Government financial support for productivity output in agriculture sector

¹Abduqodir Toshqulov

ABSTRACT--The rapidly growing agricultural infrastructure in regions has changed way of improvement via labor, capital, and land. Influence of financial capital moves as a potential locomotive for agricultural productivity. Thus, it is important to study the feasibility of inputs as a financial support by government in competitive economic growth. This paper estimated the degree of principles of government financing way of best output in agriculture sector in regions. Main purpose can be discussed in ways of methodological aspects and fundamental approaches of financing. As for the results author suggests decomposition structure of financing and borrowing classification of money. Conclusion can be drawn by summarizing up all fundamental approach of financing instruments, structure and comparative analyses of agriculture development for increasing effective growth.

Keywords-- agriculture, government, financing, integration, productivity, profitability, economic growth. *JEL Classification:* C33, N50

I. INTRODUCTION

Agriculture plays a vital role in each country's economy as it's food products which generate income from farming, fishing and forestry with labor force. However, the agricultural sector is experiencing a change in its workforce age structure. Average workers aged over 60 years increased from 4.79 percent in 1989 to 13.50 percent of the total agricultural labor force in 2013 in the world.

Agriculture finance empowers poor farmers to increase their wealth and food production to be able to feed 9 billion people by 2050. Agriculture finance helps clients provide market-based safety nets, and fund long-term investments to support sustainable economic growth. Demand for food will increase by 70% by 2050; at least \$80 billion annual investments will be needed to meet this demand [1].

World Bank Report (2018) indicates that the agricultural sector employed 43% of Benin's employed population, 28% of Burkina-Faso's (a far cry from a record of an average of 85% in the early 2000s), 68% of Cape Verde's, 48% of Cote d'Ivoire's, 27% of Gambia's, 41% of Ghana's, 68% of Guinea's, 83% of Guinea-Bissau's, 43% of Liberia's, 58% of Mali's, 75% of Niger's, 36% of Nigeria's (a substantial decline from an average of 58% in the 1990s and early 2000s), 53% of Senegal's, 61% of Sierra-Leone's and 38% of Togo's population.

In Uzbekistan agricultural land is 62.6%, forest 7.7%, irrigated land 42,150 sq. km which covers 37% of GDP with 27 % of total labor force [2]. Annal product output is given detail (Appendix 1). Annual production output growth of Uzbekistan during 2000-2018 is calculated 187425.6 billion Uzbek sums (Appendix 2). Growth rate for R&D in agriculture government spent 0,02 % of total GDP [3].

¹ Rector of Termez State University, ORCID-0000-0002-1995-3157, atoshqulov@mail.ru

Moreover, earnings from the agricultural sector constitute a major part of the gross domestic product of most of these economies (Appendix 3).

Despite the focus on public sector actors called for by the nature of our research inquiry, the interviews nonetheless accounted for perspectives on the dynamic interactions between the broader group of actors connected to public investments in agriculture.[4]

Furthermore, capital better substituted for young labor than older labor. The results suggested that both the public and private sectors should encourage young people to engage in the agricultural sector, and support investment in farm machinery as a labor substitute.[5]

Agricultural infrastructural investment has majorly focused on irrigation, transportation, electric power and agricultural markets. However, following the World Bank Report (1994), the definition of agricultural infrastructural infrastructure was narrowed down to comprise long-lived engineered facilities and other services which include roads, electricity supplies and telecommunication[6].

Given the econometric focus, it also rarely distinguished between growth resulting from increases in productivity and growth from other sources, such as price changes, and relatedly the possibly substantially different impacts of productivity growth[7], as part of a larger package of investments costing around 52 billion USD in developing countries[8]

II. LITERATURE REVIEW

World food prices had been on a three-decade downward trend, and agriculture was no longer considered so critical to poverty reduction efforts as during the 1960s and 1970s. With agriculture still the mainstay for the majority of poor people, in the wake of food price crises, and with emerging recognition of changing climates' impact on agricultural productivity, the academic and practitioner community has been focusing a sharper lens on the adequacy and appropriateness of public investments to boost the performance of agriculture and leverage it for overall development [9].

