THE DYNAMIC OF SOME COMPETITIVENESS INDICATORS: REPUBLIC OF MOLDOVA VERSUS OTHER STATES IN THE REGION

Zinovia TOACA[1], PhD, Associate Professor,
Academy of Economic Studies of Moldova
Zaharia OLARESCU[2], Scientific Researcher,
National Institute of Economic Research, Republic of Moldova

Competitiveness is an essential feature of the contemporary economy. The aim of the paper is to treat the Moldovan economy's ability to be competitive in terms of labor productivity, employee remuneration, unit labor cost. The study is based on the information analysis submitted by the National Bureau of Statistics, such as: gross value added, salary fund, number of employees and working hours on the national economy and branches for years 2000-2016. Statistical information of the countries concerned has been used for comparative analysis.

Study reveals that the low labor productivity determines low salaries in national economy. The lowest productivity and the worst labor remuneration are found in agriculture. The unit labor cost, which determines the correlation between labor productivity and wage has a more advanced pace of growth in services, doubting the justification for the increase in wages in some activities that far exceed growth of labor productivity. The evolution of this indicator is relatively satisfactory in industry and agriculture. Moldova continues to occupy one of the last places among the countries in the region in terms of labor productivity and medium monthly salary.

Keywords: *productivity, labor costs, average salary per economy, unit labor cost, Gross Domestic Product based on Purchasing-Power-Parity.*

Competitivitatea reprezintă o caracteristică esențială a economiei contemporane. Scopul cercetării constă în tratarea capacității economiei Republicii Moldova de a fi competitivă prin prisma productivității muncii, remunerării angajaților, costului unitar al muncii. Studiul se bazează pe analiza informației din anii 2000-2016 prezentate de Biroul Național de Statistică referitor la Valoarea Adăugată Brută, fondul de salarizare, numărul angajaților și numărul de ore de lucru pe economia națională și pe ramuri. A fost utilizată informația statistică a țărilor incluse în analiza comparativă.

Studiul relevă că productivitatea joasă a muncii determină salariile mici în economia națională. Cea mai joasă productivitate, respectiv și cea mai proastă remunerare a muncii se atestă în agricultură. Costul unitar al muncii, ce determină corelația dintre productivitatea muncii și salarizare, are un ritm mai avansat de creștere în servicii, ceea ce pune la îndoială justificarea majorării salariilor în unele activități, care depășesc cu mult ritmurile de creștere a productivității muncii. Evoluția acestui indicator este relativ satisfăcătoare în industrie și agricultură. Republica Moldova continuă să rămână pe unul din ultimele locuri printre țările din regiune în ceea ce privește productivitatea muncii și salariul mediu lunar pe economie.

Cuvinte-cheie: *productivitatea muncii, costul muncii, salariu mediu pe economie, costul unitar al muncii, Produsul Intern Brut la Paritatea Puterii de Cumpărare.*

Конкурентоспособность – неотъемлемая черта современной экономики. Целью исследования является рассмотрение способности молдавской экономики быть конкурентоспособной с точки зрения производительности труда, оплаты труда работников, удельные затрат на рабочую силу. Исследование основано на анализе информация, представленная Национальным Бюро Статистики: валовой добавленной стоимости, фонд заработной платы, количество сотрудников и количество рабочих часов на национальную экономику и в основных отраслях за 2000-2016 годы. Для сравнительного анализа была использована статистическая информация соответствующих стран.

[1]***© Zinovia TOACA, ztoaca@gmail.com***
[2]***© Zaharia OLARESCU, olarescuzahar@gmail.com***

Исследование показало, что низкая производительность труда определяет низкий уровень заработной платы в национальной экономике. Самая низкая производительность труда и наихудшая оплата труда – в сельском хозяйстве. Удельная стоимость труда, которая определяет соотношение производительности труда и заработной платы имеет более высокие темпы роста в услугах, которая ставит под сомнение обоснование увеличения заработной платы в некоторых отраслях, которая намного превышает рост производительности труда. Эволюция этого экономического показателя является относительно удовлетворительной в промышленности и сельском хозяйстве. Молдова продолжает оставаться на одном из последних мест среди стран региона с точки зрения производительности труда и средней месячной заработной платы по экономике.

Ключевые слова: *производительность труда, расходы на оплату труда, средняя зарплата в экономике, стоимость труда, Внутренний Валовый Продукт по Паритету Покупательной Способности.*

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UDC: 339.137.2(478)

Introduction. The concept of competitiveness is one of the most used, debated and analyzed concepts in contemporary economic theory. Economists have not come to a common denominator in its definition, but the need to win and preserve competitiveness is extensively discussed both in economic theory and practice. In the literature, most of the notions of competitiveness refer to: a) a country's ability to sell on foreign markets; b) ability to achieve high productivity, having a leading role in raising the standard of living of a nation's citizens; c) the capacity of a country to create well-being [8, p. 15]. In the OECD report [16], competitiveness is treated as a nation's ability to cope with international competition. At the same time, the Institute for Management and Development in Lausanne, which is compiling an annual World Competitiveness Report [15], competitiveness is how nations manage their skills to increase prosperity, while the World Economic Forum in Geneva, which publishes the annual Global Competitiveness Report [17], considers competitiveness as the set of institutions, policies and factors that determine the level of productivity of a country.

