Martin Gress[1]

IS UKRAINE READY FOR THE OECD MEMBERSHIP?*

The OECD, bringing together 34 economies geographically covering almost all continents of the world, was established in September, 1961 and is known as the "Club of the Rich". Regarding Ukraine, in July, 2013 the Prime Minister M. Azarov announced the intention of the country to join the organization. The aim of this paper is to analyze the status of Ukraine's economy and the economies of OECD member states. Based on the results, we try to formulate the measures in the macroarea to ensure and promote convergence of Ukraine's economy with the economies of OECD members.

Keywords: *current account; GDP growth; inflation; OECD; Ukraine; unemployment.*
JEL Classification: C38, E24, E31, O40.

Мартін Грес

ЧИ ГОТОВА УКРАЇНА СТАТИ ЧЛЕНОМ ОЕСР?

У статті показано, як ОЕСР, заснована у вересні 1961 р., зібрала в собі 34 досить різні економіки на практично всіх континентах, і таким чином стала т.зв. «клубом заможних». У липні 2013 р. прем'єр-міністр України М. Азаров заявив про намір України приєднатися до ОЕСР. У такому контексті проаналізовано статус економіки України в порівнянні з економіками країн-членів ОЕСР. Спираючись на результати аналізу, представлено макрозаходи, що можуть сприяти адаптації української економіки та її наближенню до показників членів ОЕСР.

Ключові слова: *національний баланс рахунків; зростання ВВП; інфляція; ОЕСР; Україна; безробіття.*
Рис. 2. Табл. 5. Літ. 18.

Мартин Грес

ГОТОВА ЛИ УКРАИНА СТАТЬ ЧЛЕНОМ ОЭСР?

В статье показано, как ОЭСР, основанная в сентябре 1961 г., собрала в себе 34 различные экономики на практически всех континентах, и стала т.н. «клубом богатых». В июля 2013 г. премьер-министр Украина Н. Азаров объявил о намерении Украины присоединиться к ОЭСР. В связи с чем проанализирован статус экономики Украины по сравнению с экономиками стран-членов ОЭСР. Основываясь на результатах анализа, представлены макромеры, которые будут способствовать адаптации украинской экономики и её приближению к показателям членов ОЭСР.

Ключевые слова: *национальный баланс счетов; рост ВВП; инфляция; ОЭСР; Украина; безработица.*

Introduction. Ukraine officially intends to become one of the OECD members as proposed by the Ukrainian Prime Minister M. Azarov during the visit of F. Lombardi, the president of the Council of States of Federal Assembly of Switzerland, in Kyiv (Government portal, 2013). Ogutcu and Kinach (2002) assessed the potential of Ukrainian economy to become one of the OECD members. The first steps of joining the OECD were in 2006, when Economics Ministry was placed in charge of strengthening the cooperation with the OECD with possible moves towards full membership (Government portal, 2006). Concerning the accession to the OECD, steps and proposals for full membership were articulated by official represen-

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tatives of Ukraine as mentioned in Government portal (2007, 2009, 2010, 2011, and 2012). By opening the accession negotiations Ukraine committed itself to improving the nation's economy in the future in order to reach the level of other OECD member states. One of the areas, where the OECD concludes improvements in Ukrainian economy is the field of competition law and policy as stated in "Country Review: Ukraine" (2011), even though there remain some weaknesses in the competition system. Concerning industrial developments, R. Ahrend, D. de Rosa and W. Tompson (2007) assess the development of competitiveness in Ukrainian and Russian industry sector with the focus on possible threat of Dutch disease in Russian manufacturing.

Nevertheless, what is the economic performance of Ukraine today? Is Ukraine ready to participate in the activities and functioning of the OECD as a full member from the economic point of view? From Table 1 it is clear that Ukrainian GDP p.c. is significantly lower than the OECD average (the difference is more than 15-fold). If we take into account the GDP p.c. of Luxembourg, which is the highest among all OECD members, the difference is almost 39-fold. Conversely, in the case of Mexico, as a country with the lowest GDP p.c. within the OECD, the difference would be only the 4-fold. Based on the level of GDP p.c. it is questionable, whether Ukraine is ready to become a full member of the OECD at present.

The aim of this article is to analyze the status of Ukraine's economy in comparison with the OECD members' economies. Based on the results, we try to formulate measures in the macroarea to ensure and promote convergence of Ukraine's economy within the OECD.

