

Spatial and Temporal Variations in Levels and Growth of Agricultural Productivity in Uzbekistan

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Abstract

The paper examines Spatial and Temporal Variations in Levels and Growth of Agricultural Productivity in Uzbekistan, which can play a major role in examining levels of regional imbalances within the country as a whole and accordingly priority regions for planning purposes can be framed out. Uzbekistan is characterized by a significant shift of resources from the traditional Soviet model of collective agriculture to more market-compliant individual and family farming, and this type of farming is marked a significant change in growth in agricultural output in recent years. In Uzbekistan, the beginning of the policy-driven switch to family farming around 1997 coincided with the beginning of recovery in agriculture, namely resumption of agricultural growth after a phase of transition decline since 1991. In addition to growth in total agricultural production, there has also been observed a significant increase in productivity of both land and labor since 1997. These observations suggest that productivity growth may be attributable to the changes in farming structure in Uzbekistan, and as such the present paper aims to study levels and growth of agricultural productivity in Uzbekistan in its spatial and temporal context.

Keywords: Agricultural Productivity, Agricultural Growth, Intensive and Extensive growth, Household Plots, Spatial and Temporal Variations

Introduction: - All the high yielding variety of crops that can be grown in central Asia is also grown in Uzbekistan. Wheat, Rice, Barley and Maize are Principal food grain crops, while cotton is the most important commercial crop grown in the Uzbekistan (*Allworth, E., 1973*). One of the items on the agricultural reform agenda in former Soviet republics forming the Commonwealth of Independent States (CIS) involves transformation from the traditional corporate farms to substantially smaller family or individual farms. This transformation is motivated by the theoretical incentive analysis of farms of different organizational forms in market economies, which suggests that family farms can be expected to achieve higher levels of productivity and efficiency than corporate farms (*Allen and Lueck 2002*).

Uzbekistan embarked on the process of land reform in 1991-1992, immediately after gaining independence. However, the first years were characterized by slight hindrances and indecisive progress, largely attributable to lack of experience with the huge task on hand. After 1997-98, however, Uzbekistan began to implement resolutely a comprehensive program of land reform and farm restructuring that culminated in a massive shift of agricultural land and agricultural production to small individual and family farms. These achievements of land reform in Uzbekistan are particularly remarkable because the Uzbekistan is generally regarded as slow reformers and are assigned low ranks for their reform performance by international organizations. (*Csaki and Kray 2005*). However faster and more comprehensive implementation of reforms with the help of Internal Organization could reduce vulnerabilities by initiating a more diversified land reforms and more efficient resource base. (*Abazov, R. DEC. 2001*).

Materials and Methods: - Agricultural development is a complex problem, therefore, reliable collection and sources of data are necessary for decision making and for future planning. For the present problem data has been collected from various sources. Main sources of data collection include FAO Production Year Books, Agricultural Abstract, published by the United States and Uzbekistan. The published data about the agriculture of Uzbekistan have been collected from the different sources like World Bank Reports, Statistical Digest, Asia and Pacific, IMF sources published by United States etc. Other sources of data collection include: Statistical Abstracts published by the office of Prime Minister in Uzbekistan, State Planning Agency. Development Plan for Economic and Social Development, Published by Uzbekistan Republic's Government. Keeping in view the varied dimensions of the problem, the methodology used is also of different nature. To check this information, assess the sources of growth by applying the standard Solow growth accounting methodology. Using time series of country statistics for farms of different organizational forms, we decompose the growth in output into growth in the resource base (extensive growth) and growth in productivity (intensive growth). To assess the sources of growth since 1997, we applied the standard Solow growth accounting methodology, which separates growth in output into two components: growth in the resource base (extensive) and growth in productivity (intensive). Solow growth accounting clearly shows that, first, much of the growth at the country level is attributable to increases in productivity rather than increases in resources and, second, the increases in productivity in family farms (especially household plots) outstrip the increases in productivity in former collective and state farms.

These findings confirm that the recovery of agricultural production in Central Asia has been driven largely by productivity increases, and it is the individual farms that are the main source of agricultural productivity increases.