Thus, the notion of competitiveness speaks about nation's living standards compared to others. One of the key factors that can ensure the prosperity of a nation is the high level of productivity of the main production factors. The idea that productivity is the best measure of competitiveness is supported by Porter [1, 2], Krugman [3], Kohler [4], because it supports high salaries, a strong currency and a high living standards.

The progress of the national economy is determined by the ability of the business environment to make effective use of natural, human and financial resources. The competitiveness of a nation is driven by productivity and finally it contributes to salary, capital gains or other resources. It can be said that productivity determines the standard of living for a region or country by means of wages [1]. Labor productivity is the main form of expression of the efficiency of an economy. The nation's competitiveness has become one of the important development factors both domestically and externally [5, 6, 8]. Stimulating competitiveness is also a key objective for the European countries. Against this background, nominal wage growth has to be matched by productivity growth. It must ultimately lead to the improvement of the current account situation of the EU, in general and of the each member countries [13].

Labor productivity as a synthetic indicator, which characterizes the efficiency of work, requires special attention and a study as detailed as possible, in view of its importance, regardless of the level of economic development of any country. Any socio-economic system has always increased labor productivity and, in particular, with higher rates of growth of expenditures related to wages, has been and remains an essential priority.

The Republic of Moldova, rejecting outdating of centralized planning and starting on the path of development based on market relations, had to traverse a deep systemic crisis period, which lasted for far too long, with disastrous consequences for the country. According to statistical information in 2000 (the year of the start of economic recovery) the level of development of the national economy, after the volume of gross domestic product, was just one-third of what had been at the beginning of the reforms. It is understandable that, in the context of the continuous economic downturn, which lasted about a decade, problems related to the level and essence of labor productivity, its correlations with labor cost, and other

benchmarks were considered not so current, but not forgotten definitively.

But even under such circumstances, some attempts to reflect the situation in this area have been made by the team of authors, researchers of the Institute of National Economy and Information (NIER's predecessor) D. Tarush, A. Bulgac, E. Vutcariov in the article "Labor productivity: salary correlations and the cost of labor" [7]. The study encompassed the period 1997-2003, which is distinguished by specific characteristics of the two sub-periods: 1997-1999 – the period affected by the crisis, characterized by a rate of productivity caused by the decline of production and number of employees; and 2000-2003 – the invigoration period, during which there have been increases in GDP growth and lowest rates of reduction in the number of employees.

The current study covers the period from the year 2000 and to 2016, i.e. the period of recovery of the national economy, but in order to simplify the evaluation process, the description of the analysis of the evolution of some indicators was considered appropriate to be reduced in the size of the time up to ten years. At the same time, for the same purposes, the object of the study was narrowed down to three large sectors of the national economy: Agriculture (including forestry and hunting economy, fishing and fish farming); Industry (including mining, manufacturing, electricity and heat, gas and water); The service (including all components thereof) and the entire economy. Calculations are based on the experience already gained, expert-level vision, previously verified and tested models in the Institute.

Labor productivity. In table 1 shall be presented the evolution of the *labor productivity index calculated on occupied person* like reporting gross value added in nominal terms and constant prices of 2010 to the number of occupied persons in the national economy and sectors.

Table 1

Labor productivity in nominal terms and constant 2010 prices on occupied person, thousand MDL/year

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016/06, times
GVA in nominal terms												
Total economy	**29.7**	**35.6**	**41.4**	**42.9**	**52.4**	**58.3**	**64.3**	**71.4**	**79.8**	**86.0**	**93.9**	**3.2**
Agriculture	15.4	13.0	13.6	15.4	27.5	31.3	32.7	36.6	40.5	39.0	39.9	2.6
Industry	40.9	48.2	53.6	51.8	64.3	75.3	81.5	100.9	111.6	115.4	136.8	3.4
Services	36.0	46.3	53.6	54.2	61.4	67.2	74.3	82.3	93.8	106.1	117.8	3.3
GVA in prices of 2010												
Total economy	**43.9**	**45.3**	**48.2**	**47.6**	**52.4**	**54.3**	**54.9**	**59.2**	**61.7**	**60.3**	**62.4**	**1.4**
Agriculture	23.1	15.5	23.0	24.2	27.5	28.2	24.0	31.5	32.0	26.3	28.9	1.3
Industry	67.8	68.6	66.9	56.3	65.4	68.6	70.2	80.1	84.2	87.9	96.9	1.4
Services	51.2	57.1	57.8	56.9	61.1	63.2	65.2	68.5	72.7	73.5	75.4	1.5

Source: Authors' calculations based on statistical data.

