-year of the 2013 (National Bank of Ukraine) was estimated as 653,5 billion UAH. Through the extrapolation onto the current year, we get GDP of $2 \times 653,5 = 1307,0$ billion UAH. The GDP may gain the value of over 160 billion USD if presented in dollars equivalent. In this case we get the gross external debt of approximately 80% to GDP (under condition that these indicators stay unchanged during the current year).

The analysis of the latest research and publications, which initiated the resolution of this problem and which the author is taking as a basis, determination of the previously unsolved elements of the entire problem, to which this article is being dedicated. National debt is formed by the emergence of the liabilities that follow taking out credit from foreign countries, international organizations and financial banking institutions, carrying out state loans on

international financial markets and national external securities regarding private entities' debts coming into effect (Oparina, 2009). External debt obligations within the system of world finance and economic relations are duly described in (Vakhnenko, 2006). Ukrainian Budget Code states that «debt promissory – is a borrower's liability to the lender for a credit (loan), that emerged as a result of loan securities emission and/or loan agreement settlement» (Budget Code of Ukraine, 2010).

Systematic research in the external loans domain has been in the active scientific pursuit since the 1998 economic crisis. This resulted in the Russian monograph (Golovachev, 1998) appearing in the early 2000, Ukrainian works (Kozyuk, 2000; Zaverukha, 2006) of the latter period, modern scientific studies having been developed based on the Eurozone crisis (for example, in Greece (Petraakis, 2012)).

In short-term perspective, engaging financial resources may be regarded as rather effective means of temporary cover of the budget deficit, balance of payments and as a solution to other prevailing present problems of national economy (Helpman, p. 24). In long-term perspective, «living in debt» usually proves itself as an unfavorable means of supporting countries' economies and, a fortiori, the aforementioned shall not contribute to their development, to wit, shall interfere with the GDP growth, realization of the export potential etc. At the worst, it may cause negative consequences such as default of a country.

Note, that a tendency to a growing dependence of debtor countries from external loans is being monitored since new loans are being given out in line with the presence of the previous unpaid credit obligations; cases of debt restructuring are being observed. That is, ineffective application of the external loans mechanism may lead to so called «promissory development», which implies the necessity to constantly «pour in external loans» in order to continuously uphold the economies of the countries with funds, that are directed on solving short-term problems.

One of these problems is debt repayment for the credit «body» payment and its interest. In some cases the funds are engaged in the form of a credit in order to repay that very credit. And this, in the first place, settles current liabilities of a specific country, while the matters of strategic tasks funding remain unresolved. That is, the amount of future debt shall exceed the country's ability to maintain it. And the due debt service expenses shall be in the way of the ensuing national and foreign investments (Paul R. Krugman, 1988; Sachs, 1989), which, hence, further hampers the economic growth and the debt liabilities repayment feasibility.

The unresolved part of the problem is that engaging external loans is, on one hand, means of the country's development, raising its certain macroeconomic indices and as a result, the quality of life of its people, and, on the other

hand, a possibility of acquiring negative consequences under specific circumstances of irrational utilization of the funds engaged.

Formulating the aims of the article (mission definition). The hypothesis is being proposed that there is a solid connection between the debt obligations and indexes and indicators of sustainable development, which hence has caused the statement of the corresponding missions.

The mission of the given article is: investigation of the location of Ukraine and the countries of the European Union within the coordinates of the Quality of life index, Economic dimension index, Sustainable development index and External debt index (gross and per capita). The statements expressed have been based on the analysis of the countries' positions in the coordinates of the forenamed index and indices and the mutual positions of the countries. The array for the study was formed built upon the databases of the World data centre of geoinformatics and sustainable development (World data centre of geoinformatics and sustainable development), World Bank (World Bank official website) (for the EU countries) and (National Bank of Ukraine) (for Ukraine).

