THE ROLE OF HOUSEHOLDS IN THE AGRARIAN SECTOR OF UZBEKISTAN AND THEIR DEVELOPMENT PROSPECTS

Akhmedov Ulugbek Qamarbekovich
Tashkent Institute of Irrigation and Melioration
Tashkent, Uzbekistan

Abstract

The article describes economic and country-specific factors that pre-determined state policy in supporting development of households. Based on statistical data, the role and importance of households in agricultural production are evaluated. Ways of development of potential households on production of main types of agricultural products were explained by using economic models. Using the models developed the forecast options for development prospects of crop and livestock production in households of Uzbekistan, were described.

Keywords: households, agriculture, volume of production, stock-holds, economic models, forecasting.

Introduction

From the early institutional-economic reforms special attention is given to establishment of market oriented households in which institutional changes also take place. As a result, character and motives of households' economic activities has changed. Their resources were mobilised that contribute for development of country's economy. Households' role and place in agrarian production as well as in investing to main capital have risen significantly.

Behaviour of households as a separate sector of economy as well as principals of their relationship with the society and state are studied in the researches of A.Marshall [l], Campbell R. McConnell, Stanley L. Brue [2], N.G.Mankiw [3], A.Chayanov [4], M.Tugan-Baranovsky [5]. In the researches of domestic scientists, such as M.Sharifkhodjaev [6], A.Vakhabov [7], B.Gaibnazarov [8], B.Makhmudov [9], B.Berkinov [10] and others, macroeconomic aspects of state regulation of households' activities in the system of national accounts. At the same time, insufficient attention was given to studies of economic behaviour of houeholds, especially, of those that are in the rural areas of Uzbekistan. In our opinion, tendency changes of resource and production potential of households need macroeconomic analysis. This would be required to assess their abilities to solve problems of self-employment and increase of socio-economic effectiveness in the future. From this point of view, our studies are directed to the evaluation of the effectiveness of agricultural production by the households in Uzbekistan and identify their prospective development trends; which have an important strategic sense in the current stage of modernization of economy.

According to statistic data, farming contributed 34.1% of gross domestic product (GDP) of Uzbekistan in 2014 out of which 64.0% relates to households. In 2013, these indices constituted 31.5% and 63.5%, respectively.

Increase of share of households in GDP of Uzbekistan, firstly, is due to increase in their quantity, and secondly due to increase in production volumes, particularly, due to expansion of family businesses. In 2014 number of households was equal to 6.1 million units. This figure is larger for 20% comparing to 2005.

The increase in the number of households occurs due to the increase of land, allotted for individual construction of houses and for farming. Total land area of households made up 579 thousand hectares in 2000 and this index was equal to 620 thousand hectare in 2014. In Uzbekistan, agricultural products are cultivated in 500 thousand hectares of land allotted to households (in the form of farms). Generally, 3% of total land area of the country (2014), 3.2% of agricultural land and 10.4% of cultivated land related to households. In 2014, around 75% of potatoes, 64% of vegetables, 54% of fruits and 45% of grapes of the country are produced by the households.

Worth mentioning that in Uzbekistan the special attention is given for development of diversified farming. Thereby, we can see increase in the volume of crop production by farms. It also increases the share of the farmers in the agricultural production volume in the country. Due to that, the tendency of decrease of the share of households in crop production can be observed. At the same time, households keep high levels of livestock and volumes of livestock production. More than 94% of cattle, almost 84% of sheep, more than 63% of poultry are kept in households. In average, each household (in rural areas) keeps 2.6 cattle (including 1.2 milking cows), 4.3 sheep and 8 poultry.

According to statistic data, corn yield in farms in 2014 increased almost by two times compared to 2000; and in peasant farms by 1.7 times during the same period. However, the yield of cereal crops in peasant farms was equal to 63.4centner per hectare in 2014, whereas in farms 43.8centner per hectare. In other words, peasant farms harvested 19.6 centners more crops than farms.