The data in the table above and figure 1 demonstrates that labor productivity in nominal terms and constant prices of 2010 on occupied person differ from one another. Thus, in nominal terms, labor productivity in 2016 in the national economy was 93.9 thousand lei on occupied person, being over 3 times higher in comparison with that in 2006. At the same time, productivity in prices of 2010 (real value) is much smaller – 62.4 thousand lei, an increase compared with 2006, by 42%. In the first case, which includes the inflationary component, and the annual growth rate has been an average of over 12%, but in real terms, only 3.6%. The lowest sectoral productivity is recorded in agriculture-39.9 thousand lei in nominal terms and 28.9 thousand lei in constant prices. In nominal terms, this level is about 2.4 times lower than the one registered in the economy (93.9 thousand lei/occupied person), 3.4 times lower than labor productivity in industry (136.8 thousand lei/occupied person), 3 times lower than that in services (117.8 thousand lei/occupied person). In real terms, labor productivity in agriculture (28.9 thousand lei/ occupied person) is, as in nominal terms by 3.4 times lower than labor productivity in industry (96.9 thousand lei/occupied person) and less by 2.6 times as in the service sector (75.4 thousand lei/person) and by 2.2 times less than the average on economy (62.4 thousand lei/person) about what is seen in the figure below.

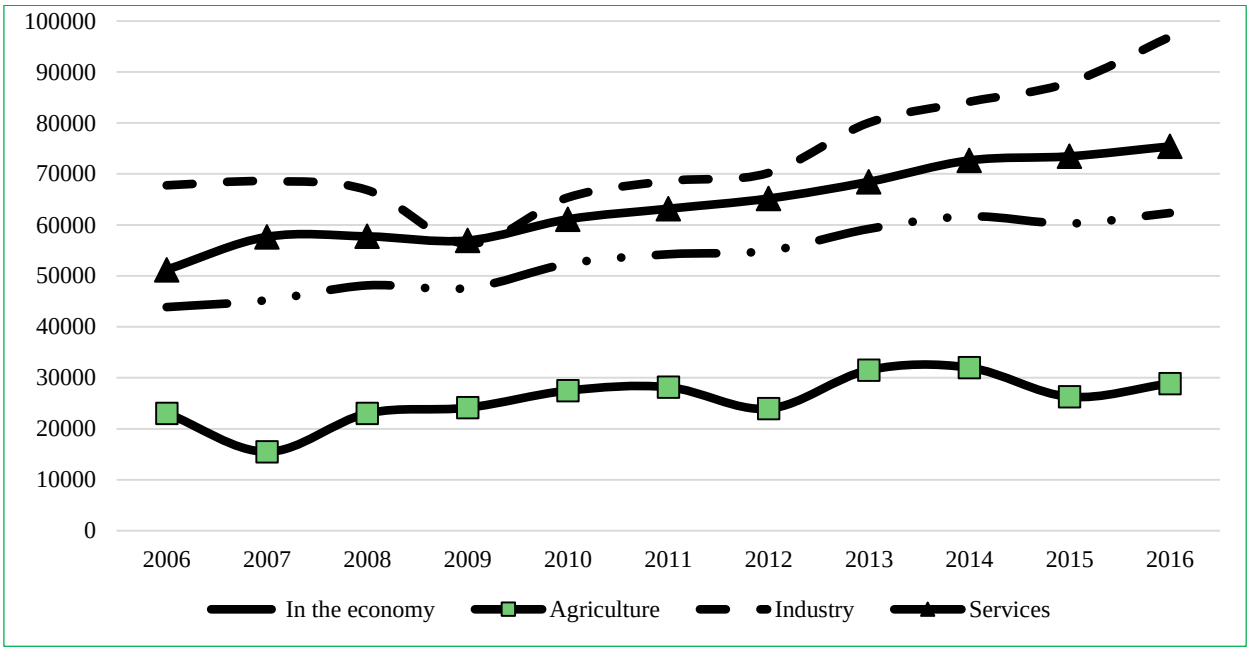

Figure 1. Labor productivity per person occupied on real GVA in 2010 prices, lei
Source: Prepared by the authors on the basis of statistical data.

Labor productivity per person occupied in the service sector (figure 1) has evolved more balanced (without extreme deviations). Even in the crisis year 2009 there have been no essential deviations in this sector, reducing productivity with only 1.4% compared with 2008, while in the Industrial sector, particularly in the crisis year have recorded the biggest reductions (-15.7%) compared to 2008. About developments in labor productivity in the agricultural sector, we see that the most significant deviations from the general line were recorded in 2007, 2012 and 2015, the years in which the agricultural sector suffers the most as a result of unfavorable weather conditions, 2007 being the most disastrous of all the years. This year, labor productivity in the sector has been reduced by 35% compared to the previous year.