Yet, frequently enough, policy decisionmakers in developing countries tend to neglect public investments with proven high returns for development, while types of public spending with mixed or little welfare impacts receive relatively strong attention in budgets. This has spurred an academic interest specifically in the potential reasons for such mis investments, but also more generally in understanding the factors and actors that determine how public resources are allocated in and for agricultural development [10].

Credit and risk are pivotal dimensions of agriculture everywhere in the world. Two core features of agricultural production are the long-time lag between input investment and profit realization, and the large covariate risks imposed on agricultural production by weather shocks. These two dimensions create a set of interlocking problems both on the supply side (financial institutions face large and systemic risks in providing credit to agriculture) and on the demand side (farmers face many risks beyond their control in trying to finance the investments necessary to increase productivity [11].

For instance, rural infrastructure raises agricultural productivity which induces growth in the rural areas, bringing about higher agricultural wages and employment opportunities [12].

The simulation result reveal that road infrastructure improves market access and in turn affect agricultural productivity and household wealth [13].

In a related study, compare effect of road infrastructure on agricultural productivity of farmers living near rehabilitated roads to suitable controls in Peru [14]. Examined the impact of road transport on agricultural productivity [15].

In terms of the infrastructural elements, improvement in soil practices and extension visits had positive effects on productivity. In a recent study, Investigated the effects of road transport infrastructure on agricultural productivity, using annual data from 1985-2014 [16].

III. MATERIALS AND METHODS

Innovative levels of agricultural investment we begin by providing rough methodology of current financing in agriculture to provide productivity. Author used qualitative method with ground theoretical approaches of various scholars **abroad**. United Nation's Food and Agriculture Organization (FAO) and World Bank, OECD data examined as a material dataset used.

IV. RESULTS

Finance in agriculture is as important as development of technologies. Technical inputs can be purchased and used by farmers only if sufficient money (funds) is available with farmers. Most of the times farmers suffer from the problem of inadequate financial state. This situation leads to borrowing from an easy and comfortable source [17]. Professional money lenders were the only source of credit to agriculture till 1935 [18].

V. DEFINITION

"Agricultural finance is the study of financing and liquidity services credit provides to farm borrowers. It is also considered as the study of those financial intermediaries who provide loan funds to agriculture and the financial markets in which these intermediaries obtain their loanable funds [20].

Murray (1953) defined agricultural finance as "an economic study of borrowing funds by farmers, the organization and operation of farm lending agencies and of society's interest in credit for agriculture."

Tandon and Chondral (1962) defined agricultural finance "as a branch of agricultural economics, which deals with and financial resources related to individual farm units" [21].



Figure 1: Decomposition tree of main agricultural commodity uses and demand drivers [22]

Note: Dark blue boxes represent the uses of agricultural commodities; light blue boxes represent the demand drivers; grey boxes represent production and policy factors. **Source:** OECD-FAO Agricultural Outlook 2019-2028, Page 29

As for the figure 1 main objectivity of the financing areas of the agriculture sectors. We can discuss how

deeply capital investment required in this working process.

VI. STRATEGY TO IMPROVE AGRICULTURE FINANCE

The achievement of targets in the agricultural sector which covers production of food and essential raw material like cotton, jute and oilseeds, ought not to be allowed to suffer for want of adequate credit. However, specific items of productive work and rates of interest need to be considered as an integral part of the Plan. For providing these facilities all the existing agencies like money lenders, commercial banks, cooperatives and the State have to be integrated and harnessed to a common purpose. Such a comprehensive approach is essential for ensuring the best use of all the available resources of the nation [22].

Classification of finance

On the basis of time

• Short-Term: The "short-term loans" are generally advanced for meeting annual recurring purchases such as, seed, feed, fertilizers, hired Laboure pensées, pesticides, weedicides and hired machinery charges which are termed as seasonal loans/crop loans/production loans.

• Medium-Term (from 15 months up to 5 years): "Medium-term loans" are advanced for comparatively longer-lived assets such as machinery, diesel engine, wells, irrigation structure, threshers, shelters, crushers, draught and animals, dairy/poultry sheds, etc.