As can be seen in Table 1, during 2000-2012 prices of products increased by 22 times in farms and by 14 times in

TABLE I. THE EFFICIENCY INDICES OF AGRICULTURAL PRODUCTION IN HOUSEHOLDS OF UZBEKISTAN

Years	Productivity of main crop sorts, c/ha								Amount of product per hectare, in millions of Uzbek Soums	
	Cereal crops		Potatoes		Vegetables		Melon/water melon/ pumpkin			
	Farms	*Peasant farms*	*Farms*	*Peasant farms*	*Farms*	*Peasant farms*	*Farms*	*Peasant farms*	*Farms*	*Peasant farms*
2000	22.3	38.8	118.5	143.5	154.1	228.7	77.7	185.0	0.12	2.3
2005	38.1	53.6	158.3	189.0	221.3	273.2	138.9	238.3	0.68	8.4
2006	39.5	54.2	208.3	192.3	290.1	273.8	167.9	243.9	0.87	8.6
2007	41.4	57.1	226.1	211.9	292.5	294.6	194.2	247.8	1.07	13.0
2008	40.2	58.8	228.8	235.2	304.6	330.5	201.7	269.1	1.21	15.8
2009	43.7	57.5	263.8	241.5	343.8	346.5	234.3	254.9	1.58	18.0
2010	42.4	58.8	214.8	247.9	374.9	362.9	225.7	277.7	1.9	22.2
2011	43.5	59.6	219.9	257.7	368.9	373.3	230.9	290.2	2.2	24.6
2012	43.9	63.3	324.8	257.7	430.4	421.4	246.9	288.7	2.7	33.1

Source: Compiled based on information of State Committee for Statistics of the Republic of Uzbekistan

peasant farms. In 2012, peasant farms produced 12.2 times more products than farms. This ratio was 19% in 2000. It can be explained, firstly, by wide experience of households in production of agricultural products and secondly, by having relatively high market price products in the range of products produced by households, such as meat, milk and egg, as well as high portion of reprocessing made in households.

Thus, actions taken during the years of independence for diversification of crop and cattle production in households based on national consumption and market demands as well as government supportnot only brought to continuous development of agricultural production inhouseholdsand structural changes but also positively impactedtheir production efficiency. Based on all these, it is important to enhancethe role and the significance of households in the development of the country and its territory; and assess opportunities of full utilization of their capabilities.

Methods and materials

Considering this, we have multi-optional forecast of prospects of agricultural production development ofhouseholds. Forecast options were determined using econometric models in the form of linear, logarithmic, polyminal, power and exponential trend functions [6].

By comparing values of criteria of statistical assessment two types of econometric models were chosen. The first type of chosen models marks lower bound of the predicted index (I-version) and the second type marks its upper bound (II-version). The lower bound corresponds to the case of preserving current tendencies of the households' development and the upper bound corresponds to the cases of enhancing households' capability in the future, increasing investment attraction necessary for households as well as to strengthen encouraging them by the government.

Econometric models chosen for forecasting of ratios of crop and livestock productions in households are given below.

Forecasting models of crop production in households of Uzbekistan:

Cereal crops:

$$y1 = 1126.1 * x0.0826;\ (R2 = 0.89);\ y2 = 29.18 * x + 1130.4;\ (R2 = 0.75),\ (1)$$

potatoes:

$$y1 = 102.58x + 727.8;\ (R2 = 0.98);\ y2 = 2.27x2 + 84.34x + 755.21;\ (R2 = 0.98),\quad (2)$$

vegetables:

$$y1 = 2504.6x0.256;\ (R2 = 0.88);\ y2 = 298.6x + 2278.1;\ (R2 = 0.98),\ (3)$$

fruit:

$$y1 = 44.06x + 613.6;\ (R2 = 0.78);\ y2 = 2.069x2 + 638.74;\ (R2 = 0.79)y,\ (4)$$

grape:

$$y1 = 13.96x + 345.2;\ (R2 = 0.77);\ y2 = 1.012x2 + 5.869x + 357.3;\ (R2 = 0.78),\quad (5)$$

The same way models for forecasting volumes of livestock production were designed.

According to these models actual values on Student's criteriont are larger than the values in this table. It proves the existence of the trend,between predicted performance and time unit, free of occasional variations. Moreover, the value of determination coefficients *(R2)* is high on each model which shows that positive changes in forecasted ratios have important connection with time factor.

Results

Using designed models, we determined projected options of development prospective of crop and livestock production in households of Uzbekistan (table 2).

According to forecasted results, households will keep a tendency of high grows of production and consumption on all agricultural products. Crop production in households may increase by 23.1% (version I) or30.7 % (version II) by 2020 comparing to 2014. Mainly, it will be driven by crop yield increase. Widening of secondary crops will result in expansion of general planted area.