But weather conditions are not the only ones that negatively affect this sector. Among the problems facing the agricultural sector in Moldova, in addition to those already mentioned, there are the old technologies, underdeveloped infrastructure for storage and collection, unqualified human capital. These flawed issues have a decisive impact on the effectiveness of the agricultural sector's results. The degrading situation in the agricultural sector has deep historical roots; it cannot be seen as the result of an erroneous policy lately. Looking through the prism of labor productivity that correlation between sectors in the last year did not differ from that of previous years, and if we compare, for example, with the situation in 2000 noted that the discrepancy between the agricultural sector and other sectors was even greater – by 2.5 times compared to the average on economy, by 4.7 times-compared to that of industry and by 3.8 times-compared to the one in the service sector.

Another way that expresses the efficiency of time used in the production process is labor *productivity per hour worked.* By dividing the volume of GVA in nominal terms or in constant 2010 prices to the number of hours worked in a year we find the productivity an hour worked (table 2). Thus, in 2016, in nominal terms, the average country productivity an hour worked has been around 54 lei, by 3.2 times higher as in 2006, in agriculture being of 2.7 times higher, and in the sectors of industry and services-more than 3.4 times. In what refers to labor productivity per hour worked to a revalued price 2010, we have increases by 1.5 respectively, 1.3, 1.4 and 1.5 times.

As we see, the evolution of labor productivity per hour worked in both cases do not differ substantially from the calculated labor productivity per person employed. It is naturally to be so, since the number of hours worked per year does not differ substantially from an year to another. Labor productivity in the agricultural sector and in this case, it is much below from the average on the economy and especially well below the level of the industrial and services sectors. So the productivity an hour worked in agriculture has advanced by about 2 percent point faster compared with productivity per person employed in this sector.

Table 2

Labor productivity in nominal terms and constant 2010 prices per an hour worked, lei

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016/06 times
GVA nominal /hour worked												
Total economy	**16.7**	**20.1**	**23.4**	**24.3**	**29.8**	**32.7**	**36.5**	**40.7**	**45.4**	**49.2**	**54.0**	3.2
Agriculture	8.8	7.6	8.4	9.1	16.2	17.9	19.2	21.6	23.7	23.1	23.9	2.7
Industry	21.4	25.3	28.1	27.7	35.1	39.8	43.3	53.0	58.9	65.8	72.1	3.4
Services	19.3	24.8	28.8	29.4	33.3	36.2	40.6	45.1	51.3	57.1	64.8	3.4
GVA in prices of 2010/hour worked												
Total economy	**24.7**	**25.5**	**27.2**	**27.0**	**29.8**	**30.5**	**31.2**	**33.8**	**35.1**	**34.6**	**35.8**	1.45
Agriculture	13.2	9.0	13.6	14.2	16.2	16.1	14.1	18.6	18.8	15.6	17.3	1.3
Industry	35.5	35.9	35.1	30.2	35.1	36.4	37.2	42.2	44.3	46.3	51.0	1.4
Services	27.5	31.0	31.0	30.9	33.3	34.1	35.6	37.5	39.8	40.5	41.5	1.5

Source: Authors' calculations based on statistical data.

Remuneration. As a result of widget below levels of labor productivity in agriculture compared to the average on economy, revenue of employees activated in that sector of the economy are smaller than in other sectors of the economy. In agriculture, this indicator over the past 10 years has developed more slowly (1.8% on average per year) as well as in other sector – industry evolved fastest (4.4%), in the service sector (4.1%).

It's somewhat justified by the fact that in the sectors of national economy where productivity is more advanced and earning must be higher. Both remuneration to a person employed, as well as an hour worked in the agricultural sector (table 3) are much lower as in economy and particularly in comparison to industry and services.

Table 3

Wages per person employed and per hour worked

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2016/06 times
Thousand lei/person occupied												
Total economy	**15.1**	**17.8**	**22.2**	**24.7**	**27.5**	**29.8**	**34.6**	**36.6**	**39.0**	**43.3**	**48.1**	**3.2**
Agriculture	2.3	2.5	3.3	3.4	3.7	4. 1	4, 6	4,5	4, 5	4.5	4.7	2.0
Industry	26,4	31, 0	36,4	37, 4	41, 3	43,3	47, 3	57,5	59, 4	68,5	77,2	2.9
Services	20,4	24.0	29,4	32,0	35,5	38,6	45,0	47,9	52,9	59,8	68,5	3.4
Lei per hour worked												
Total economy	**8.5**	**10.1**	**12.5**	**14.0**	**15.6**	**16.7**	**19.7**	**20.9**	**22.2**	**24.9**	**26.7**	**3.1**
Agriculture	1.3	1.5	1.9	2.0	2.2	2.4	2.7	2.6	2.7	2.7	2.8	2.1
Industry	13.9	16.2	19.1	20.0	22.2	23.0	25.1	30.4	31.2	36.1	40.1	2.9
Services	11.0	12.9	15.8	17.4	19.4	20.8	24.6	26.3	29.0	33.0	41.4	3.8

Source: Authors' calculations based on statistical data.