• Long-Term (above 5 Years): Loans repayable over a longer period (i.e. above 5 years) are classified as long-term loans. "Long-term loans" are related to the long-life assets such as heavy machinery, land and its reclamation, erection of farm buildings, construction of permanent-drainage or irrigation system, etc. [23].

| Objectives | Higher Productivity | Lower Post-Harvest Losses | Climate Change Adaptation | Increase Access to Markets | Explore New Market Trends |
|------------------------|-----------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|---------------------------------|
| Farmers | V | ¢ | 4 | \$ | 1 |
| Input Suppliers | 14 | | ¢ | ¢ | 4 |
| Traders/ processors | - | M | and the second s | - | W |
| What to finance | Technology, inputs, mechanization | Post-harvest systems | Sustainable production systems | Market infrastructure and value chains | Value chains |
| = Very relevant | = Relevant | | | | |

Figure 2: Important areas of the agriculture financing

Lender classification

Credit is also classified on the basis of lender such as:

• Institutional Credit e.g. cooperative loans, commercial bank loans and government loans;

• Non-Institutional Credit e.g. professional and agricultural money lenders, traders and commission agents, relatives and friends etc.

Borrower classification

The credit is also classified on the basis of the type of borrowers (i.e., production or business activity as well as size of business) such as crop farmers, dairy farmers, poultry farmers, fisherman, rural artisans etc. or agricultural laborer's, marginal/small/ medium/large farmers, hill farmers or tribal farmers etc. Such classification has equity considerations.

• Money lenders: Despite rapid development happening in rural branches of different institutional credit agencies, village money lenders still dominate the scene. Money lenders are of two types, agriculturist money lenders who combine their money lending jobs with farming and professional money lenders whose sole job is money lending (fig 3).

- Institutional Credit Agencies
- Government: The government sector banks extend both short term as well as long-term loans.

• Cooperative **Credit Societies** The scope of the Act was restricted to establishment of primary credit societies and non-credit societies.

- Commercial Banks
- Regional Rural Banks



Figure 3: Structure of financing process in agriculture output [24]

Source: Marina Ruete, Investment In Agriculture Policy Brief 3, Financing for Agriculture: How to boost opportunities in developing countries, IISD.org 2015, Page 5.

Micro financing: Micro financing through Self Help Groups (SHG) has assumed prominence in recent years. SHG is a group of rural poor who volunteer to organize themselves into a group for eradication of poverty of the members. following objectives [25].

It has been found that main results can be classified as followings:

- to provide credit for agriculture promotes best productivity;
- to encourage urban sectors only be able to growth by support of the government;
- not to be dependence of farmers some tax privileges should be applied;
- to identify a specific and functional gap in the present institutional;
- to supplement the other institutional agencies in credit delivery to rural;
- to make backward and tribal areas economically better by opening new branches, affiliates and subsidiaries.

 Table 1: Average annual agricultural investment/spending in millions of constant US dollars including 2005

 (2015-2018) [26]

| Region | Private investment 2015-2018 | Government investment in agriculture 2015-2016 | Development flows to agriculture 2015-2018 | ODA for climate adaptation and mitigation through agriculture and fonestry 2015-2018 | Agricultural spending by dedicated multilateral climate funds 2015-2018 |
|----------------------|---------------------------------|------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Africa | 10.027 | 3104 | 3163 | 1443 | 97 |
| Northern Africa | 1941 | 1140 | 59 | 15 | 0 |
| South of the Sahara | 8086 | 1964 | 3104 | 1428 | 97 |
| Eastern Africa | 2306 | 591 | 1267 | 652 | 42 |
| Central Africa | 388 | 138 | 29 | 7 | 3 |
| Southern Africa | 1553 | 479 | 45 | 23 | 3 |
| Western Africa | 3838 | 756 | 1114 | 369 | 47 |
| Other developing | 142,635 | 71,285 | \$057 | 2034 | 227 |
| Developing Countries | 152,662 | 74,390 | 8219 | 3477 | 324 |
| Developed Countries | 155,969 | 54.082 | | | |
| World | 308,631 | 128,472 | 8219 | 3477 | 324 |
| | | | | | |

Source: World bank datasheet 2018.