The methodological basis of the research is a complex approach to aggregation of macroeconomic and integral indexes that characterize objects such as countries in order to collate their positions according to the chosen indices and index. In order to determine the level of similarity of the countries the method of determining the distance between the points through the

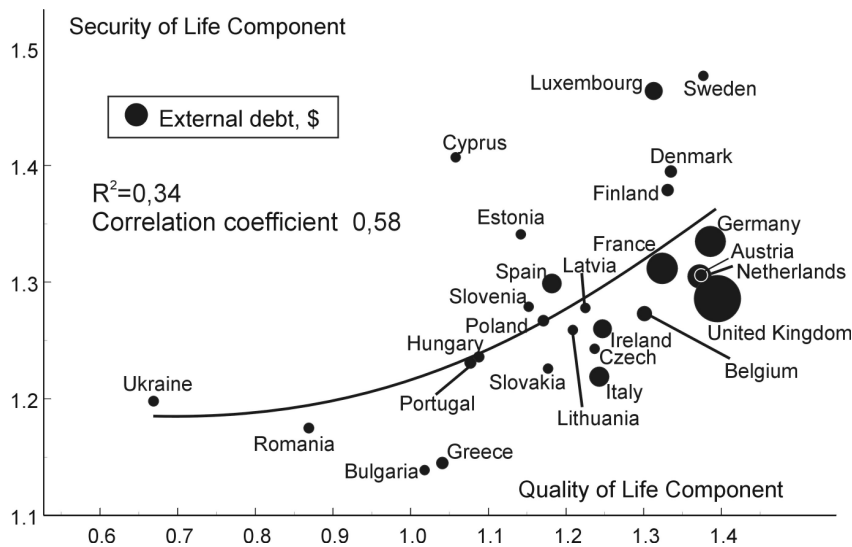
$S_{ab} = \sqrt{(I_{QLa} - I_{QLb})^2 - (I_{SLa} - I_{SLb})^2}$ formula has been chosen. With the smaller values of S_{ab} one gets a higher similarity between the a and b countries within certain coordinates of the sustainable development indexes and indicators.

Systematic approach is used to determine the regularities in the allocation of the countries according to the chosen indices in the determined coordinates. The core conditions are provided in (Sustainable development analysis – global and regional contexts, 2010, pp. 9–11), in which the methodology of the sustainable development evaluation in context of the quality and safety of human life is duly stated.

The prime research material statement along with full justification of the acquired scientific results. The allocation of the European Union countries and Ukraine on the coordinate planes of the Quality of life index and the Safety of life index according to the year 2012 data is presented on figure 1. Graphic circle space additionally denotes the amount of the external debt for the countries hereinafter.

Figure 1

Visualization of the allocation of the European Union countries on the coordinate grid of the Quality of life index, Safety of life index and the amount of the external debt (according to the year 2012 data)
(World data centre of geoinformatics and sustainable development; World Bank official website; National Bank of Ukraine)



Based on the results of the countries' position analysis within the coordinates determined above, we get somewhat divergent groups. Note, that Ukraine is significantly distant from other European Union countries in the matter of Quality of life index. On the other hand, it outranges Bulgaria, Greece and Romania in regards of the Safety of life index. It is worth mentioning that the countries with significant amounts of external debt obtain much better positions within the Quality of life index in comparison to the Safety of life index. It is explained by the fact that external loans are directed towards providing the needs of infrastructure, which raises the level of quality of life of the people of the country. Thereafter, external liabilities are responsible for a certain downturn of the economic safety level, hence the Safety of life index.

Note that Greece and Cyprus are on the same level in terms of the Quality of life index. However, the Safety of life index distances the two on a significant scale (according to the index value – it is approximately 0, 25). In this case it has to be taken into consideration that the data is collected for the year 2012 and in