The evolution of wages per hour worked is significant in industry and services and at the same time non-essential in agriculture (figure 2). Thus the rhythm of the increase of the remuneration repeats the growth rate of the productivity in the sectors.

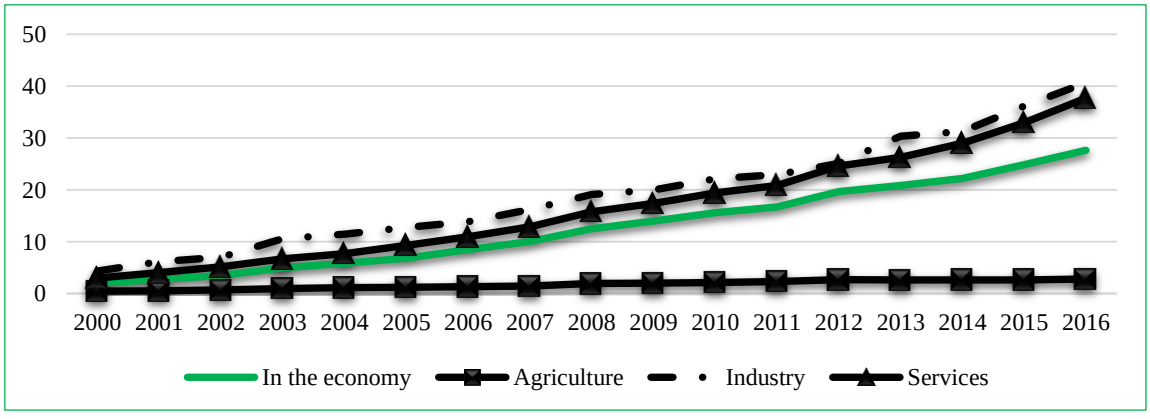

Figure 2. Wages per hour worked, lei

Source: Prepared by the author based on statistical data.

Unit labor cost indicator (ULC). ULC, representing the labor cost per unit of production, is one of the indicators that characterize the competitiveness of the economy. ULC represents correlation between wages and labor productivity. In this context, it is important that labor productivity increases may not be annihilated by the wage policy of firms or Governments. Depending on the purpose of the research, but also on the availability of data, ULC can be calculated through different formulas [10]. One of these would be the following formula:

$$ULC = \frac{\frac{R_S}{S}}{\frac{GDP}{P_0}} \quad (1)$$

where, R_s – compensation of employees (part of gross value added), S – the number of employees, GDP – gross domestic product, P_0 – population.

The statistical reports of the EU [11] present the nominal and real ULC. As compensation of employees, according to the system of national accounts is evaluated in nominal term, then depending on how labor productivity assessment-based on the nominal value of GDP or actual growth of it – are used two or even three [10] indicators which represents the unit labor cost. Apart from it, GVA indicator can be used instead of GDP, because it does not will influence essential [9] the rhythms of growth in productivity. Formula (1) calculates the ULC for one employee in the national economy, but in the same way can be determined for an hour worked, as in the case of this indicator there are important namely growth rhythms and which do not differ significantly from the method used to calculate productivity and labor cost.

The ULC (figure 3), attest to a relatively stable, but in the long run, however, we can observe an increase in the latter, which talks about the higher growth rates of wages, compared with labor productivity.