RESULT AND DISCUSSIONS: - Agricultural development in Uzbekistan, as represented by changes in Gross Agricultural Output (GAO), exhibits four distinct stages – robust Soviet growth (up to 1980), stagnation during the Gorbachev period (1980-1990), transition decline (from 1991 to 1996-97), and finally recovery (since 1997-98). The transition decline that began in 1990-91 exhibited the classic features of decline observed in all post-Soviet country: the disintegration of the traditional Soviet agricultural system, with its rigidly planned supplies of inputs to and purchases of outputs from collective and state farms at fixed prices, caused a dramatic fall in agricultural production after independence (1991). This fall in production was largely due to the fall in the use of purchased inputs, including feed, machinery, and fertilizers, and the shrinkage of the livestock herd as a production resource. The transition decline in Uzbekistan was low as compared to other states of Central Asia.

The differential changes in the distribution of land across farms of different organizational types have led to striking changes in the structure of agricultural production, especially after 1997-1998. The production in enterprises shrank dramatically from around 40% in 1997 to less than 10% in 2007. The production in household plots remained fairly stable at close to 60% of the total. The production in peasant farms took up the slack released by the shrinkage of enterprises, increasing from 3% in 1997 to about 30% in 2007. The agricultural production has in fact shifted from enterprises to peasant farms since 1997: the decrease in production in agricultural enterprises (bottom dark gray layer) has been compensated by a corresponding increase in production in peasant farms (black layer above it), while the household plots (top light gray layer) have retained a dominant – and relatively constant – share throughout the entire period despite their small share in arable land. The observed shift in production from enterprises to peasant farms is consistent with the shifts in arable land.

The transition decline changed to recovery around 1997, Uzbekistan shows an impressive growth in agricultural production, which rose between 1997 and 2007 by nearly about 70% for Uzbekistan. This growth was driven entirely by the individual sector, i.e., household plots and peasant farms, as the corporate sector (agricultural enterprises) continued its general decline after 1997. The process of agricultural reform encouraging and emphasizing transition from the traditional large-scale enterprises to individual farms – both peasant farms and enlarged household plots – has produced remarkable results in terms of production growth in agriculture. This effect of agricultural growth spurred by individualization of agriculture is found in whole Central Asia that has encouraged transition to individual farming.

Growth in agricultural output can originate from increases in the resources utilized or from increases in the efficiency with which resources are employed. For example, the value of crop production can increase as a result of increases in sown area, increases in the productivity with which farms utilize land, or a combination of these two factors. Likewise, growth in the value of livestock production can derive from increases in livestock inventories, increases in the productivity with which farms make use of livestock, or a combination of the two. The rationale behind agrarian reform has always been the potential productivity gains due to the transfer of land and other assets from collective and state farms to individual farms. Therefore, an important indicator of the success of reforms is the presence or absence of productivity increases as a source of recovery.

Productivity can be calculated in physical units, as the number of kilograms produced per hectare. More generally, agricultural productivity is calculated in aggregated value terms as partial productivity of land (aggregated value of agricultural output per hectare of agricultural land) and partial productivity of labor (aggregated value of agricultural output per agricultural worker, including self-employed peasants). The figures show the three curves that constitute the basis for value-based productivity calculations: agricultural production (gray curve), agricultural land in use (thin black curve), and agricultural labor (thick black curve). The curves span the period 1980-2007 and they are all normalized to index numbers with 1980=100, thus eliminating problems due to differences in units of measurement.

In Uzbekistan, agricultural output (GAO) has increased dramatically since 1997, while agricultural land declined in Uzbekistan. This essentially means that the partial productivity of land increased, almost doubling (in constant prices) between 1997 and 2007 in both Uzbekistan. In Uzbekistan, the steady increase of agricultural labor during the Soviet period changed to moderate decline after 1990, which combined with growth in agricultural production led to a high increase in partial productivity of labor after 1997.

The change in the value of crop production (in constant prices) since 1997 and the corresponding change in the resource base (represented by the sown area). The growth in production not accounted for by the change in the resource component is by definition the contribution from increases in productivity. The decomposition in **Table 3** shows that 45% of growth in crop production can be attributed to increases in productivity. The numbers for livestock production are essentially the same (57% due to change in herd size, 43% due to changes in productivity). For Uzbekistan as a whole, the increase in aggregate value of crop