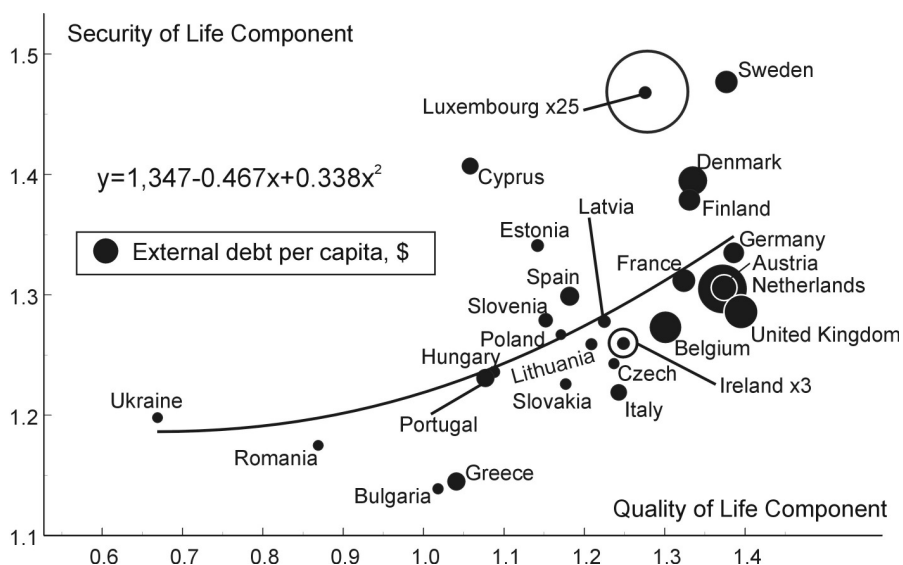
that period Greece has already been in the state of a crisis for quite some time, while Cyprus has experienced this crisis state only after March 2013. It is worth mentioning that Greece is neighboring Bulgaria, which already lives an ongoing crisis that took its expansion in rallies of March and July 2013.

It has to be noted that the Benelux (Belgium, Netherlands, Luxemburg) and the Baltic (Latvia, Lithuania, Estonia) countries are densely situated on a narrow value section within the Quality of life index. European countries, that constitute the G7 (Great Britain, Italy, Germany, France) are also densely grouped within the two given indexes. These exact G7 countries are the ones with significant amounts of external debt.

For a more meticulous examination of the consistent patterns of the countries' allocations within the coordinates of the Quality of life index and the Safety of life index, a visualization (figure 2) including the composite indicator – external debt per capita – has been elaborated.

Figure 2

Visualization of the European Union countries' positions on the coordinate grid of the Quality of life index, Safety of life index, and the amount of the external debt per capita (according to the year 2012 data)
(World data centre of geoinformatics and sustainable development; World Bank official website; National Bank of Ukraine)



According to the analysis of the allocation specifics of the countries in the coordinates chosen (given the composite indicator per capita) one should outline certain consistent patterns. Thus, it is distinctly signified that the majority of the countries with substantial external debt per capita possess a high Quality of life index level. Over 1,24 in Italy with max of 1,48 in Switzerland (the latter is extracted from the visualization since it is not a European Union member). This being said, it has to be added that this countries also comprise a group of high level Safety of life index (from 1,22 for Italy to Sweden – 1,48, with a maximum of 1,53 for Australia).

Thus, according to the results of the analysis, it has to be noted that: external loans have enabled the majority of the European Union countries to acquire high levels of both quality and safety of life. However, certain countries, possessing mediocre external debt per capita values (Cyprus and Greece), have chiefly entered a state of crisis, which has been reflected on socio-economic stability of these countries. Countries which possess relatively low external debt per capita values are mainly located in the «centre» of the given coordinate grid. These include Latvia, Lithuania, Estonia, Slovenia, Poland, Czech Republic, Slovakia, and Hungary. Somewhat «remote» positions are held by countries such as Romania, Bulgaria and Ukraine. By the way, Romania and Bulgaria have entered the European Union only in 2007. Approximately the same level of the Safety of life index does Ukraine hold with these countries.