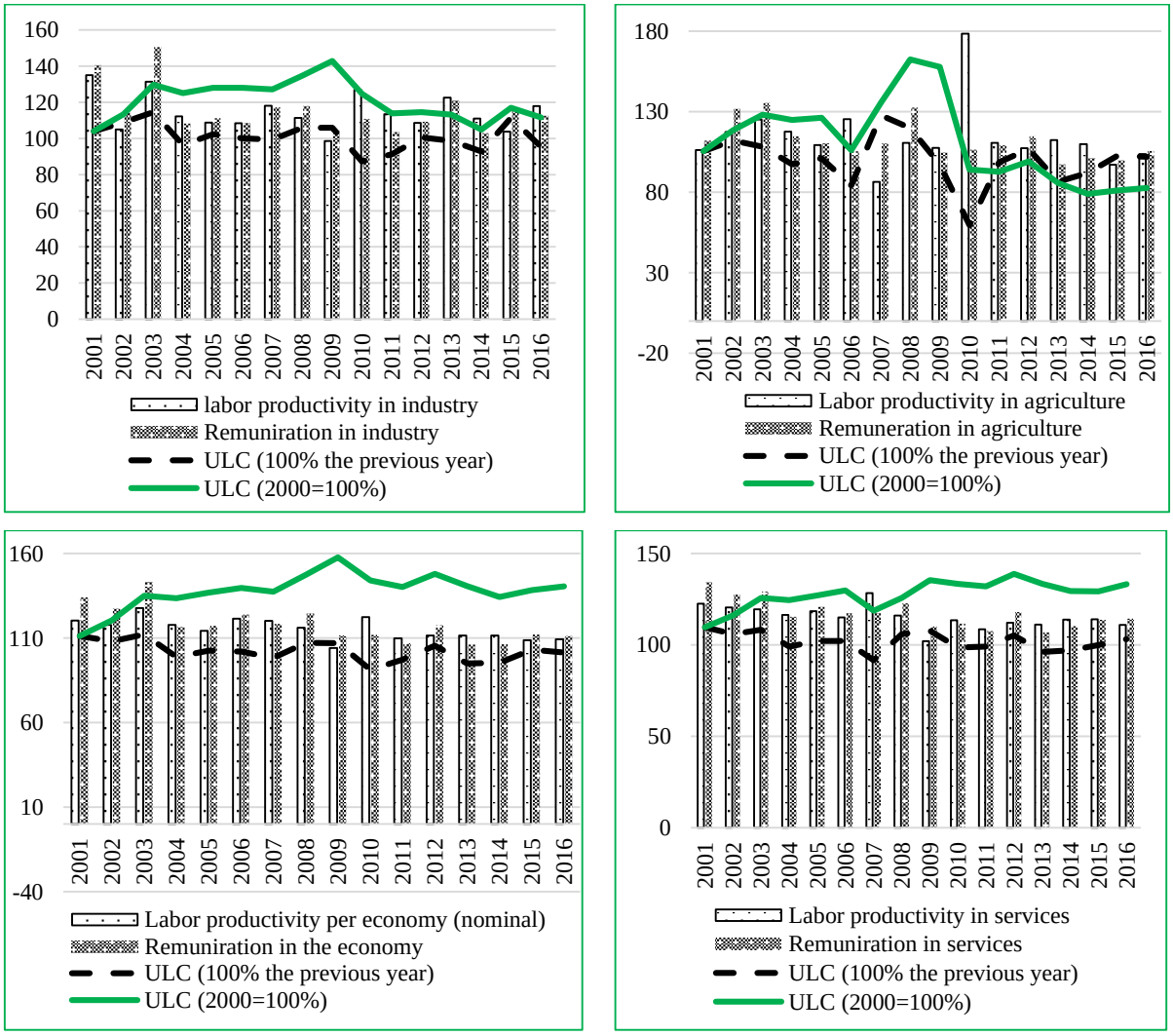

Figure 3. The unit labor cost in the economy and in sectors

Source: Prepared by the authors based on statistical data.

Analysis of the evolution of these indicators by sector shows that a long-term increase of ULC more significantly (figure 3) in services sector. In 2014 and 2015 the higher labor costs (figure 4), and by default, is recorded in such economic activities as Information and communications (12052 lei), financial and insurance activities (10368 lei), which are parts of the Services sector and with other activities have contributed to the advancement of this sector with the fastest growth in comparison with other sectors. At the same time, the lowest wages and labor costs is observed in such areas as catering activities (3700 lei), agriculture (3713 lei), wholesale and retail (4569 lei).

