вий муносабатлар ўрнатмай давлат бюджети ҳисобидан молиялаштирилмоқда. Қишлоқ хўжалиги сув истеъмолчиларига уларнинг талабларига кўра ҳеч қандай тўловсиз сув бериш амалга оширилмоқда. Оқибатда қишлоқ хўжалик маҳсулотларининг амалдаги таннархи пасаймоқда, сув истеъмолчи корхоналарининг соф даромади давлат томонидан суғоришни ташкил этиш харажатлари миқдорида ошмоқда.

Шунинг учун бозор муносабатларига ўтиш шароитида суғориладиган ерлардан фойдаланиш тизимларида республика даражасида иқтисодий барқарорликни кафолатлаш учун, сув хўжалиги ташкилотлари бизнинг фикримизча, қуйидаги вазифа ва мажбуриятларини бажариши лозим:

- суғориладиган деҳқончилик, гидроэнергетика, иқтисодиётнинг бошқа тармоқларида сув истеъмолчиларининг сувдан рационал фойдаланмаганликлари учун маъмурий ва фуқоролик ҳуқуқий жавобгарлигини кучайтириш;

- мониторинг тизими ва сув хўжалиги объектлари фаолияти учун зарур бўлган ички харажатларни қоплашда давлат бюджети улушини аниқлаш;

- фойдаланилаётган миллий аҳамиятга эга бўлган сув хўжалиги иншоотлари ва сув объектлари фаолияти барқарорлигини сақлаб туриш бўйича сув истеъмолчиларига мажбуриятлар юклаш;

- иқтисодиёт тузулмаларини такомиллаштириш, норентабел бўлган ишлаб чиқаришни тугатиш ва сув ва ер ресурсларидан фойдаланиш самарадорлигини ошириш.

Узоқ келажакни ҳисобга олмай ер, сув, биологик, тупроқ-иқлим ресурсларидан барқарор фойдаланмаслик нафақат ҳосилдорликнинг пасайишига, балки атроф-муҳитнинг экологик ҳолатининг ёмонлашувига ҳам олиб келмоқда.

Мамлакатда экологик назорат ва экологик экспертиза ташкилотлари самарадорлигини ошириш мақсадида Экология ва атроф-муҳитни муҳофаза қилиш давлат қўмитаси, атроф-муҳитни муҳофаза қилиш Республика махсус ваколатли давлат органлари ва айрим табиий ресурс турларини муҳофаза қилиш ва улардан фойдаланиш бўйича бошқа вазирлик ва идоралар ҳамда уларга тегишли ҳудудий органларда давлат назоратларини амалга оширишни мувофиқлаштириб туриши зарур.

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# ҚИШЛОҚ АҲОЛИСИ ДАРОМАДЛАРИДА НОҚИШЛОҚ ХЎЖАЛИК ФАОЛИЯТИДАН КЕЛАДИГАН ДАРОМАДЛАРНИНГ ЎРНИ

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*Аннотация.* Мазкур илмий тадқиқот ишида қишлоқ аҳолиси даромадларида қишлоқ ва ноқишлоқ хўжалик фаолиятидан келадиган даромадларнинг ўрни ва аҳамияти ўрганилган. Шунингдек, қишлоқ ҳудудларида оила бошлиқлари даромадининг шаклланишига таъсир этувчи омилларга Tobit регрессияси орқали иқтисодий баҳо берилган. Таҳлилда онлайн ўтказилган 138 нафар респондент маълумотларидан фойдаланилган. Оила бошлиқлари ўртача ойлик даромадини уларнинг ноқишлоқ хўжалик фаолиятида банд бўлиши 640,1 минг сўмга, маълумоти ёки

таълим даражасининг бир бирликка ошиши 1216,4 минг сўмга, оила бошлиғи эркак киши бўлиши 546,6 минг сўмга, уй хўжалиги шаҳар ҳудудига яқин жойлашиши 170,9 минг сўмга, оила бошлиғининг транспорт хизматидан қониқиши 335,4 минг сўмга ошириши аниқланди. Бироқ, оилада 3 ёшгача оила аъзоларининг бўлиши оила бошлиқларининг ўртача ойлик даромадини 433,2 минг сўмга камайтириши аниқланди. Олинган натижалар асосида, қишлоқ ҳудудлари аҳолиси фаровонлигини ошириш, камбағалликни қисқартириш, ҳудуд ёки маҳаллаларнинг ўсиш нуқталарини белгилашда таклифлар берилган.