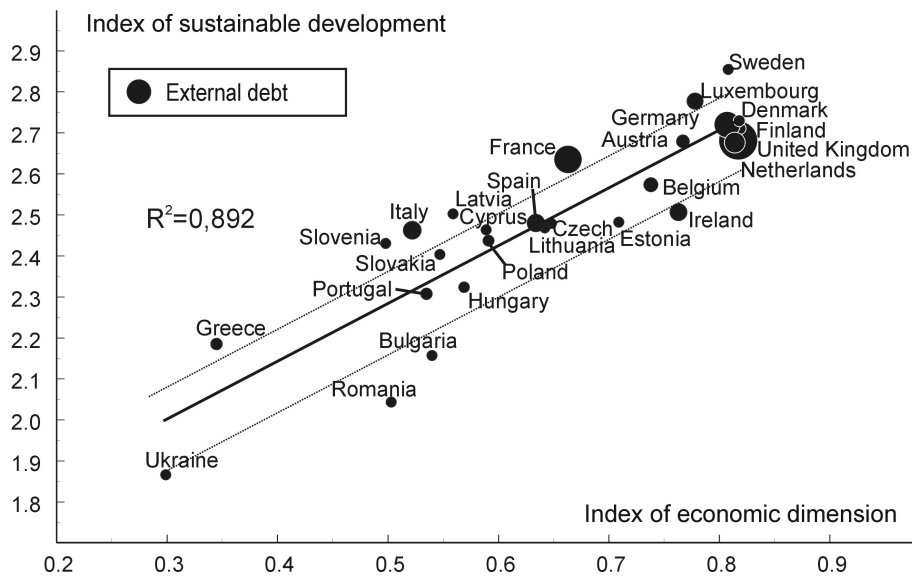
Note, that the obvious «gravity effect» can be observed, which proves that the neighboring countries are close to each other not just through geographical aspects and sharing the same borders, but also through similar values of the composite indicators: Quality of life index and Safety of life index. For Ukraine, indices values-wise neighboring countries are Bulgaria and Romania, for Czech Republic and Slovakia – Poland, Germany is close to France, Sweden and Finland hold Denmark in between index coordinates-wise etc. The Benelux and Baltic countries have already been discussed above.

The generalization of the economic, social and ecological elements, which reflect the components of quality and safety of life, is conducted with the help of sustainable development methodology. This kind of generalization is reflected in the value of the Sustainable development index. For the European Union countries and Ukraine the allocation of the countries within the coordinated of the Sustainable development index is presented on Figure 3.

Analyzing the allocation of the countries on the given coordinates used in the study, it has to be noted that all the points are «built» in the narrow corridor ($\pm 0,5$ from the min/max of the trend) towards the ascending indexes. Thus the countries possess a significant level of influence of the economic element on the Sustainable development index; the correlation coefficient for these countries within given indicators is estimated 0,892. As for the amount of the external debt, notice that the countries with the substantial debt amount can boast better values of both indexes. The aforementioned is further manifested when presenting the amount of the external debt per capita, figure 4.

Figure 3

The allocation of the European Union countries and Ukraine on the coordinate grid of the Economic dimension index, Sustainable development index, and the amount of the external debt (according to the year 2012 data) (World data centre of geoinformatics and sustainable development; World Bank official website; National Bank of Ukraine)



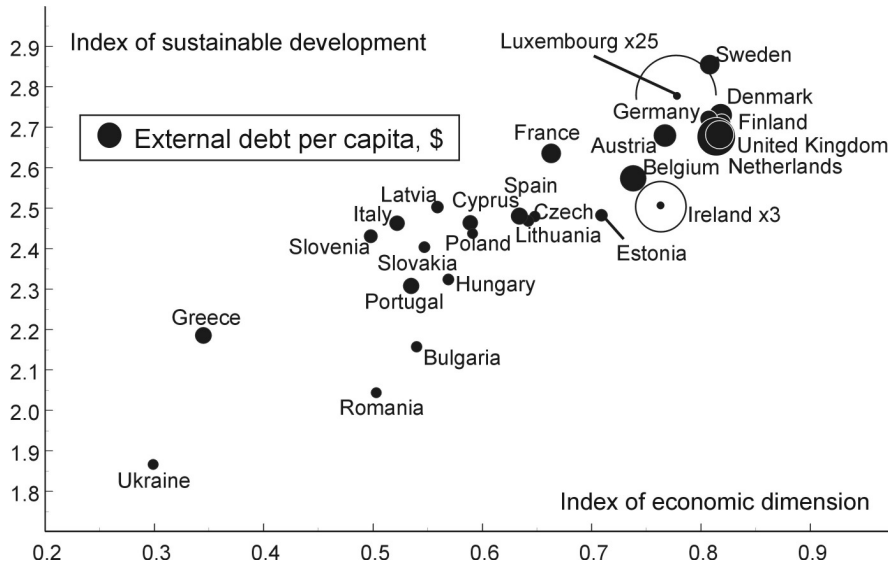
Regarding the Economic dimension index, all of the countries, starting with France and except for Estonia, show higher values of the index indicator. They also present a significant amount of external debt per capita. However, France appears to be the «central» state among the biggest debtors of the European Union according to the Sustainable development index.

