

*Olga SARBU, Liliana CIMPOIES<sup>1</sup>*

## **POVERTY REDUCTION IN RURAL AREAS THROUGH AGRICULTURAL DEVELOPMENT: EVIDENCE FROM MOLDOVA**

### **SUMMARY**

Agriculture is a main part of the rural economy and has an important role in ensuring incomes for rural population and poverty reduction. In Moldova, the largest share of the rural population is employed in agriculture, which contributes to about 50% of their total incomes. The aim of this research was to analyze the importance of the agricultural sector of Moldova and its contribution to poverty reduction of rural population. The paper estimated the time series from 2001-2015 provided by the National Bureau of Statistics. Also, the data of the General Agricultural Census (NBS, 2011) and the World Bank Report on poverty reduction (2016) were used. Nowadays, agricultural sector, despite the registered decline has an important role in the economic development of Moldova. The agricultural sector registered a decline of its share in GDP from 30% in 2005 to 12% in 2015. Also, the employment in the agricultural sector diminished from 50% in 2001 to 28% in 2015. A boost in investments in the agricultural sector would allow an alleviation in rural poverty and an increase in the population standards of living. But the problem in attracting investments is related to the fact that the large corporate farms prevail other small subsistence households which manage 60% and 40% from the useable agricultural area.

**Keywords:** agricultural development, households, poverty, rural areas, Moldova.

### **INTRODUCTION**

The modern agriculture is highlighted through its dimension and potential impact at the current stage. Its multifunctional character confirms that agriculture does not represent only food production. It has tangencies with the environment, being in a direct and obvious relationship with rural areas which besides the important economic aspect assigns it a social and environmental role. Its main production function has undergone essential changes and nowadays is stressed on the safety and diversity of food products. Moreover, the 21st century generated new challenges for agriculture as price volatility, the increase of climate variability or rural poverty. The main aims of the modern agriculture are to ensure the society with competitive and healthy food at affordable prices, to satisfy the increasing needs of population both in quantity and quality, to meet the export requirements (Salasan, 2010).

---

<sup>1</sup>Olga Sarbu, (corresponding author: o.sarbu@uasm.md), Liliana Cimpoies; Department of General Economics, State Agrarian University of Moldova, Chisinau, Republic of Moldova  
Paper presented at the 8<sup>th</sup> International Scientific Agricultural Symposium "AGROSYM 2017".  
Notes: The authors declare that they have no conflicts of interest. Authorship Form signed online.

The subsistence means and incomes of poor families from rural areas of Moldova mainly relies on natural resources and environment. Poor families are weak in facing such phenomena as drought, floods and climate change. Agriculture has a key role for the contribution to national income and welfare of developing countries. Thus, the welfare of poor population and development of rural areas depends on the quality and productivity of the environment (Salasan, 2009).

Agriculture is one of the most vulnerable sectors of the Moldovan economy and has a share of 12% in country's GDP (according to 2015 data) and about 60% of total area. The agriculture is determined by factors as: the increase of share of subsistence agriculture versus commercial agriculture, lack of efficiency of agricultural subsidizing system, lack of investments, excessive fragmentation of agricultural land, destroyed irrigation system. All the above mentioned contributed to the reduction of gross agricultural output and the migration of rural population to urban areas or abroad.

### **MATERIAL AND METHODS**

This research analyses the contribution of the agricultural sector to poverty alleviation of population from rural areas of Moldova. Also, it assesses the contribution of the agriculture through the following economic indicators: the share of employed population in agriculture; the share of agricultural land in the total land fund; the share of agriculture in value added; employed population to 100 hectares of agricultural land; labor productivity per person employed in agriculture; GDP created by a person employed in agriculture.

For the assessment and analysis of given indicators was used data provided by the National Bureau of Statistics (NBS) which reveals the evolution of human resources used in agriculture, agricultural land, Gross Agricultural Output (GAO) and Gross Domestic Product (GDP) in agriculture (NBS, 2016).