*Калит сўзлар:* қишлоқ ҳудудлари аҳоли даромадлари, ноқишлоқ хўжалик фаолиятидан келадиган даромадлар, tobit регрессия модел, ўртача маржинал таъсир, камбағаллик, фаровонлик.

# РОЛЬ ДОХОДОВ ОТ НЕСЕЛЬСКОХОЗЯЙСТВЕННОЙ ДЕЯТЕЛЬНОСТИ В ДОХОДАХ СЕЛЬСКОГО НАСЕЛЕНИЯ

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*Аннотация.* *В данной научно-исследовательской работе изучена роль и значение доходов от несельскохозяйственной деятельности в доходах населения. Также была проведена экономическая оценка факторов, влияющих на формирование доходов семей в сельских районах, посредством регрессии tobita. В анализе использовались данные 138 респондентов, проведенных в режиме онлайн. Средний доход глав семей составляет 640,1 тыс. сумов по несельскохозяйственной деятельности, 1216,4 тыс. сумов на образование или образование, 546,6 тыс. сумов для мужчин, 170,9 тыс. сумов для домохозяйств, расположенных в городской местности. Семья с транспортными услугами увеличится на 335,4 тысячи сумов. Однако выяснилось, что наличие членов семьи в возрасте до 3 лет снижает среднемесячный доход главы семьи на 433,2 тысячи сумов. На основании полученных результатов были даны рекомендации по повышению благосостояния населения в сельской местности, сокращению бедности и определению точек роста для района или района.*

*Ключевые слова:* *доходы населения сельских районов, доходы от несельскохозяйственной деятельности, модель регрессии тобита, среднее предельное влияние, бедность, благосостояние.*

## THE ROLE OF NON-FARM INCOME IN THE TOTAL INCOME OF RURAL POPULATION

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*Annotation.* *This research study explored the role and relevance of income from on and off-farm activities in the income of the rural population. It is also analyzed the factors influencing the income formation of family heads in rural areas by TOBIT regression. An online survey conducted and 138 respondents` answers are analyzed. The results point to an interesting trend. In rural areas of the Republic of Uzbekistan, if a family head being busy in an off-farm activity, his or her average monthly income increases by 640.1 thousand sums. The educated family head, male heads of the household, living near to urban places, and good transport infrastructure raises the average monthly income by 1216.4 thousand, 546.6 thousand, 170.9 thousand, and 335.4 thousand sums respectively. However, 3 years of kids in a family minimizes the income by 433.2 thousand sums. In conclusion, the ways are recommended to improve the rural wellbeing, minimize poverty, and identifying its germination point of region or mahalla.*

*Keywords:* *Rural population income, off-farm income, TOBIT regression model, average marginal impact, poverty, welfare.*

**Introduction.** About 63% of the world's poor live in rural areas [1], as a result of focusing on non-farm activities as an alternative agriculture to stimulate population income growth [2], the share of non-farm income has increased significantly over the last twenty years [3]. In developing countries, income from non-farm activities accounts for 35-50% of household income [4], while in Asian countries it averages 32 % [5]. Income from non-farm activities can be seen as a way to increase family welfare [6] out of poverty and increase income for many unemployed low-income people, with a positive impact on household consumption expenditures [7].

In our country, a wide range of socio-economic reforms are being carried out to ensure the sustainable development of incomes in rural areas, the diversification, increase employment in rural areas, improve living standards and reduce poverty. As a result of these reforms, many programs and projects are focused on rural areas, which is an important factor in reducing poverty in any economy in the development of agriculture and rural areas [8]. In the sustainable development of agriculture in our country, special attention is paid to the development of non-farm activities directly related to agricultural activities in rural areas, which is important in increasing incomes in rural areas and reducing poverty [9].

These days, poverty reduction and improving the living standards of the population in low-income remote areas, the development of non-farm

activities and income diversification have a positive feature in determining their growth [10]. Income diversification leads to rapid increase in income and consumption of the rural population [11]. Indeed, the employment of the rural population in non-farm activities and preferential loans aimed at self-employment in the formation of income, education of heads of families, age, sex and number of members have a positive impact on employment in agriculture [12]. A single level of education ("reading and writing") is important and positive for rural areas, and the inability of a person with a higher education to find a paid job in non-farm activities can be interpreted as self-employment [13]. Adewunmi O. Idowu and others [1] have identified the impact of income from non-farm activities on poverty reduction in rural areas (Nigeria).