The overall measurement results are summarized in Table 1 that world countries investment share into agriculture sector by 2015-2018. Detail associations we can see form above table.

| Channels | Banks | Buyer | Inputs | Local Coops/MFIs |
|-------------------------------------------------|-------|-------|--------|------------------|
| Larger to Medium Parmers | 14 | 100 | V | |
| Commerical smallholders Tighter value chains | 0 | 100 | 4 | 40 |
| Commerical smallholders Looser Value Chains | 1 | 0 | M | 1 |
| Semi-commerical smallholders | | | 0 | 1 |

Figure 4: Priority funding sources and chains in agriculture sector

The previous sections have shown that farmers level of funding rate and channels relationships over improvement of agriculture sector development (fig 4).

In pursuing price policy regarding the agricultural products in the developed countries there serves a basis for conclusions developed through comparative analysis of profitability of the European approach (on the basis of observing production expenses on specialized subject groups) and the US approach (on the basis of analyzing costs on types of products to be produced)) as well as farming activity.



Figure 5: Agriculture financing strategy in individual vital characteristics [27]

Source: Innovative Agricultural SME Finance models, International Finance corporation 2012, Page 19.

There are diverse financial support instruments regarding the production of agricultural products and goods producers in different countries of the world. But if we consider them generally there is a specific approach to agriculture in the world economy, in many cases these approaches are positive, that is, they cover preferences and privileges (fig 5).

Supporting the agriculture by the state can be realized directly or indirectly. Financial encouragement of the agriculture by the state being a widely spread method is a support through formation of pricing mechanisms. A modern conception of price formation for agricultural products in economically developed countries envisages an active participation of the state in these processes. This is realized through the followings:

establishing higher and lower limits of prices for agricultural products to regulate the radical change of . prices by the state;

buying or selling agricultural products which do not spoil quickly to protect from trade intervention and keep the permissible price level.

| Parmer | Movable Collateral | Buyer | | |
|------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------|--|--|
| Direct Smallholder lending | Equipment finance | Tight market Value Chain Finance | | |
| Kilimo Biashara, Equity Bank, Kenya; | Banco de Lage Landen, Brazil; | (VCF) with output buyers | | |
| Opportunity International (OI) Informed Lending Model, Ghana, | Mahindra & Mahindra Financial Services, India | Palabana Dairy Cooperative Societ Parmalat, Zambia; | | |
| Rwanda, Mozambique, Malawi, Uganda | Leasing | Dunavant Cotton Contract Farmin Zambia; | | |
| Indirect lending through | IMON Agricultural Leasing pro- gram, Tajikistan; | ECOM Trading Coffee farmer financing, Africa-Asia Facility | | |
| Zanaco's Munda Credit Facility, | Development Finance Uganda Leasing Company | Loose market VCF with | | |
| Emerging Farmers Finance | IFC Coffee farmer bicycle Leasing. Rwanda | Ghana Grains Partnership, Ghana | | |
| Finterra, Mexico; | Infrastructure Finance | Nucleus Farm/Outgrowers | | |
| Zanaco's "The Zambia Emergent Farmer Finance and Support | Jain Irrigation Systems Limited Microirrigation system financing. | Mtibwa and Kilombero Sugar Cane Outgrower Schemes, Tanzania | | |
| Program" (ZEFP), Zambia | India | VCF with input suppliers | | |
| Savings account linked | Warehouse Receipt Financing | NMB Agro-Dealer Financing | | |
| NMB's Kilimo Account Product | NIB, Ethiopian Commodity Exchange, Warehouse Receipt | Bayer/Raiffeisen Aval Bank, input financing, Ukraine, | | |
| Contraction of the second | Financing for Coffee Farmers | ITC-SBI Input finance for | | |
| | NMB WHR fin, cashew, coffee, | smallholders, India | | |
| | Tanzania | Factoring | | |
| | | Centenary Bank/Technoserve | | |

Ghanalan Financial services.

Uganda Kenya Gatsby Trust, Kenya

Trade Finance Trade finance for exporters from Root Capital

Figure 6: Agriculture financing chain frameworks

Source: Innovative Agricultural SME Finance models, International Finance Corporation 2012, Page 26

Centralized. agricultural funds are created due to define. normative deductions and used to equalize business conditions, providing finance assistance to victims of adverse weather conditions. Gratuitous appropriations from the budget are allocated to the costs of further development of material and technical equipment, bases for building agricultural production products and solutions to social problems. At the expense of budgetary funds land reclamation is carried out, their protection from water and wind erosion, veterinarian. and other targeted activities.