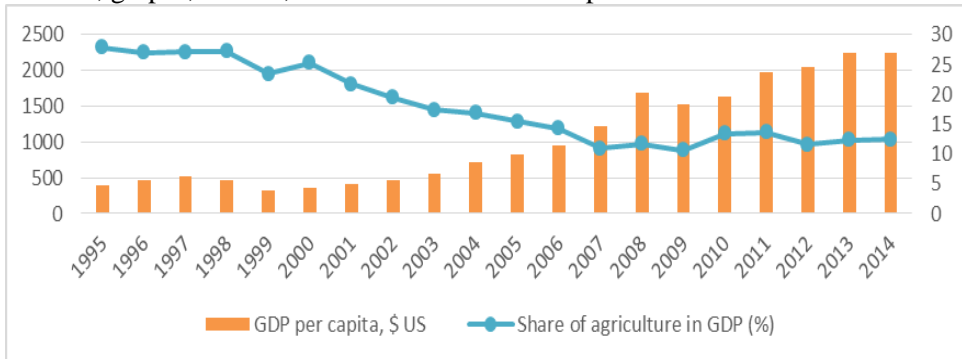
### **RESULTS AND DISCUSSION**

The rural economy of Moldova is mainly dominated by agriculture, due to this fact poorly integrated in the market economy. Agriculture is a priority branch, which should harmoniously integrate into the economy and to increase its role as a factor of grounding and design based on the principles of free market (Stratan, 2007). Economic and social progress are closely related to the level of agricultural development and its capacity to satisfy the vital needs of population and processing industry with raw materials.

Despite the diminishing trend in the share of agriculture in GDP (from 30% to 12%) the contribution of agriculture to be much higher than its direct share in GDP. Agricultural important contribution is related to the high share in GDP of food industry, beverages and tobacco (with 24% and 10%). Also about one third of population is employed in agriculture.

Moreover, more than half of the population lives and works in rural areas. Also, a person employed in agriculture feeds on average 2.5 persons from urban

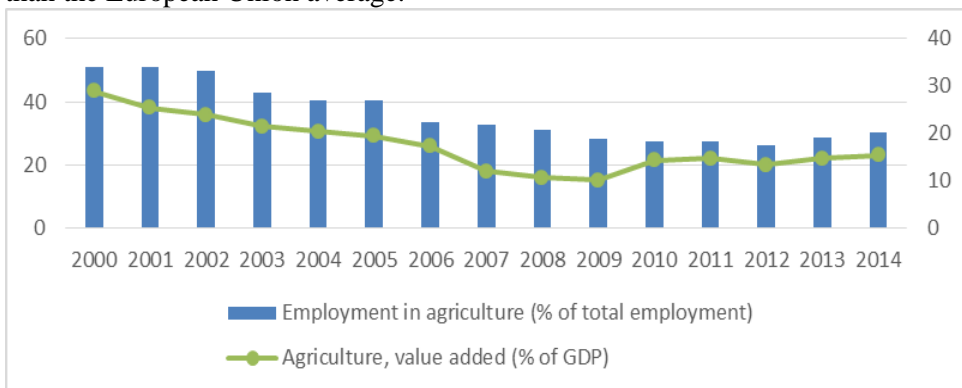
areas. In other European countries, the ration between one person employed in agriculture and employed in other sectors is 1 to 15, while in Moldova this ratio is 1 to 1.5 persons. The main agricultural products include: fruits, vegetables, tobacco, grapes, cereals, sunflower and livestock products.



\*Source: based on the NBS data, 2016

**Figure 1.** Share of agriculture in GDP and GDP per capita in Moldova

Despite the fact in the last years the share of agriculture in GDP decreased to 13% (2014), still there are 30.5% persons employed in this sector. After the recession from 2012 the country's economy entered a period of resurrection. The Gross Domestic Product in 2013 was of \$7.687b and \$7.9b in 2014, with 8.9% and 7.9% more compared to 2012. The share of agriculture in Moldova's GDP is much higher than its share in the world which is of 3-3.5% and 6-7 times higher than the European Union average.



\*Source: based on NBS data, 2016

**Figure 2.** Share of agriculture in total employment and GDP in Moldova

Moldova's agriculture has the largest share in the national value-added comparative to other Central and Eastern European countries, despite the lowest productivity level in the field (The World Bank, 2016). This is due to the high share of the agricultural sector in national GDP and the high share of population employed in agriculture. The agricultural sector has substantially potential for

growth but not enough exploited. Thus, restructuring and further sustainable development of the rural economy is required for Moldova's economic development.