The findings suggest that education, birth control and industrialization will be the focus of poverty reduction in rural areas. However, poverty reduction in rural areas, increasing the economic well-being of the population and integrated rural development require rapid growth of non-farm economic activity and employment opportunities. Especially in rural areas, there is a need to develop agribusiness, agriculture, electricity, transport and communications, housing, water supply, marketing, technology for warehouses and other infrastructure sectors that bring income to the rural population [14].

Revenues from non-farm activities mainly include agricultural processing, food industry development, textiles, trade, home-based work, carpentry, blacksmithing, school and preschool education services, health care, transportation services and other services [1]. Thus, the sustainable growth of non-farm activities in rural areas has a positive impact on the labor market, identifying and reducing the poverty. Therefore, it is necessary to determine the growth of rural neighborhoods, the main source of income for the population, analyze the factors influencing the formation of income and their economic evaluation.

The purpose of the research is to determine the importance of income from the type of activity in the formation of family income in rural households and to analyze the factors affecting them and their economic evaluation. To achieve this goal, data from 138 respondents were used in an online survey in Samarkand region.

**Research methodology.** A social survey was formed on the basis of the studied scientific articles, and 143 respondents participated in the online survey conducted through the website https://www.survio.com.

The development of the local economy is associated with the development of intersectoral integration [3] non-farm activities [15], electricity, water supply, highways, schools, preschool education, health, vocational education, investment in people, capital, banking and credit increases the requirements significantly. Based on this, the number of family members in the formation of the income of heads of families, his age and sex, as well as the state of socio-economic infrastructure in the area where the household is located were studied.

The main goal of the scientific article was to determine the type of activity (agricultural or non-farm activity) in the formation of household income in rural households, to analyze the factors affecting income from activities and their economic evaluation five respondents' answers were not used. According to the results of the scientific research of the studied foreign scientists, the head and members of the household who do not have land (farmland) rely on the income from non-farm activities.

In our research study, according to the description of the statistical data (Table 1) of the survey including 138 respondents answers, the average annual income of heads of families for 12 months was taken and their average monthly income was 2692.6 thousand soums. However, the minimum average monthly income of heads of families is 433.3 thousand soums, which may correspond to the contribution of family members whose head is engaged in agricultural activities or under 3 years of age. However, their average annual income is 5-5.5 million soums.

The income of the head of the family is directly affected by his education. This variable is expressed in terms of quality, which is the average of the head of the family – 0; secondary special – 1; higher education – 2 and postgraduate education – 3. However, the average household head data has a normal distribution compared to the standard deviation.

In households, the gender of the head of the household is also an indicator of quality, in which case the head of the family is a male and receives a value of 1, otherwise 0. According to the survey, 78.3% of respondents were men. The age of the heads of the families was quantitatively variable, and in the research work they were divided into groups. That is, if the head of the family is under 40 years of age –3; 41-50 years – 2; 51-60 years – 1; At age 61 and older, a value of 0 was obtained. The number of family members increases until the head of the family reaches a certain age, i.e. in the respondents we studied, the number of family members changed from 38-43 years of age of the head of the family. However, the growth of family members has affected the change in the number of family members.

**Description of variable statistics***

| Variables | | Average | StDev | Min. | Max. |
|---|---|---|---|---|---|
| The average monthly income of heads of families | (Income) | 2692.6 | 1604.5 | 433.3 | 7383.3 |
| 1 if the head of the family is engaged in non-farm activities, otherwise 0 | (Activity) | .848 | .36 | 0 | 1 |
| Literacy of the head of the family | (Education) | 1.21 | .823 | 0 | 3 |
| The sex of the head of the family | (Gender) | .783 | .414 | 0 | 1 |
| The age group of the head of the family | (Age) | 1.848 | .539 | 0 | 3 |
| Number of family members | (Members) | 5.826 | 1.533 | 3 | 12 |
| 1 if there are members under 3 in the family, otherwise 0 | (3 age) | .203 | .404 | 0 | 1 |
| Land area | (Land) | 8.703 | 2.353 | 6 | 15 |
| Distance from household to urban area | (Distance) | 1.486 | 1.303 | 0 | 4 |
| If the transport service in the area where the household is located satisfies the head of the family 1, otherwise 0 | (Transport service) | .645 | .48 | 0 | 1 |

*Survey data conducted by the author*

The distance from the household to the urban area is a quantitative indicator, divided into 5 groups and expressed in quality indicators. That is, to 1-5 km – 4; to 6-15 km – 3; to 16-30 km – 2; to 31-50 km – 3; For distances of 51 km and more – 4 values were set.