VII. DISCUSSION

Agriculture is an industry that does not have financial independence and self-sufficiency. This quality of the industry is due to various reasons, among which the following stand out. Firstly, there is a high-risk dependence of the resources used and the manufactured products on the industrial and climatic conditions. Secondly, the industry has an extremely high degree of "subordination" to the technological development of industry, which affects the functioning of various production structures, i.e. farms producing products. Thirdly, the industry is characterized by a high degree of reproductive isolation, and this imposes additional requirements on the methods of selling manufactured goods.



Figure 7: Average annual real price change for agricultural commodities, (2019-2028) [29] **Source:** OECD/FAO (2019), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), http://dx.doi.org/10.1787/agr-outl-data-en.

If the market value of the resources used by agricultural producers is equalized with its market price, then the effectiveness of the results obtained can be estimated taking into account the dynamics of emerging prices.



Figure 8: Global use of major agriculture commodity [30]

Source: OECD/FAO (2019), OECD-FAO Agricultural Outlook 2019-2028, OECD Publishing, Paris/Food and Agriculture Organization of the United Nations, Rome. https://doi.org/10.1787/agr_outlook-2019-en. Page 29

We emphasize especially that the provision of financial assistance to agricultural producers should not be only an incentive, including from the state. The industry is economically and socially significant, and the provision of any assistance, and even more so free of charge in the field of support, is a necessary condition for providing the population with the products that they consume daily.



Figure 9: Implementation of IMPACT modeling for best output in agriculture

Source: Rosegrant et al. (2017)

We also note that commodity producers are the basic subjects of agricultural activity. This quality is unchanged, no matter how their financial condition develops. In other words, it can be explained that the stable financial condition of agricultural producers is not an end in itself, but acts only as the level of their full-scale effective functioning. In our opinion, the search for additional sources of raising financial resources is also justified in this quality.

In other words, turning into a certain systematic nature, direct budget support for agricultural producers creates a guideline-perception of incoming funds to producers as income received. Unfortunately, this practice has developed, and it has to be changed. We can no longer assume that the financing of the costs of the payment of subsidies in full is carried out from budget sources.

In Uzbekistan since beginning of the independence in the sphere of rendering a comprehensive support to agriculture the systemic works have been carried out regularly. Adoption of Resolution 246 of the Cabinet of Ministers under the leadership of the President of the Republic of Uzbekistan "On purchase of raw cotton and cotton fiber as well as on raising the wholesale prices" of September 26, 1991 shows that this question has been in the focus of great attention on a governmental level.

At the same time, in order to liberate the price regarding cotton price sheet it was specifically determined that the scope of cotton fiber produce over the state order could be sold out on agreed prices. These measures in our republic were the first steps towards bringing the purchase prices of agricultural products close to the market prices. In that period the inflation was on a high level and it was natural to reconsider anew the purchase prices of agricultural products every other year. For the same purpose on the basis of the next resolution of the Cabinet of Ministers of 1992 the prices of raw cotton were raised 6 times and the wholesale prices of cotton fiber were increased 6,8 times more than the year 1991.

Until the normative legal acts on regulating the purchase prices set determined for agricultural products were not adopted the changes of purchase prices were announced each year. Though beginning from the harvest of 1994 the accounting has been realized at world prices of soum in the exchange rate of the Central Bank of the Republic of Uzbekistan, and beginning from the year 1995 realization of cotton products trade out of the republic was determined on the world prices of Liverpool exchange market. The first normative act on formation of purchase prices of raw cotton and wholesale prices of cotton fiber was adopted in the year 2003.

This Charter was adopted in a new edition in 2007 and in determining the basic purchase price of raw cotton the two indications were established as basis: 1) the fifth type, second sort, first class of cotton shall be considered as an average indicator of fiber production; 2) the average price of cotton fiber developed in the world market at the national currency (soum) rate shall be defined. On the basis of these indicators the basic price of one ton of raw cotton at the price of soum shall be established on the basis of the following calculation:

Bp=(Wm-Tsc) x Cr + Spc - Ve x Fp

Bp – the basic purchase price of one ton of raw cotton in soum;

Wm - the average price of one ton of cotton fiber in US dollars to be expected in the world market in the harvesting season;

Tsc – the selling cost of one ton of cotton fiber in US dollars ;

Cr - the average currency rate of the Central bank in soum/dollar to be expected in the harvesting season;

Spc - the secondary production cost of one ton of cotton fiber in soum;

Ve – the expenditures of cotton cleaning ventures in soum for preparation, transportation, storage and reprocessing of one ton of raw cotton;

Fp - the average fiber producing coefficient in the last three years.