The contribution of the agricultural sector at the value added was about 15% in 2013, twice more than its level in 2008. This increase was due to the stable growth of agricultural production value, except 2012 which was an extremely unfavorable year for agriculture (droughts in autumn and late spring frosts). Because of its high contribution to the value added, it also had an important role in poverty reduction in rural areas.

Moldova's capacity to poverty reduction in rural areas can be assessed through the indicators presented in Table 1.

**Table 1.** The role of agriculture to poverty reduction in Moldova

Indicators	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Area of agricultural land per person, hectares	0,54	0,55	0,55	0,57	0,56	0,56	0,56	0,57	0,57	0,57
Employed population in economy to 1000 persons, persons	350	348	350	332	319	329	322	330	333	339
Employed population to 100 hectares of agricultural land, persons	64	63	63	60	57	58	57	58	59	59
Share of employed population in agriculture, %	33,6	32,8	31,1	28,2	27,5	27,5	26,4	28,8	30,5	31,7
Share of agricultural land, %	57,7	58,5	58,5	58,6	59,3	59,4	59,4	59,5	59,8	59,9
Labor productivity of one person employed in agriculture, \$ US	2522	2770	4078	3237	5191	5974	5450	5243	4835	3621
Productivity of one hectare of agricultural land, \$ US	545	583	802	545	814	962	822	905	862	683
GDP generated by one person employed in agriculture, \$ US	1189	1148	1365	1226	2255	2661	2614	2795	2584	2578

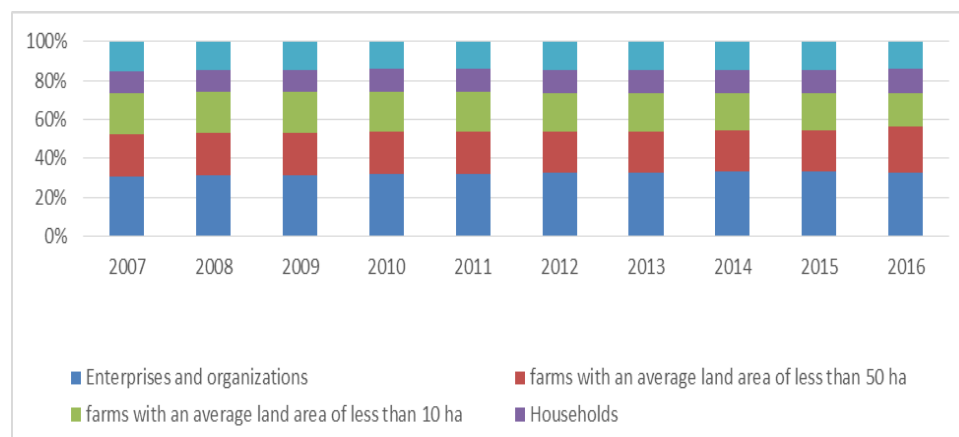
\*Source: based on the NBS data, 2014-2016

The area of agricultural land per person during the examined time series remains unchanged at a level of about 0.57 hectares. The population employed in economy to 1000 persons has a diminishing tendency from 350 persons in 2006 to 339 persons in 2015 (about 3%). Also, the population employed in economy to 100 hectares of agricultural land decreased with 7% in 2015 compared to 2006. This was due to the decrease of the share of population employed in agriculture from 33.6% in 2006 to 31.7% in 2015. The share of agricultural land had minor changes with a low increasing tendency.