Table 1. **Economic performance of Ukraine and OECD countries,** *constant 2005 USD*

Rank	Country	GDP p.c.	Rank	Country	GDP p.c.
1.	Luxembourg	80915	19.	Italy	29156
2.	Norway	64534	20.	New Zealand	27139
3.	Switzerland	55123	21.	Spain	25638
4.	Iceland	52854	22.	Israel	22273
5.	Denmark	46699	23.	Korea, Rep.	21226
6.	Ireland	45867	24.	Greece	19809
7.	Sweden	44079	25.	Slovenia	19127
8.	United States	42447	26.	Portugal	18386
9.	Netherlands	41366	27.	Slovak Rep.	14730
10.	Austria	39815	28.	Czech Rep.	14415
11.	Finland	38926	29.	Estonia	11318
12.	United Kingdom	38032	30.	Hungary	11147
13.	Germany	37271	31.	Poland	10387
14.	Belgium	36941	32.	Chile	9019
15.	Australia	36585	33.	Turkey	8413
16.	Japan	36161	34.	Mexico	8038
17.	Canada	35794		***OECD Average:***	***31707***
18.	France	34405		**Ukraine**	**2083**

Source: Author's own calculations based on the World Development Indicators.

Methodology and data. As a basis for analyzing the data, we used the online database of the World Development Indicators of the World Bank (WDI, 2013). We chose the year 2011 as the base year for the analysis. We were able to obtain all necessary and relevant data for this year for all the OECD members and Ukraine. The 2012 data were incomplete, which did not allow adequate analysis of the state of the economies in the analyzed countries.

For the analysis of the economies of the OECD members and Ukraine, we selected the macroeconomic indicators as in Table 2. We decided to use the indicators that are part of Kaldor's magic square as the picture of the state of the economy in a given time period (in our case the state of the economies of the OECD members and Ukraine based on the 2011 data). For more information on the background and construction of magic square, see N. Kaldor (1971) and R. Medrano and J. Teixeira (2013). Nevertheless, we did not use the magic square proposed by R. Medrano and J. Teixeira (2013). Instead, we used the variables proposed by J. Lisy (2002: 70) with the lowest value for each analyzed variable at the beginning of the axes (depending on the OECD average and Ukraine data for 2011) without normalization as proposed in Medrano and Teixeira (2013).

Table 2. **Summary of the input variables,** *author's*

Variable	Unit	Name
GDP growth (annual)	%	GDP_gwth
Unemployment (total labor force)	%	U_total
Inflation, GDP deflator (annual)	%	P_def
Current account balance (% of GDP)	%	CA_bal

We measure the GDP growth as the aggregate data based on 2005 constant prices, expressed in USD. In case of unemployment, we focused on the overall unemployment rate, measured as a proportion of the total labor force. For inflation, we decided to use the GDP deflator, which reflects price changes in the economy as the consumer price index. In the analysis of external economic relations, we chose share of current account balance to GDP, calculated as the sum of net exports of goods and services and net primary and secondary income expressed in current prices in USD.

Then we apply cluster analysis for the selected set of variables for individual OECD member states and Ukraine. We analyzed 35 complete cases, which allowed us make conclusions about the similarities and dissimilarities from inside the OECD and among Ukraine and the OECD members. We chose cluster analysis based on its design to group observations or variables into clusters based upon similarities between them. The aim of the decomposition was to create several rather homogenous groups. We concentrated on joining statistical units (countries) in each cluster that were the most similar to each other. Units in different clusters were, however, the most dissimilar. The analysis consists of several steps: 1. Selection of distance metric (which is used to measure the distance between clusters); 2. Selection of the type of clustering process; 3. Selection of clustering method (used to derive clusters); 4. Determination of the number of significant clusters; 5. Interpretation of outputs. Before the distance calculation, we standardized all the variables in the analysis by first, subtracting sample mean and second, dividing by sample standard deviation. When choosing a distance metric, we used squared Euclidean distance. As a type of clustering procedure, we used an agglomerative hierarchical procedure with the Ward's clustering method. This type of procedure begins by placing each observation into a separate cluster. Clusters are then joined, two at a time, until the number of clusters is reduced to the desired target. At each stage, clusters joined are the pair of those that are closest together. Ward's method defines the distance between two clusters in terms of the increase in the sum of squared deviations around the cluster means that would occur

if the two clusters were joined. Based on the results, we decided to determine the number of significant clusters as 5. We provide interpretation of clusters in the next part of this paper. In discussion and conclusion, based on the synthesis of output analysis, we formulate conclusions regarding the state of Ukraine's economy in order to check its convergence with the current OECD member states.