In addition, the expenditures made for defining the purchase price of raw cotton by the economic entities on the norms of technological map are also considered. Deriving from the defined basic price in calculating the sorts and classes of raw cotton each coefficient developed on each industry sort, class and type of cotton is utilized. Today these coefficients are confirmed as the following:

| | 1 class | 1.094 |
|---------|---------|-------|
| 1- sort | 2 class | 1.066 |
| | 3 class | 0.853 |
| | 1 class | 1.000 |
| 2-sort | 2 class | 0.917 |

Table 2: Price determination for sorts and classes of cotton raw

| | 3 class | 0.843 |
|--------|---------|-------|
| | 1 class | 0.876 |
| 3-sort | 2 class | 0.779 |
| | 3 class | 0.551 |
| | 1 class | 0.652 |
| 4-sort | 2 class | 0.506 |
| | 3 class | 0.387 |
| 5-sort | 3 class | 0.271 |

In addition, in determining the purchase prices of raw cotton the coefficients to be confirmed on the conjuncture of fiber in the world market are considered by the Ministry of Economics, Ministry of Finance, Ministry of Foreign Economic Relations, Ministry of Investments and Trade as well as "Uzpaxtasanoat" industry of the Republic of Uzbekistan not later than September 1 of each year. If the average purchase price of raw cotton calculated on this scheme differs two or more percent in comparison to the basic price of the previous year the coefficients of prices definition on sorts and classes of raw cotton will be reconsidered in accordance with the harvest of the current year.

As sources of evidence the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan "On purchase of raw cotton and cotton fiber as well as on raising the wholesale prices", the Charter of the Ministry of Justice of the Republic of Uzbekistan "On formation procedure of purchase prices of raw cotton and wholesale prices of cotton fiber" and data Liverpool cotton association on average prices expected for cotton fiber in the world market were undergone comparative analysis. Main Argument: A modern conception of price formation for agricultural products envisages (1) establishing higher and lower limits of prices for agricultural products to regulate the radical change of prices by the state; (2) buying or selling agricultural products. The USA applies two types of prices: (1) Guaranteed "support price" and (2) Minimum legal price.

Currently, one of the important directions of liberalization of the economy of Uzbekistan is «reducing the state's presence in the economy, further strengthening the protection of rights and the priority role of private property, continuing institutional and structural reforms to stimulate the development of small business and private entrepreneurship» (A Possible Approach for Managing Government Bonds Portfolio in International Stock Market (Evidence from Uzbekistan. **TEST Engineering & Management** magazine (The Mattingley Publishing Co., Inc.) 1769 p.). Based on this, according to Presidential Decree No. 4633 of March 6, 2020, starting from the 2020 harvest, the practice of establishing purchase prices for raw cotton is canceled;

VIII. SUGGESTIONS

It is necessary to generalize agricultural financing from the budgetary opportunities and the advisability of making decisions in terms of the growth of agro food commodity output. Core policy innovations for this objective include:

• Optimizing payment systems in agriculture sectors, financial services from banks, using mobile money infrastructure rather than cash in all areas;

- Targeting best directions for investing'
- Integration with international institutions for further development;
- Building credit center infrastructure that permits better service'
 - A coordinated regulatory push on to require information sharing, particularly on short term loans.

• Financial literacy programs to ensure that individuals are aware of innovative means for the future development.

• Digital technology trading platforms to give smallholders access to price information and deeper markets.

IX. CONCLUSION

Based on the results, it can be concluded that the research into the low profitability of agricultural production is its specificity needs investment. And it must be taken into account comprehensively, without hardly possible to solve the totality of problems arising in the volume of productivity goods. From the outcome of our investigation it is possible to conclude that financing instruments like banks, funds and international sources is only be accelerating agriculture development for food security in globally. The findings of our research are quite convincing, and thus the following conclusions can be drawn that for the best productivity output in agriculture sector R&D, innovation, modernization and integration are really mandatory process in modern economic development. So, funding current issues government must be collaboration with international community like UN FAO, World Bank, OECD, ADB and other regional unions for raising effectiveness.