**Table 2.** Evolution of employed population from rural areas of Moldova, by economic activities, %

Economic activities	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total employed population	100	100	100	100	100	100	100	100	100	100
from which:										
Agriculture, forestry and fishing	58,0	54,6	58,0	54,6	48,9	49,3	48,2	51,0	53,3	55,3
Manufacturing	8,0	8,3	8,0	8,3	9,06	9,4	9,1	8,6	8,5	8,4
Construction	3,0	4,8	3,0	4,8	5,26	4,9	5,4	5,3	5,0	4,5
Wholesale and retail trade	7,0	8,0	7,0	8,0	9,62	9,9	9,8	9,4	8,8	7,8
Transportation and storage	3,0	3,2	3,0	3,2	3,19	3,1	3,6	3,5	3,3	3,4
Public administration and defense; compulsory social security	18,0	18,1	18,0	18,1	20,9	20,2	20,8	18,4	17,4	17,2
Others	3,0	3,0	3,0	3,0	3,07	3,2	3,1	3,8	3,7	3,4

Source: based on NBS data, 2014-2016



\*Source: based on NBS data, 2014-2016

**Figure 3.** Structure of agricultural land by categories of owners (in %)

The decrease in labor productivity of a person employed in agriculture and the productivity of one hectare of agricultural land was mainly due to unfavorable weather conditions in the last period. The increase in GDP generated by one person employed in agriculture from \$1189 in 2006 to \$2578 in 2016 indicates to the ability of agriculture to contribute to poverty reduction in rural areas (Prisacaru, 2011).

In the last period was observed a great change in the labor force employment mostly opposite to the agricultural sector, which do not reflect the growth in other sectors; but most probably the expansion of subsistence agriculture.

Since 2006 the share of employed people in agriculture diminished from 58 to 55% in part due to immigration of the labor force from rural areas (Table 2). The employment in other sectors was lowered as well, except from trade and transportation which lightly increased. In the same time, the share of persons employed in agriculture with low intensity (less than 20 hours per week) increased constantly from 13 to 24%. This agricultural work is often carried by landowners and often is not officially considered as employment. The employment diversification by types of economic activities can made incentives for rural economy, which can determine an increase in the employed rural population. The potential of agriculture to reduce poverty is influenced by the structure and use of land. The small farms have a larger share of manual work, thus increasing the land productivity can contribute to poverty reduction.

Almost half of the agricultural land is used by farms with an average land area of less than 10 hectares, and households (Figure 3). They ensure the production of about 40% of cereals and leguminous crops, 30% of sunflower, over 80% of potatoes and vegetables and over 95% of melons and gourds, about 50% of fruits and vegetables, and over 75% of grapes.

**Table 3.** Dynamics of population's disposable income in rural areas of Moldova, by types of activities

Sources of disposable income	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Disposable income – total, \$	56,1	77,6	94,9	76,3	86,8	101,3	103,0	107,7	96,4	84,3
By sources, in %										
-salaries	26,1	26,6	28,0	30,6	28,9	30,6	28,6	28,3	28,4	27,8
-individual agricultural activity	34,5	28,4	20,7	18,0	19,1	19,6	18,8	17,8	18,1	17,5
-income from individual nonagricultural activity	5,2	4,4	6,1	5,7	5,0	5,6	5,8	6,1	5,9	6,3
-income from ownership	0,0	0,1	0,1	0,0	0,1	0,1	0,1	0,1	0,0	0,0
-social benefits	14,8	15,3	16,3	20,6	21,2	21,3	22,5	21,3	21,2	22,0
-other incomes	19,4	25,3	28,7	25,1	25,7	22,8	24,2	26,3	26,4	26,3
from which remittances	15,8	22,2	25,9	22,0	22,8	19,7	20,8	22,9	23,4	23,4
Share of incomes in disposable income, %	33,7	27,7	20,9	19,4	19,8	19,9	19,4	17,7	17,2	17,0

Source: based on the data from National Bureau of Statistics, Aspects of the standard of living of population in 2007-2016

According to the final results of the General Agricultural Census (GAC) 2011, in Moldova are 902210 agricultural holdings, from which 99.6% are agricultural holdings without juridical status and 0.4% are agricultural holdings with juridical status.