Output analysis. Here we analyze the composition and dissimilarities of clusters of the OECD member states and Ukraine grouped on the variables from Table 2. In the first step of output analysis, we identify and analyze the structure of individual clusters. In the second step of analysis, we identify the main differences between the clusters based on input variables. For the identification of dissimilarities among clusters, we used the centroids of the variables for all the clusters in the selected year. Table 3 summarizes the basic information on individual clusters; Appendix A shows the cartographic interpretation. Table 4 provides summaries of the characteristics of each cluster based on the analyzed variables.

Table 3. **Summary of cluster characteristics,** *author's own calculations*

Cluster	Members	Percent	Countries
1	6	17.14	Australia, Canada, Chile, Estonia, Mexico, Poland
2	10	28.57	Austria, Denmark, Germany, Israel, Korea Rep., Luxembourg, Netherlands, Norway, Sweden, Switzerland
3	12	34.29	Belgium, Czech Rep., Finland, France, Hungary, Iceland, Italy, Japan, New Zealand, Slovenia, United Kingdom, United States
4	5	14.29	Greece, Ireland, Portugal, Slovak Rep., Spain
5	2	5.71	Turkey, **Ukraine**
Total:	*35*	*100*	

Table 4. **Cluster differences,** *author's own calculations*

Cluster	GDP_gwth	U_total	P_def	CA_bal
1	4.56	7.83	4.56	-1.73
2	2.46	**5.08**	2.17	**5.93**
3	1.45	7.76	1.64	-1.77
4	**-0.72**	**15.98**	**0.87**	-4.32
5	**6.94**	8.85	**11.50**	**-7.98**

From the cartographical perspective (http://fmv.euba.sk/files/ukraine-oecd_map.png), we can identify only one homogenous cluster, which is cluster 4. This is the only cluster comprised of the countries from one continent. In this case, these are the countries from Europe. All other clusters consist of the countries located on two or more continents. Since the OEEC's aim was helping to restructure European economies, there are 24 out of 34 OECD member states coming from Europe. The rest of the countries include the countries from North and South America, Australia, and Asia. There are no OECD members in Africa.

Cluster 1 is the most heterogeneous one, consisting of the countries from 4 continents. Cluster 2 is more homogenous than cluster 1. However, in its structure we can identify the countries located on more than one continent. Out of 10 countries in this cluster, 8 are in Europe and 2 – in Asia. We observe almost the same in cluster 3, where 9 countries come from Europe and 3 – from other continents. Concerning the economic performance in basic macroeconomic indicators, Ukraine is a part of cluster 5 together with Turkey. Cluster 5 is the smallest one (comprising only two units).

Its share on the total number of the analyzed countries is only 5.71%. In comparison, cluster 3 as the largest one, with the share of 34.29%.

Based on the geographical distribution of the analyzed countries, we note that Ukraine's economy is mostly similar to the economy of Turkey. If we take into account the economic welfare of the examined countries (Table 1), we observe that GDP p.c. of Turkey is 4 times higher than the GDP p.c. of Ukraine. Surprisingly, the economy of Mexico with even lower level of GDP p.c. (8038 USD) than Turkey is not a part of cluster 5, instead it belongs to cluster 1, where economies with higher level of GDP p.c. are included. This suggests that despite different levels of GDP p.c., these countries share similar macroeconomic indicators in 2011. This is also the case of Ukraine and Turkey. Out of 4 analyzed indicators, in 3 of them these countries are similar. The only exception is inflation. Ukraine reached significantly higher level of inflation than Turkey in 2011 (14.43% for the former, 8.58% for the latter).

As for the general evaluation, the worst results were obtained for clusters 4 and 5. Within cluster 4 the average GDP fell by -0.72% and there was the highest unemployment rate (15.98%). Cluster 5 reached the highest inflation rate (11.5%) and the highest share of the current account deficit to GDP (-7.98%). Cluster 2 appeared to be the best. It reached the lowest unemployment rate (5.8%) and the highest proportion of positive current account balance to GDP (5.93%), while the average inflation rate was lower than GDP growth.