Appendix 1: Annual product output growth in Uzbekistan (per cent) Source: Stat.uz

| 200000.0 - | 187425.6 |
|------------|----------------------------------------|
| 180000.0 - | |
| 160000.0 - | 148199.3 |
| 140000.0 - | 115599.2 |
| 120000.0 - | 99604.6 |
| 100000.0 - | 81794,3 |
| 80000.0 - | 66435.3 |
| 60000.0 - | 45285.9 |
| 40000.0 - | 30856.7 |
| 20000.0 13 | 87204855408346155878538980413103628.6 |
| 0.0 - | |
| | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |

Appendix 2: Annual production output growth of Uzbekistan in sums.

(2000-2018)

Source: Stat.uz

Appendix 3: continued

| | Export in Agri | rt Share riculture ^d Fei | | r Use* | Cereal Yields | |
|---------------------|-------------------|----------------------------------------|----------|--------|---------------|----------|
| ADB Members | 2000 | 2016 | 2000 | 2016 | 2000 | 2016 |
| Afghanistan | | 16.36 | 3.86 | | 1,318.83 | 1,981.70 |
| Armenia | 3.27 | 0.59 | 27.97 | | 1,809.08 | 3,076.10 |
| Australia | 6.04 | 2.86 | 47.39 | | 1,909.33 | 2,074.30 |
| Azerbaijan | 4.43 | 0.28 | 10.85 | | 2,162.83 | 3,004.70 |
| Bangladesh | 1.65 | | 179.33 | | 3,149.29 | 4,628.90 |
| Cambodia | 2.15 | 2.08 | 5.79 | | 1,990.36 | 3,459.90 |
| PRC | 1.03 | 0.42 | 402.14 | | 4,906.07 | 6,029.20 |
| Georgia | 2.86 | 1.25 | 33.04 | | 1,994.86 | 2,517.20 |
| Hong Kong, China | 0.37 | 2.95 | 461.20 | | 2,000.00 | 2,000.00 |
| India | 1.45 | 1.27 | 112.10 | | 2,286.27 | 2,992.80 |
| Indonesia | 4.72 | 5.07 | 132.57 | | 4,053.31 | 5,405.50 |
| Japan | 0.52 | 0.75 | 342.59 | | 6,002.18 | 4,975.50 |
| Kazakhstan | 1.74 | 0.30 | 1.23 | | 937.18 | 1,347.70 |
| Korea, Rep. of | 1.00 | 0.89 | 512.42 | | 6,226.77 | 6,795.20 |
| Kyrgyz Republic | 13.06 | 3.30 | 19.52 | | 2,515.39 | 3,104.40 |
| Lao PDR | | 3.24 | | | 2,966.76 | 4,626.70 |
| Mongolia | 21.81 | 6.93 | 6.30 | | 682.78 | 1,279.40 |
| Myanmar | | 2.60 | 10.26 | | 3,041.03 | 3,607.40 |
| Nepal | 0.73 | 3.55 | 8.33 | | 2,096.52 | 2,605.40 |
| New Zealand | 13.91 | 12.25 | 2,148.70 | | 6,360.53 | 8,383.80 |
| Pakistan | 2.44 | 0.91 | 108.18 | | 2,256.48 | 3,064.20 |
| Papua New Guinea | 4.90 | | 175.22 | | 3,792.42 | 4,737.80 |
| Philippines | 0.71 | 0.76 | 157.78 | | 2,591.38 | 3,529.00 |
| Sri Lanka | 1.87 | 2.65 | 276.51 | | 3,298.01 | 3,897.40 |
| Tajikistan | 12.59 | | 35.88 | | 1,523.00 | 3,348.70 |
| Thailand | 4.10 | 3.87 | 126.03 | | 2,747.82 | 3,031.80 |
| Timor-Leste | 0.13 | | | | 1,541.90 | 2,454.40 |
| Turkmenistan | 16.79 | | | | 2,192.81 | 1,075.60 |
| Uzbekistan | | | | | 2,946.42 | 4,613.10 |
| Viet Nam | 2.21 | 1.41 | 335,86 | | 4,135.12 | 5,448.00 |
| Unweighted Average: | 4.86 | 3.19 | 218.50 | | 2,847.82 | 3,636.53 |