During the forecasted period households will also have positive changes in production of meat, milk, egg and other cattle-raising products. The increase in the volume of cattle-raising production shall occur, firstly, due to increase of number of cattle and growth of productivity. Comparison shows that the ratio of density of cattle and sheep kept in households per hectare of cultivated land is expected to increase. The density of cattle per hectare of cultivated land is expected to grow from 2.5 head of livestock in 2014 (in 2014 total cultivated land are of the country was 4,045 million

hectares) up to 2.8 head of livestock in 2018 and 3.0 in 2020. The density of sheep per hectare of cultivated land is expected to grow from 3.8 head of livestock in 2014 up to almost 5 heads in 2020. Such positive changes show that households in Uzbekistan shall retain their leading role in cattle-raising production in the future.

TABLE II. FORECASTED VERSIONS OF AGRICULTURAL PRODUCTION IN HOUSEHOLDS OF UZBEKISTAN (IN THOUSANDS TONS)

Ratios	Actual (2014)	Forecast			
		2018		2020	
		I	II	I	II
Crop	1450	1619	1737	1785	1895
Potato	1850	2168	2280	2374	2541
Vegetable	5920	6743	8103	7392	9643
Fruit	1350	1098	1192	1318	1608
Grape	653	499	544	569	710
Meat (in butchered weight)	1290	1223	1348	1318	1487
Milk	8064	8690	9188	9130	9937
Egg, mln. Pes.	2700	3749	3927	3757	4149

Source: Forecast is made based on econometric models.

During the forecasted period households will also have positive changes in production of meat, milk, egg and other cattle-raising products. The increase in the volume of cattle-raising production shall occur, firstly, due to increase of number of cattle and growth of productivity. Comparison shows that the ratio of density of cattle and sheep kept in households per hectare of cultivated land is expected to increase. The density of cattle per hectare of cultivated land is expected to grow from 2.5 head of livestock in 2014 (in 2014 total cultivated land are of the country was 4,045 million hectares) up to 2.8 head of livestock in 2018 and 3.0 in 2020. The density of sheep per hectare of cultivated land is expected to grow from 3.8 head of livestock in 2014 up to almost 5 heads in 2020. Such positive changes show that households in Uzbekistan shall retain their leading role in cattle-raising production in the future.

Conclusion

During the Years of Independence in Uzbekistan favorable environment was created for entrepreneurship and mobilization of household assets towards the future development of the national economy and increasing of the actual incomes of the rural population.

According to the forecasts, in the future there will be a great increase in agricultural production and sales of agricultural products in households of Uzbekistan. A growth in the volumes of vegetables, potatoes, apples, fruit, grapes, melons, and livestock products is expected. This allows to increase the gross value added of the agricultural products made by households by 1,5-1,8 times in 2018, compared to the gross value added observed in 2014.

REFERENCES

[1] MarshallA. Theprinciplesofeconomics. 3 volumes, V2. - Moscow: “Progress-Universe” Publishing group, 1993. - p.42.

[2] Campbell R. McConnell, Stanley L. Brue. Economics: Principles, problems and politics. Translated from English. 2 volumes, V2. - Tallinn, 1992. – p.400.

[3] Mankiw N.G. Macroeconomics. Translated from English: Published at MSU, 1994. – p.736.

[4] Tugan-Baranovsky M.I. Social bases of cooperation. - Moscow: 1989 - p.291.

[5] Chayanov A.V. Peasant farms. Moscow. "Economics" 1989. - p.203.

[6] Sharifhodjaev M. and others. National accounts and economic balances (in Uzbek language). Study book. – Tashkent: TSUE, 2003. – p.103.

[7] Vakhabov A.V. Finance (in Uzbek language). Study book. – Tashkent: NOSHIR, 2011. – p.559-599.

[8] Gaibnazarov B.K. Problems of household sector forming and their solution in Uzbekistan. Dissertation. – Tashkent: TSUE, 1997. – p.24.

[9] Makhmudov B.M. National accounts system. Study book. – Tashkent: TSUE, 2011. – p.323.

[10] Berkinov B.B. Institutional economy. Study book. – Tashkent: Iqtisodiyot. Second edition, 2013. – p.170-193.

[11] Econometrics: study book. / N.M.Goreyeva, L.N.Demidova, L.M.Klozochub and others. - Moscow: Eksmo, 2008. – p.224.