Regarding the GDP growth rate, cluster 5 reached the highest value (6.94%). Turkey, which was a part of this cluster, reached the highest value of GDP growth at 8.77%. Ukraine was in the fourth place with the value of 11.5%. Cluster 4 reached the overall decline in GDP at average -0.72%. 2 of the 3 countries with the highest decline in GDP growth are part of this cluster (Greece -7.1% and Portugal -1.55%). Another country with decline in GDP growth was Japan (-0.57%). In all other monitored countries, there was positive GDP growth.

In unemployment, we observe relatively same values for all the clusters with exception for cluster 4, which reached the average unemployment rate of 15.98%, while the average value for the OECD was 8.25%. Conversely, the lowest average unemployment rate reached cluster 2 (5.8%). Looking at individual countries, we note that Spain, Greece, Ireland, Slovak Republic and Portugal reached the highest unemployment rate (from 21.6% to 12.7%). In addition to the countries of cluster 4 only Estonia and Hungary reached the level of unemployment over 10%, which was above the OECD average. On the other hand, the countries in cluster 2 reached the lowest level of unemployment of all the clusters, while Norway, Korea, Switzerland, Austria and the Netherlands reached the average unemployment rate of 3.86%. We can consider this value to be the natural rate of unemployment.

For the inflation rate, we used the GDP deflator, which includes changes in prices of all goods and services realized in the economy. Based on the available data, we see that cluster 4 reached the lowest average inflation rate (0.87%). We note confirmation of the modified Phillips curve thesis, validating the inverse relationship between unemployment and inflation. Increase in the price level (inflation) leads, ceteris paribus, to decrease in the unemployment rate, and vice versa. We observe that the state of the OECD economies is in line with economic theory. The average value of inflation in the clusters with high average unemployment is low and vice versa. The

clusters with lower average unemployment rate reached higher inflation rates. The exceptions are clusters 1 and 5, where there was both high unemployment and inflation. In particular, cluster 5 has significant difference with other clusters. It reached the highest average inflation rate (11.5%) and the second highest average unemployment rate (8.85%). High value for inflation was mainly due to the absolute highest inflation rate of Ukraine (14.43%) of all the countries. The second country with the highest inflation rate was Turkey (8.58%), which is, together with Ukraine, in cluster 5. Conversely, two countries from cluster 3 reached deflation – Japan (-1.88%) and Czech Republic (-1.01%).

The last input variable was the state of foreign trade measured as a share of current account balance to GDP. In case of positive value there is a trade surplus, in case of negative value there is a trade deficit. Based on the data we conclude that from the sample of 35 countries only 15 representing less than half of the sample reached the current account surplus. The average share of the current account surplus to GDP was 4.35%. Norway (12.84%) and the Netherlands (10.12%) achieved the highest share. For the remaining countries, the current account deficit averaged at -3.76%. Greece reached the highest share of deficit (-9.87%). Among the top 5 countries with the highest share of the current account deficit to GDP was also Turkey (-9.69%) and Ukraine (-6.26%), causing cluster 5 to have the highest average share of the current account deficit to GDP of all the clusters, reaching -7.98%.

Discussion and conclusion. Based on the output of cluster analysis, we found that the structure of Ukrainian economy is mostly similar to the structure of the Turkish one. Both these countries are located in cluster 5, which represents 5.71% of all the observed countries. Table 4 summarizes cluster characteristics. Table 5 demonstrates Ukrainian ranking within input macroeconomic variables. Out of 5 basic macroeconomic characteristics, Ukraine is the worst in two of them – GDP p.c. and the inflation rate. Concerning GDP p.c., Ukraine's value was 93.43% below the OECD average. In case of inflation, Ukrainian rate was 501.25% of the OECD average. On the other hand, Ukraine placed fourth in GDP growth, which was 133.33% above the OECD average. If we assume this growth as stable for both Ukraine and the OECD, Ukraine would catch up with the OECD average GDP p.c. in 97 years (year 2108). In case of achieving the level of 50% of OECD average GDP p.c., it would take 25 years (2036). Outlook for Ukrainian GDP p.c. is better when considering zero growth in the OECD average GDP. In this case, Ukraine would catch up with the OECD average in 55 years (2066) and with 50% OECD average p.c. – in only 14 years (2025).