In order to define the peculiarities in regards to the amount of the external debt per capita and the Sustainable development index, fig. 5 presents the visualization that shows the absence of any significant relation of the amount of the external debt per capita to the Sustainable development index among the stated countries.

Figure 4

The allocation of the European Union countries and Ukraine on the coordinate grid of the Economic dimension index, Sustainable development index, and the amount of the external debt per capita (according to the year 2012 data)

(World data centre of geoinformatics and sustainable development; World Bank official website; National Bank of Ukraine)



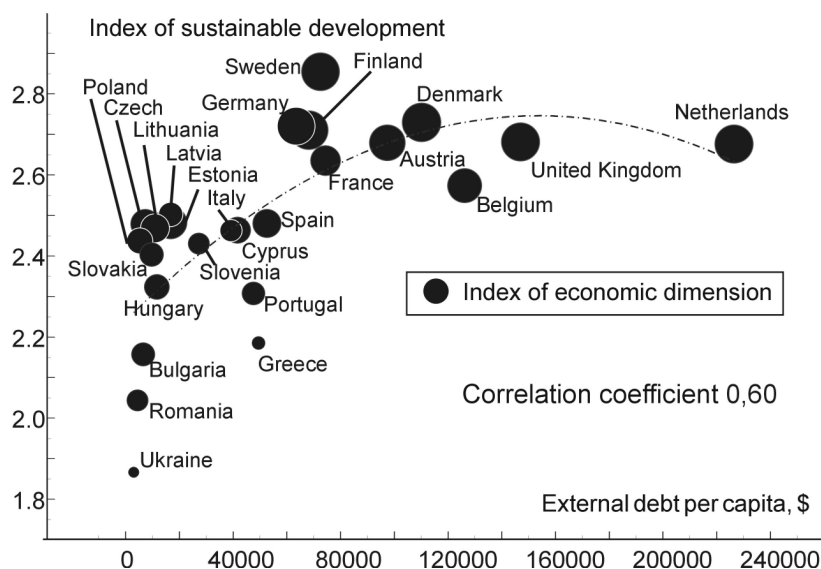
But, according to the «density» of the big circles in the top section (the significant level of Sustainable development), it can be once again confirmed that the economic component in particular defines the sustainability of the countries' development, and the fact that the bigger circles are allocated in the top center and top right section reflects that significant amounts of external debt per capita provide the country with economic development.

Fig. 6 visualizes the allocation of the European Union countries and Ukraine on the coordinate grid of the Sustainable development index. The external debt scale is presented in the logarithmic caliber for visibility purposes.

Figure 5

The allocation of the European Union countries and Ukraine on the coordinate grid of the Sustainable development index, and the amount of the external debt per capita, the Economic dimension index has been additionally provided (according to the year 2012 data)

(World data centre of geoinformatics and sustainable development; World Bank official website; National Bank of Ukraine)