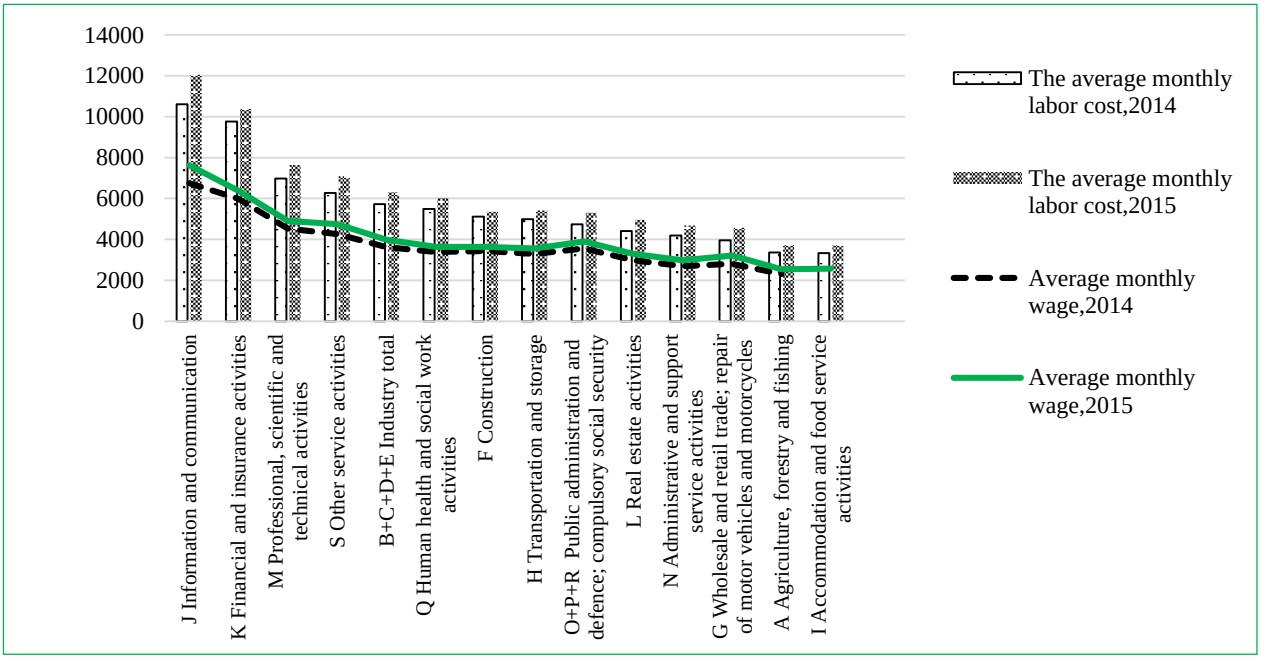

Figure 4. Labor costs and the average monthly salary per employee in the Republic of Moldova, lei
Source: Authors' calculations based on the data of the National Bureau of Statistics.

Some comparisons of competitiveness with other states. To make any conclusions on the competitiveness of the economy of the country in terms of the indicators described in the present study is not enough to follow their evolution in time, without making a comparative analysis with other countries depending on the intended use. However, some issues arise here, the most important being how are costs calculated for different countries in a single currency (comparable). In table 4 is given the size of the labor productivity per hour worked in the EU-28, Romania and Moldova in the single currency-Euro, from 2000 onwards and until the year 2013.

Table 4

The size of the labor productivity per hour worked (euro)

	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2012**	**2012**	**2013**
EU-28, media	27.9	28.4	28.9	29.3	29.8	30.2	30.9	31.3	31.2	30.7	31.4	31.8	31.9	32.1
Romania	3	3.2	3.8	4	4.4	4.6	4.9	5.2	5.6	5.4	5.3	5.4	5.4	5.6
Moldova	0.5	0.6	0.6	0.7	0.8	0.9	1.0	1.2	1.5	1.6	1.8	2.0	2.3	2.4
In % compared to the EU	1.4	2.1	2.1	2.4	2.4	3.0	3.2	3.8	4.8	5.2	5.7	6.3	7.2	7.5
In % compared to Romania	17	19	16	18	18	20	20	23	27	30	34	37	43	43

Source: Prepared by authors on the basis of statistical data. Data for the EU-28 Romania and from "Romania's development strategy in the next 20 years" vol. I, p. 250, 251.

The figures in the table show a surprising arrears of Moldova by the level of labor productivity, not only in the EU-28 countries, but also in Romania, with only 7.5% of EU-28 in 2013 and 43% of productivity in Romania. And although the growth rates of this indicator in Moldova during the analyzed period were clearly higher than the comparison countries, the country's situation in this area so far remains to be deplorable.

Although Moldova registered higher growth rate of labor productivity that in comparison states (except Georgia), it continues to occupy a lower position after the level of productivity. In 2016 labor productivity, expressed in purchasing power parity (PPP), constituted in Moldova 15.5 thousand USD per person employed and has increased by 4% from 2015. This one puts the last place among the comparison states. In 2016 in Ukraine labor productivity was 19.6 thousand dollars, in Georgia – 21.9 thousand dollars, in Serbia – 32.4 thousand dollars, in Romania – 52.0 thousand dollars, in Latvia – 64.7 thousand dollars and in Lithuania – 68.6 thousand dollars. Ensuring labor productivity growth in Georgia and Moldova with higher rates compared with other countries in the region, however, until it has reduced substantially from the handicap of these States in terms of labor productivity level gap of them remaining to be 2-3 times (figure 5).