Since the dependent variable (Y) is expressed in terms of quantity, the tobit model was applied in the economic assessment of the impact of the independent variable (X) on it, i.e. to analyze the factors affecting the income of the head of the family [16]. The tobit model is useful in cases where the dependent variable has the property of moving to zero or another limit separately. It is not only required to include all observations in the model, but also to evaluate the responses obtained as a result of the change of each independent variable [17]. The mathematical expression of this model is expressed as follows [18].

$$\rho_i^* = \beta_0 + \sum_{j=1}^{i} \beta_j x_{ij} + \varepsilon_i$$

$$\rho_i = \rho_i^* \qquad 0 \le p_i^* \le 1$$
$$\rho_i = 0 \qquad p_i^* < 0$$
$$\rho_i = 1 \qquad p_i^* > 1$$

In this, $\rho_i^*$ – latent variables;

$\rho_i$ – dependent variable;

$x_{ij}$ – independent variable;

$\beta_0$ – invariable;

$\beta_j$ – correlation vector coefficient;

$\varepsilon_i$ – $\varepsilon_i \sim N(0, \sigma^2)$

Applying this method, an economic assessment of the factors influencing the income of heads of families in rural areas and the sources of its formation was made based on the results of the analysis obtained in the program "STATA-16".

**The results of the analysis of tobit regression in the economic assessment of factors affecting family income in rural areas**

| Income | Coefficient | t value | p-value | Significance |
|---|---|---|---|---|
| Activity | 675.742 | 2.92 | .004 | *** |
| Education | 1284.107 | 14.79 | 0 | *** |
| Gender | 576.992 | 3.39 | .001 | *** |
| Age | 357.218 | 2.57 | .011 | ** |
| Members | 41.66 | 0.80 | .425 | |
| 3 age | -457.34 | -2.89 | .005 | *** |
| Land | 28.039 | 0.89 | .374 | |
| Distance | 180.504 | 3.60 | 0 | *** |
| Transport service | 354.033 | 2.62 | .01 | *** |
| Invariable | -1436.281 | -2.21 | .029 | ** |
| Var (e. Income) | 493960.07 | .b | .b | |
| Mean dependent var | 2692.633 | SD dependent var | | 1604.578 |
| Pseudo r-squared | 0.093 | Number of obs | | 138.000 |
| Chi-square | 226.837 | Prob > chi2 | | 0.000 |
| Akaike crit. (AIC) | 2222.836 | Bayesian crit. (BIC) | | 2255.036 |
| *** p<.01, ** p<.05, * p<.1 | | | | |

**Analysis and results.** According to the results of the analysis (table 2), the employment of heads of families in non-farm activities, education, sex, the presence of children under 3 in the family, the location of households close to urban areas, the satisfaction of heads of transport with 1% (p <.01) statistically significant.

In this, the results of heads of families engaged in non-farm activities will increase in the monthly income by 675.7 thousand soums, and an increase in the level of education will increase the monthly income by 1284.1 thousand soums.

The fact that the head of the family is male increases the monthly income by 576.9 thousand soums. On the contrary, if the head of the family is a woman, they will earn 576.9 thousand soums less than if the head of the family is a man.

The location of the household near the city will increase the income of the head of the family by 180.5 thousand soums. However, it is not possible to place all rural households close to urban areas. In this case, the development of rural infrastructure is required. In other words, the well-organized transport service between rural and urban areas alone will increase the monthly income of heads of families by 354.0 thousand soums.

The younger the head of the household, the more income he earns than the older the head of the family. This figure is statistically significant at 5% (p <.05), and the fact that the age of the head of the family is one unit (10 years) increases the average monthly income by 357.2 thousand soums. However, it was found that the presence of family members under 3 years of age reduces the average monthly income of the head of the family by 457.3 thousand soums.

Average marginal effects of independent variables affecting the income of heads of families in rural areas were determined (Table 3).