Table 5. **Ukraine ranking in the input variables,** *author's own calculations*

	GDP_p.c.	GDP_gwth	U_total	INF_def	CA_bal
Rank	**35.**	**4.**	22.	**35.**	32.

Note: Highlighted are the lowest and the highest rankings of Ukraine.

Based on the data in Table 5 and Figure 1, we can formulate some recommendations for further development of Ukrainian economy to achieve the growth of well-being at the state level and at the level of individual households. It is mainly to achieve the increase of GDP p.c. to reach at least 50% GDP p.c. of the OECD average as quickly as possible. To achieve this objective, Ukraine should ensure that in the future key macroeconomic indicators would develop in accordance with the following:

- GDP growth – if possible, sustain the level of growth from 2011. If there is not a possibility to sustain current GDP growth in the long term, we propose to introduce measures to ensure GDP growth, in particular real GDP p.c. growth at the level higher than the growth of average OECD GDP p.c. This will promote convergence of Ukrainian economy with the OECD economies. However, the role of state in sustaining growth should be revised, since the size of state may be identified as one of the key barriers to growth, as proposed by C. Gianella and W. Tompson (2007).

- Unemployment – since the unemployment rate is lower than the OECD average, we propose the economy to sustain this rate of unemployment for the benefit of the whole economy (mainly creating demand for goods and services in order to increase the overall household consumption, which should result in the increase of total GDP, and GDP p.c.). We also propose the creation of new jobs in order to reduce the unemployment rate to achieve the natural unemployment rate.

- Inflation – we propose to introduce measures for inflation targeting in line with the objective of achieving real GDP growth to keep inflation at the level of GDP growth (preferably at a lower level than the GDP growth rate). The level of inflation in 2011 was the highest in all the observed countries, and significantly higher than the OECD average. Despite the relatively high GDP growth, it was not sufficient to ensure the real GDP growth, since inflation rate was almost 3 times higher. We propose increasing productivity effectiveness of labor force in order to increase the production of final goods and services while keeping the money supply stable, which will lead to the decrease in inflation. For more details of inflation effect on growth as evidenced in transition countries (Gillman and Harris, 2010).