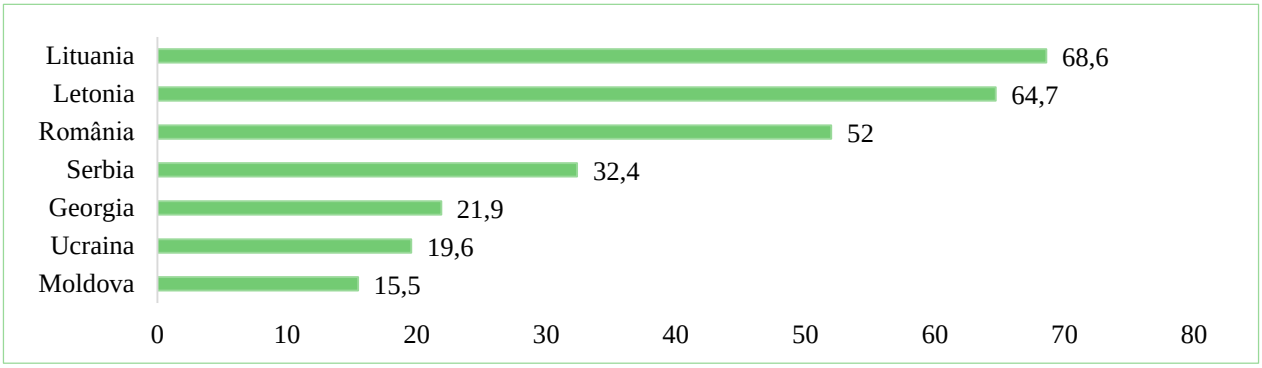

Figure 5. Average labor productivity in 2016 (GDP at PPP prices a. 2011) thousand USD per person employed

Source: Authors' calculations based on the IMF data.

According to the principle of a low level of economic, labor productivity cannot pick to an adequate salary, but also vice versa. The average salary, which exceeds significantly the European salaries of other countries, is an eloquent example. Unfortunately, Moldova over the years is located at the tail of the region's States ranking. Average monthly salary in Moldova has progressed slower compared to other states. In the period after the year 2009 until 2014 Moldova has worsened a position with the smallest salary, 30% less than in Ukraine, 12% lower than in Serbia and 17% lower than in Georgia. The crisis generated by the regional sanctions on the Russian Federation has been felt also in Moldova, being stepped up and the internal crisis in the banking sector so that in 2015, the average monthly salary in Moldova decreased by 1.5% and amounted to 220 euro. In 2016, the average monthly wage increased to 230 euro, which is below of the EU average level by 6.6 times, by 3.7 times lower than the salary from Latvia, 2.7 times lower than in Romania (figure 6).

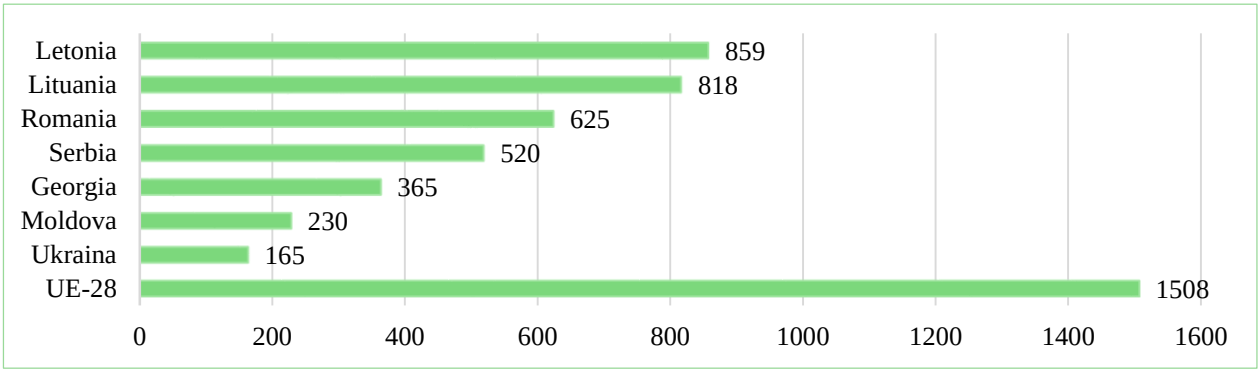

Figure 6. The average gross nominal wages in 2016 in some states for comparison, Euro

Source: Prepared by the authors based on the data of the national statistical offices.

In 2014, heavily affected by the armed conflict with Russia, salary in Ukraine drops dramatically from 267 euro/month (2013) to 165 euros/month (2016), thus ranking the last.

Conclusions. The indicators analyzed in this study characterize the level of competitiveness of the economy, which, as it was proved it is still very low. Especially for our country's competitiveness, problems have begun after signing an association agreement with the EU. In order to be compatible and to consolidate positions in foreign markets, it is strictly necessary to boost economic growth, including by raising labor productivity. This will entail higher salaries corresponding with rhythms of labor productivity growth and ultimately increase the standard of living of society.

One of the current problems of the national economy is the emigration of the labor force for searching better paid jobs. The low competitiveness of the national economy will further aggravate the situation on the labor market. The ultimate goal of decision-makers should be to increase wages in order to raise living standards in Moldova. But salary increases must be consistent with labor productivity. And that must be respected at every level: enterprise, branch, country. Under current conditions, the increase in labor productivity can be guaranteed by the use of advanced technologies in all areas of the national economy, especially in the agricultural sector, which shows the lowest productivity. Wage increases not covered by productivity gains lead to inflationary processes. According to ULC dynamics, such situation is in the service sector, which means that unwarranted salary increases have taken place.

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