Table 3

**The average marginal impact of factors affecting the income of the heads of families in rural areas**

| Variables | dy/dx | z | P>z |
|---|---|---|---|
| Activity | 640.1*** | 2.950 | 0.003 |
| Education | 1216.4*** | 15.570 | 0.000 |
| Gender | 546.6*** | 3.400 | 0.001 |
| Age | 338.4 | 2.580 | 0.010 |
| Members | 39.5 | 0.800 | 0.423 |
| 3 age | - 433.2*** | -2.900 | 0.004 |
| Land | 26.6 | 0.890 | 0.373 |
| Distance | 170.9*** | 3.580 | 0.000 |
| Transport service | 335.4*** | 2.620 | 0.009 |

*\*\*\* p<.01, \*\* p<.05, \* p<.1*

The relationship between the dependent and independent variables between the results of this analysis and the results of the tobit model is similar. Increase in the average monthly income of heads of households engaged in non-farm activities by 640.1 thousand soums, increase in education or level of education of the head of the family by 1216.4 thousand soums, gender by 546.6 thousand soums, in the vicinity of urban areas 170.9 thousand soums, the satisfaction of heads of families with transport services increased by 335.4 thousand soums, which is statistically significant at 1 % (p <.01). However, the presence of a child under 3 years of age in the family is statistically significant at 1% (p <.01), but reduces the monthly income of the head of the family by an average of 433.2 thousand soums. That is, it can lead to a decrease in income due to the fact that the head of the family is busy raising children.

**Conclusions and suggestions.** In rural areas, the income of the population consists of income from agricultural and non-farm activities. Income from non-farm plays an important role in the income of households in rural areas of Samarkand region. In the formation of family income, the information of the head of the family, gender, the presence of a child under 3 years of age in the family, the location of the household near the city, the satisfaction of heads of families with transport services were statistically significant at 1% (p <.01). However, although the presence of children under 3 years of age in the family is statistically significant, it was found that the average monthly income of the head of the family (average marginal impact) decreased by 433.2 thousand soums. Also, the younger the head of the family, the more income they earn compared to the older the head of the family. This figure is statistically significant at 5 percent (p <.05). In determining the welfare of the rural population, reducing poverty, determining the growth of the region or neighborhood, it is necessary to pay attention to ensuring employment of the rural population in non-farm activities,

improving their education, improving transport services in developing rural infrastructure. It also requires strong social support from the government for families with children under the age of 3, which affects the decline in family income.

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## TOMORQA XO`JALIKLARINI AFZAL BILGAN SHARTNOMA DIZAYN XUSUSIYATLARI, SAMARQAND VILOYATI MISOLIDA

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*Abstract. Ushbu maqola tomorqa xo'jaliklarini pomidor ishlab chiqarish va sotish bo'yicha shartnoma tuzishga undovchi xususiyatlarni aniqlashga qaratilgan. Ma'lumotlar Samarqand viloyatining oltita tumanidagi 197 ta tomorqa yer egalaridan so'rovnoma usulda yig'ildi. Shartnoma xususiyatlari dizayni va tomorqa yer egalarining shartnomani qabul qilishga xohish-istaklari analizi Diskrit tanlov experimenti va Shartli logistik regressiya modellari asosida qilindi. Tahlillarimiz shuni ko'rsatdiki, tomorqa yer egalari uchun mahsulot ishlab chiqarish bozori va sifat ko'rsatkichlari ishlab chiqarish ta'minoti bilan bog'liq noaniqliklarga qaraganda muhimlgi isbotlandi. Ularning xaridorlar va xom-ashyo ta'minotchilari bilan shartnoma tuzishga moyilligi yuqori ekanligini ko'rsatdi. Tomorqa yer egalari uchun yozma shartnomaning mavjudligi ularning shartnoma tuzish istagini 80,3% ga va xom-ashyo ta'minoti 12,7% ga oshirishi aniqlandi. Saralash, mahsulot qiymatini bir oy oldindan va yetkazib berilgandan bir oy keyin to'lash va xaridor manziliga yetkazib berish xususiyatlari esa salbiy ta'sir ko'rsatishi aniqlandi. Tahlil natijalaridan shu narsa ayon bo'ldiki, tomorqa yer egalari kafolatlanmagan narx va bozorni xohlamasligi ko'rindi. Ular risklarni minimallashtirish va daromadlarni kafolatlash uchun xaridorlar va ta'minotchilar bilan shartnoma asosida mahsulot ishlab chiqarishga moyiligini ko'rsatdi.*

*Kalit so'zlar: Tomorqa xo'jaliklari, shartnoma atributlari, to'lovga tayyorlik, qishloq xo'jaligi oziq-ovqat ta'minoti zanjiri.*