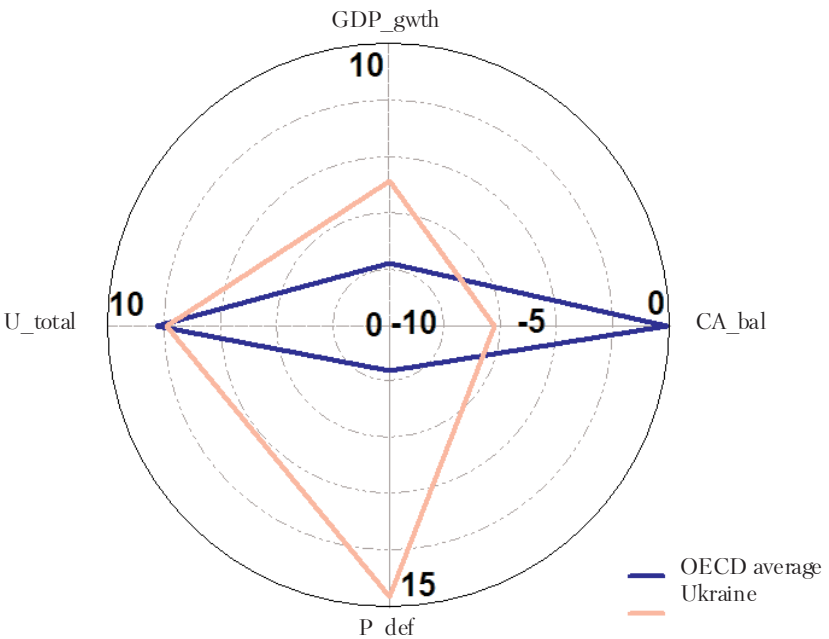
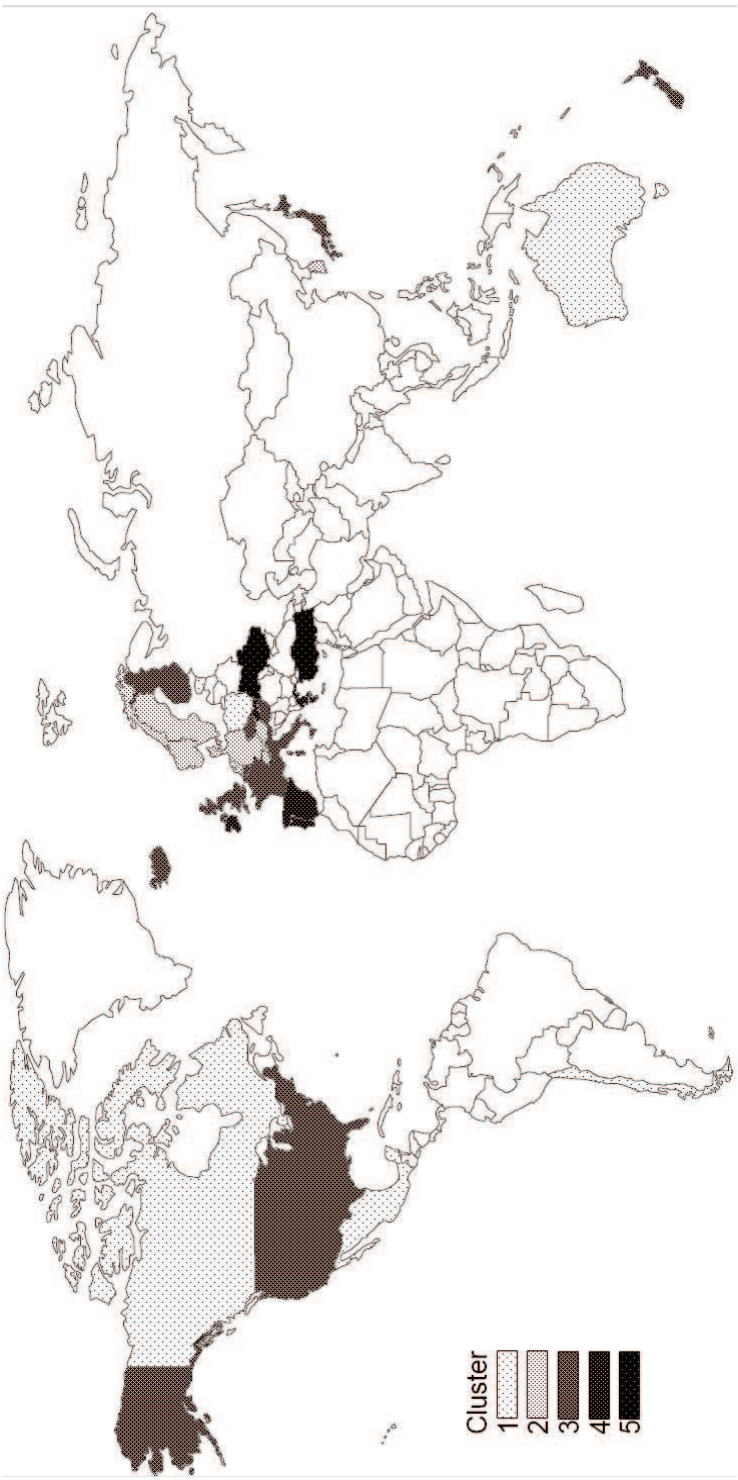


Figure 1. **State of macroeconomic indicators, 2011,** *author's calculations*

- Current account balance – we propose to introduce measures to encourage exports thereby achieving the zero value, or surplus of the current account balance. Export support from the state will also help to reduce the total unemployment and will ensure the growth of total GDP and GDP p.c.