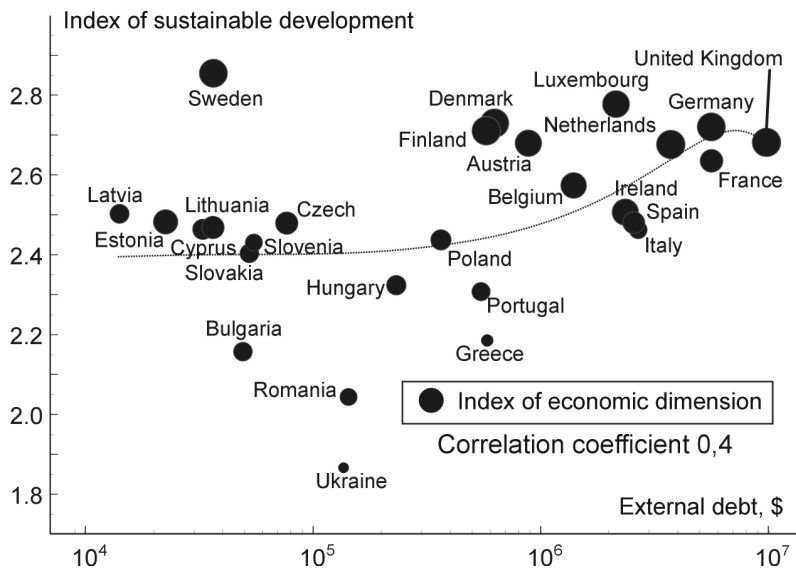


Exactly through the analysis of such an allocation of the countries in the expanse of external debt (absolute value per country) and the Sustainable development index, the possibility to evaluate, with minor correlation coefficient level, the impact on the development of foreign loans of the European Union countries, which specifically belong to the «Great Seven»: Great Britain, Germany, France and Italy. The aforementioned countries possess the highest levels of external debt.

Thus, for the dynamically developing on a global scale union of countries, the European Union, it is worth noting that, for this group, external loans are the key to success in economic development and in Sustainable development index development.

Figure 6

The allocation of the European Union countries and Ukraine on the coordinate grid of the Sustainable development index, and the amount of the external debt, the Economic dimension index has been additionally provided (according to the year 2012 data)
(World data centre of geoinformatics and sustainable development;
World Bank official website; National Bank of Ukraine)



Conclusions from this study and perspectives for further research in the area. So, abstracting the aforementioned, let us outline the following:

1. Based on the 2012 values of Safety and Quality of life indexes it has been proved, that the countries of the European Union with significant amount of external loans have had much better indicators of the Quality of life index compared to the Safety of life index. The aforementioned is explained by the fact that the borrowed funds are directed towards the quality of life enhancement, with subsequent recession of the economic safety and hence – the value of the Safety of life index.

2. Under the use of the given indicator it is noted that the majority of the European Union countries with significant amount of external debt per capita possess a high level of the Quality of life index.

3. Based on the review of the mutual allocation of the countries within the given coordinates, «gravity» effect has been proved present and has subse-

quently confirmed that the neighboring countries have similar values of the composite indicators, quality and safety of life indexes.

4. During application of the complex composite indicator that comprises economic, social and ecological components (Sustainable development index), a rather high correlation coefficient (0,892) of the index mentioned with the Economic dimension index has been determined and it has been proved that external loans benefit the upturn of both indexes.

5. Based on the results of the allocation of the European Union countries and Ukraine on the coordinate grid of the Sustainable development index and the amount of the external debt it has been proved that the countries of the European Union that belong to the «Great Seven» possess the highest levels of external loans in absolute values and are simultaneously characterized by a high Sustainable development index.

Scientific innovation: methodical approach to determining the influence of external loans (gross external debt) on the allocation of the countries within the coordinated of the Quality of life index, Safety of life index, Economic dimension index, Sustainable development index and the amount of the given debt (gross value and per capita) in order to compare the positions of the countries with regard to the indicators and indexes above.

Practical significance of the research results: the application of the results obtained reveals the potential of utilizing external loans in order to increase the Quality of life, Economic dimension and Sustainable development indexes and, possibly, decrease the safety of life index for the European Union countries and Ukraine.

Areas for further research: it is important to determine the functional relations of the amount of external debt influence on the characteristics of the dynamic effects, that are possible for the values of Quality of life index, Safety of life index, Economic dimension index and Sustainable development index given the stability of the economies of these countries.

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