Appendix 3: The Role of Agriculture in ADB Members, 2000–2016 (% of Total Value Added," % of Total Employment,^{b c} % of Total Exports,^d Kg/Hectare")

| | % of Val from Ag | % of Value Added Employment Share Employment from Agriculture* in Agriculture* in Industr | | nent Share lustry ^e | | |
|---------------------|---------------------|----------------------------------------------------------------------------------------------|-------|-----------------------------------|-------|-------|
| ADB Members | 2000 | 2016 | 2000 | 2016 | 2000 | 2016 |
| Afghanistan | 33.75 | 20.97 | 76.83 | 61.77 | 5.50 | 6.72 |
| Armenia | 27.11 | 15.66 | 46.80 | 34.20 | 16.92 | 15.91 |
| Australia | 3.20 | 2.60 | 4.55 | 2.61 | 21.56 | 19.28 |
| Azerbaijan | 16.73 | 5.62 | 41.83 | 36.87 | 11.45 | 14.23 |
| Bangladesh | 21.99 | 13.73 | 59.92 | 40.10 | 11.66 | 20.96 |
| Cambodia | 37.75 | 24.06 | 74.48 | 27.07 | 7.56 | 27.03 |
| PRC | 15.36 | 8.35 | 43.40 | 18.07 | 28.66 | 26.73 |
| Georgia | 24.95 | 7.38 | 53.01 | 41.08 | 9.40 | 12.43 |
| Hong Kong, China | 0.08 | 0.08 | 0.31 | 0.22 | 20.56 | 13.12 |
| India | 22.01 | 15.87 | 59.66 | 43.09 | 16.56 | 23.75 |
| Indonesia | 16.20 | 13.31 | 44.06 | 31.50 | 18.10 | 21.72 |
| Japan | 1.47 | 1.15 | 5.05 | 3.50 | 31.15 | 25.60 |
| Kazakhstan | 9.14 | 4.49 | 36.76 | 17.97 | 15.87 | 20.79 |
| Korea, Rep. of | 3.96 | 1.94 | 10.16 | 4.90 | 28.90 | 24.84 |
| Kyrgyz Republic | 35.84 | 12.58 | 48.82 | 26.74 | 13.24 | 22.13 |
| Lao PDR | 35.77 | 16.72 | 82.47 | 61.67 | 4.06 | 9.60 |
| Mongolia | 26.82 | 11.05 | 51.37 | 30.39 | 11.61 | 19.01 |
| Myanmar | 52.38 | 25.82 | 74.86 | 50.61 | 10.67 | 16.45 |
| Nepal | 36.92 | 28.10 | 75.79 | 72.01 | 7.13 | 7.95 |
| New Zealand | 7.31 | | 8.66 | 6.57 | 23.46 | 20.20 |
| Pakistan | 22.96 | 23.05 | 45.41 | 42.14 | 18.95 | 23.66 |
| Papua New Guinea | 34.91 | | 66.52 | 20.63 | 4.38 | 7.50 |
| Philippines | 15.46 | 9.66 | 38.51 | 26.47 | 16.07 | 17.60 |
| Sri Lanka | 18.31 | 7.59 | 38.40 | 27.10 | 24.62 | 25.55 |
| Tajikistan | 26.46 | 20.38 | 59.98 | 51.18 | 16.36 | 16.47 |
| Thailand | 9.10 | 8.58 | 47.55 | 33.05 | 19.79 | 22.66 |
| Timor-Leste | 7.37 | 11.35 | 60.40 | 24.89 | 7.85 | 14.66 |
| Turkmenistan | 20.15 | | 22.81 | 8.34 | 38.68 | 44.95 |
| Uzbekistan | 27.69 | 16.72 | 38.01 | 21.93 | 31.20 | 37.61 |
| Viet Nam | 24.22 | 15.83 | 63.56 | 41.37 | 13.73 | 24.92 |
| Unweighted Average: | 21.18 | 12.69 | 46.00 | 30.27 | 16.86 | 20.13 |

Source: DB members with population over 1 million.

Source: World Development Indicators Database 2018.

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