From the total amount of holdings, 848637 are active holdings (that uses agricultural land and/or grows livestock and/or poultry) and 53577 were registered and temporarily not active holdings. Agricultural holdings own 2243540.02 hectares, from which the utilized agricultural area (UAA) is of 1940135.56 hectares, distributed to 846981 holdings. The average size of UAA per holding is of 2.29 hectares. The size is close to the 49% of the EU-27 agricultural holdings, which during the 2010 census had and an average size of less than 2 hectares. According to the census results, the UAA per capita is of 0.54 hectares, also near the EU-27 average (0.3 hectares UAA/capita). From total area about 57% is used in full ownership of the land by 97.2% of holdings, about 25% is fully leased and used by 0.3% of holdings and 15% is used by 1.4% of holdings under mixed land ownership (both ownership and lease). The other 3% of the area is used by 1.1% of holdings under other type of land ownership.

The UAA distribution is not homogenous according to the size classes of total area. From the Census results, the highest share of holdings is grouped under the smallest land size classes. Thus, 71% of agricultural holdings have less than one hectare, but the utilized area is 10.1 of total UAA. Holdings with 1-5 hectares (27%) utilizes 19.3% of total UAA. On the other side are the 0.3% of agricultural holdings with large sizes (at least 100 hectares) and utilizes 63.4% of the UAA. Almost 73% of total UAA is arable land, which is above the EU-27 average (60%) (NBS, 2011).

As income source agriculture represents a main source for 60% of population in Moldova.

Disposable income of population from rural areas registered a decreasing tendency (Table 3). The highest incomes are from salaries (28%). Incomes from individual agricultural activity decreased from 34.8% in 2006 to 17.5% in 2015. The incomes from remittances are 23.4% from total population incomes. According to a recent research, about 10% from remittances are directed to investments in agricultural holdings, for purchasing new agricultural land, buildings or machinery.

Due to lack of working places and the increased rate in inactivity, the share of labor incomes was mostly from non-agricultural sector through an increase in salaries. The fast increase in incomes from non-agricultural compared to agricultural activities lead most of employed agricultural workers among the 40% of country's poor population. Agricultural incomes were affected by various fluctuations during the analyzed time series which undermined their contribution to the increase of living conditions in rural areas. Thus, incomes diversification is viewed as a source of poverty reduction in rural areas.

## CONCLUSIONS

The agriculture can contribute essentially to poverty reduction in rural areas of Moldova particularly by collaborating with other interested structures. As result of the GDP growth per capita, the role of agriculture is decreasing both for the economy and poor people from rural areas. In the same time, the development of non-agricultural activities in rural areas could contribute to poverty alleviation.

In order to increase the contribution of agriculture to poverty reduction in Moldova is needed: to improve the situation of poor population that lives in villages, to increase the competitiveness and productivity of small households, to improve the price stimulations, to increase public investments, to diversify the income sources through developing non-agricultural activities, to increase the access to financial resources and to reduce the influence of uninsured risks, to develop and apply innovations, to increase the sustainability of agriculture and to transform it in a provider of ecological services..

## REFERENCES

- NBS, (2016). Aspects of the standard of living of population. National Bureau of Statistics of the Republic of Moldova.
- NBS, (2016). Statistical Yearbook of the Republic of Moldova 2016. National Bureau of Statistics of the Republic of Moldova.
- NBS, (2015). Statistical Yearbook of the Republic of Moldova 2015. National Bureau of Statistics of the Republic of Moldova.
- NBS, (2014). Statistical Yearbook of the Republic of Moldova 2014. National Bureau of Statistics of the Republic of Moldova.
- NBS, (2011). General Agricultural Census 2011. National Bureau of Statistics of the Republic of Moldova.
- Prisăcaru V., (2011). Evolution of rural space of Moldova through economic indicators. *Journal of Agricultural Science*, Vol (1), p. 104-106.
- Salasan C, Fritzsche J., (2009). The role of agriculture for overcoming rural poverty in Romania. Discussion Paper, no. 121. Leibniz Institute of Agricultural Development in Central and Eastern Europe.
- Sălășan C., (2010). Rural population in the context of the structural changes in Romanian agriculture. *Agricultural Economics and Rural Development*, New Series, Year VII, no. 1, p. 87–103.
- Stratan A., (2007). Evolution of agricultural economy of Republic of Moldova: reflections, problems and economical mechanisms. Chisinau, p. 185-196.
- The World Bank: Agriculture, value added (% of GDP) 1960-2016, <http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS> Accessed on 5/06/2017