production was achieved in parallel with a decrease in sown area. In other words, growth in agricultural output occurred despite a decrease in resources, and this may be interpreted as indicating that the entire change in output (100%) was attributable to productivity, with no contribution whatsoever from change in resources. There are large differences in the contribution of productivity growth by farm type and by country. Yet individual farms seem to be associated with larger productivity changes: household plots and peasant farms in Uzbekistan achieve implied productivity change of 1.6 - 1.7 (compared with 1.4 for enterprises). **Tables 3**, confirm that the recovery of agricultural production in Uzbekistan has been driven to a considerable by productivity increases (intensive growth), less by changes in resources (extensive growth). They also confirm that the majority of productivity change contributing to GAO growth has come from individual farms (household plots and peasant farms in Uzbekistan. Uzbekistan has a good longer term agricultural potential for its development. The country will be able to grow over the medium term provided attention is being paid towards development of agricultural sector. Growth rates have been low because resources are not been channelized to their most productive uses. Government authorities are more aware of the importance of stabilizing the individual farm system and attempted to implement a relatively well programmed agrarian reform policy. This approach continued in 1993 with renewed efforts to design and commit to a workable economic policy and further implementing ways and means of promoting and strengthening individual farm system. However, planners of the country should aim at the development of micro-agrarian economic frame work to stabilize the growth in agricultural output. Along with this, structural and sectoral reforms are to be renewed in order to promote land reform policies for strengthening individual farm system. Key elements of structural reform include creation of incentive frame work to faster the agrarian development including promotion of foreign International Organization. Government should take measures for implementation of modern scientific inputs as an essential step for agricultural development.

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References

- Abazov, R. (DEC. 2001), "Formation of the Non- State - Sector and Privatization in Kazakhstan and Uzbekistan," *Communist Economies and Economic transformation*, Vol., 9, No., 14, pp 431 – 447)
- Ahearn, M., Yee, J., Huffman, W. (2002). "The effect of contracting and consolidation on farm productivity," paper presented at the Economics of Contracting in Agriculture Workshop, Annapolis, MD (July).
- Allen, D.W. and Lueck, D. (2002). *The Nature of the Farm: Contracts, Risk, and Organization in Agriculture*, Cambridge, MA, MIT Press.
- Csaki, C. and Kray, H. (2005), *The Agrarian Economies of Central-Eastern Europe and the CIS: An Update on Status and Progress in 2004*, ECSSD Environmentally and Socially Sustainable Development Working Paper, No. 40, World Bank, Washington, DC (June).
- FAO (2004), Inception Mission Report OSRO/TAJ/402/CAN (June).
- Lerman, Z. and Schreinemachers, P. (2005). "Individual farming as a labor sink: Evidence from Poland and Russia," *Comparative Economic Studies*, 47(4): 675-695 (December).
- Lerman, Z., Sedik, D., Pugachov, N., and Goncharuk, A. (2007), *Rethinking Agricultural Reform in Ukraine*, Studies on the Agricultural and Food Sector in Central and Eastern Europe, Vol. 38, IAMO, Halle, Germany.
- Lerman, Z. and Sutton, W. (2008), "Productivity and Efficiency of Small and Large Farms in Transition: Evidence from Moldova," *Post-Soviet Affairs*, 24(2): 97-120.

Table I
Structure of land use in Uzbekistan (1991 and 2007)

Year	Agricultural Landuse			Arable land		
	<i>Enterprises</i>	<i>Peasant Farm</i>	<i>Household Plots</i>	<i>Enterprises</i>	<i>Peasant Farm</i>	<i>Household Plots</i>
1991	98	0	2	92	0	8
1995	97	1	2	88	3	9
2000	94	4	2	72	18	10
2007	62	30	4	22	68	12

Table II
Agricultural Production in Uzbekistan by Farm types (1997 – 2007)

	1997	2002	2007
<i>Agricultural Production</i>			
Enterprises	36	26	03
Peasant Farms	03	10	33
Household Plots	61	64	64
<i>Crop Production</i>			
Enterprises	63	13	02
Peasant Farms	04	18	57
Household Plots	33	10	44
<i>Livestock Production</i>			
Enterprises	10	09	04
Peasant Farms	01	01	04
Household Plots	89	89	90

Table III
Changes in Output and Resources in Crop Production for Farms of different Types in Uzbekistan 1997 – 2007.

	<i>Average</i>	<i>Agricultural Enterprises</i>	<i>Peasant farms</i>	<i>Household Farms</i>
Crop Production	2.04	0.04	19.83	1.84
Snow Area	0.86	0.03	11.45	1.17
Productivity Change	2.4	1.4	1.7	1.6
Impact of change in resources to Change in Production in Percentage	0	70	58	64
Percentage of crop Production in 2007	100	2	57	44

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