We are, of course, aware of some limitations of our research. Firstly, in the chosen statistical unit. We used states as the main statistical unit. Secondly, the number of variables for analysis. We used 4 main macroeconomic variables in the analysis of the performance of the economies. Thirdly, the chosen period for our analysis. The base year for the analysis was 2011, for which the data were available for input variables for all the statistical units. Despite these limiting factors, we consider our research a basis for further economic analysis (from the macroeconomic and a microeconomic perspectives), and we recommend future research with changing the statistical unit. This may bring forth better identification of regional disparities and subsequent planning of public expenditures for regional convergence within the OECD. We propose to include the units of analysis at the levels similar to the EU classification (NUTS 2 and NUTS 3). The main objective should be a comprehensive analysis of economic status of regions allowing more efficient use of state budget within the observed economies. We also propose focusing on microeconomic analysis. We suggest including the analysis from microeconomic perspective, which will allow analyzing inequalities between households and individuals within a state. Based on the analysis it will be possible to develop measures that could lead to a gradual convergence and reducing disparities (especially income) between statistical units. In this research, we used basic macroeconomic variables to analyze economic performance of economies. In the event of a change of the statistical unit in further research, we recommend to include other indicators that allow for better comparison of smaller statistical units. The aim should be effective expenditure planning of state budget in order to ensure the reduction of regional disparities within the OECD. We also propose focusing on temporal dynamics, especially through increasing the number of observed years. Dynamics of changes in variables over time will allow for better understanding of the development and direction of the economy than a static view of one year. In our case, for example, it would be suitable to follow the development of basic macroeconomic indicators of the OECD members before and after the financial crisis in the first decade of the 21st century.

In conclusion, we are aware of problems in macroeconomic performance of Ukraine. Nevertheless, based on GDP growth, we assume that Ukraine has strong economic potential that may lead to improvement in basic macroeconomic indicators and therefore conclude that Ukraine should become a full member of the OECD. We presume that potential full membership in the OECD will, in near future, lead to gradual improvement in basic macroeconomic indicators leading to increased welfare not only at national level (as growth of GDP p.c.) but also at microeconomic level of households and individuals. All of the tasks leading to potential full membership in the OECD will require an organized approach by various state actors of Ukraine, mainly those responsible for economic diplomacy. Therefore, we suggest unified and coordinated actions at all the levels of those responsible for economic diplomacy as analyzed in M. Kunychka (2013).



Appendix A. **Spatial distribution of clusters,** *developed by the author*

References:

Ahrend, R., de Rosa, D., Tompson, W. (2007). Russian Manufacturing and the Threat of Dutch Disease. A Comparison of Competitiveness Developments in Russian and Ukrainian Industry. OECD Papers, 7(1): 1–57.

Continent (2013). In Encyclopaedia Britannica // www.britannica.com.

Country Review: Ukraine (2011). OECD Journal of Competition Law & Policy, 11(2): 153–222.

Gianella, C., Tompson, W. (2007). Too Little Destruction, Too Little Creation: A Schumpeterian Diagnosis of Barriers to Sustained Growth in Ukraine. OECD Papers, 7(9): 1–49.

Gillman, M., Harris, M.N. (2010). The Effect of Inflation on Growth: Evidence from a Panel of Transition Countries. Economics of Transition, 18(4): 697–714.

Government portal (2006). Government directs Economics Ministry to step up contacts with OECD // www.kmu.gov.ua.

Government portal (2007). Ukraine nearer to accession to OECD // www.kmu.gov.ua.

Government portal (2009). Economics Ministry: Bohdan Danylyshyn holds sitting of Coordination Council for Cooperation with OECD // www.kmu.gov.ua.

Government portal (2010). Mykola Azarov: Ukraine is negotiating to join the OECD // www.kmu.gov.ua.

Government portal (2011). Ukraine has got an observer status in the Committee on Competition of the OECD // www.kmu.gov.ua.

Government portal (2012). Ukraine steppes up cooperation with the OECD in order to become a full member of the Organisation // www.kmu.gov.ua.

Government portal (2013). Mykola Azarov: Ukraine has intention to join Organization for Economic Cooperation and Development // www.kmu.gov.ua.

Kaldor, N. (1971). Conflicts in National Economic Objectives. The Economic Journal, 81(321): 1–16.

Kunychka, M. (2013). Komparacia modelov riadenia hospodarskej diplomacie na priklade Ukrajiny a Slovenskej republiky. Medzinarodne vzt'ahy, 11(3): 124–148.

Lisy, J. (2002). Ekonomia. Vseobecna ekonomicka teoria. Bratislava: IURA Edition.

Medrano, R.A., Teixeira, J.R. (2013). A Kaldorian Macroeconomic Index of Economic Welfare. Revista de Historia Economica & Economia Regional Aplicada, 8(14): 1–8.

Ogutcu, M., Kinach, J. (2002). Ukraine: A miracle in waiting? OECD Observer, 234: 29–32.

WDI (2013). World Development Indicators // databank.worldbank.org.

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