



SURXONDARYO VILOYATIDA KICHIK BIZNES VA XUSUSIY TADBIRKORLIKNING XIZMAT KO'RSATISH SOHASIDAGI ULUSHI HAJMINI PROGNOZLASH

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Annotatsiya: Ushbu maqolada Surxondaryo viloyatida kichik biznes va xususiy tadbirkorlikning xizmat ko'rsatish sohasidagi ulushi hajmini eksponentsial, chiziqli, polinomli, darajali, logarifmli trend modellari yordamida 2028 yilga qadar prognoz qilingan hamda iqtisodiy jarayonga eng mos model turi aniqlangan.

Kalit so'zlar: eksponentsial, chiziqli, polinomli, darajali, logarifmli trend modellari, regressiya.

FORECASTING THE SIZE OF THE SHARE OF SMALL BUSINESS AND PRIVATE ENTREPRENEURSHIP IN THE FIELD OF SERVICE PROVISION IN SURKHONDARYO REGION

Abstract: In this article, the share of small business and private entrepreneurship in the service sector in the Surkhondaryo region is forecasted using exponential, linear, polynomial, graded, logarithmic trend models until 2028, and the type of model most suitable for the economic process is determined.

Key words: exponential, linear, polynomial, rank, logarithmic trend models, regression.

ПРОГНОЗИРОВАНИЕ РАЗМЕРА ДОЛИ МАЛОГО БИЗНЕСА И ЧАСТНОГО ПРЕДПРИНИМАТЕЛЬСТВА В СФЕРЕ ПРЕДОСТАВЛЕНИЯ УСЛУГ В СУРХОНДАРЬИНСКОЙ ОБЛАСТИ

Аннотация: В данной статье с использованием экспоненциальной, линейной, полиномиальной, градуированной, логарифмической трендовых моделей до 2028 года прогнозируется доля малого бизнеса и частного





ISSN (E): 2181-4570 ResearchBib Impact Factor: 6,4 / 2023 SJIF 2024 = 5.073/Volume-2, Issue-5

предпринимательства в сфере услуг Сурхандарьинской области, а также тип модели, наиболее подходящий для экономического процесса. определен.

Ключевые слова: экспоненциальная, линейная, полиномиальная, ранговая, логарифмическая трендовая модель, регрессия.

Etakchi xorijiy davlatlarning (AQSh, Germaniya, Buyuk Britaniya) tajribasi shuni ko'rsatadiki, ijtimoiy-iqtisodiy rivojlanishda yangi darajasiga mintaqaviy darajada xizmat ko'rsatish sohasidagi chuqur o'zgarishlarsiz erishish mumkin emas¹. Xizmat ko'rsatish sohasi aholi va korxonalariga turli xizmatlar ko'rsatish, ishlab chiqarish samaradorligini oshirish va turmush darajasini oshirishga ko'maklashish orqali iqtisodiyotni rivojlantirishda muhim o'rin tutadi.

Xizmat ko'rsatish sohasi samaradorligini istiqbollarni taxmin qilish biznes jarayonlarini optimallashtirish, resurslarni rejalashtirish, risklarni boshqarish va asoslangan qarorlar qabul qilish uchun muhimdir. Bu soha korxonalari rivojlanish strategiyasini samarali shakllantirish, mijozlarga xizmat ko'rsatish darajasini oshirish va moliyaviy natijalarni yaxshilash imkonini beradi. Shu jihatdan, uning kelgisida vujudga kelishi mumkin bo'lgan holatlarini modellashtirish ahamiyatli hisoblanadi.

Surxondaryo viloyatida kichik biznes va xususiy tadbirkorlikning xizmat ko'rsatish sohasidagi ulushi hajmini tadqiq etishda ko'rsatkichlarning yillar oralig'idagi o'zgarishini o'rganish ahamiyati katta. Sababi, o'tmish va hozirgi tendentsiyalar, qonuniyatlar va aloqalar kelgusi rivojlanish tendentsiyalariga ta'sir etadi. Bunday holatlarda trend modellari bilan prognozlashtirish ko'rsatkichlarning nazariy qiymatlarini aniqlash orqali kelgusi holatni tadqiq etish imkonini beradi. Trend modellari tajribalarda keng qo'llaniladigan eng sodda prognozlash modellaridan biri hisoblanadi.

Trend - jarayonning uzoq vaqt davomida barqaror, tizimli o'zgarishidir. Shu munosabat bilan modellashtirilgan ijtimoiy-iqtisodiy tizimning rivojlanishi tendentsiya va asosiy ko'rsatkichlar orqali aks ettiriladigan iqtisodiy-matematik dinamik model trend modeli deb ataladi. Unda natijaviy belgi sifatida o'rganayotgan ko'rsatkich, omil

¹ Молев М.Д. Региональная сфера обслуживания: концепция развития. Научный журнал Сервис PLUS, №3, 2009.



belgi sifatida esa kuzatuv davri soni olinadi. Odatda trend modellari umumiy ko'rinishi quyidagicha bo'ladi²:

$$y_t = f(t) + \varepsilon_t \quad (1)$$

bu yerda, $f(t)$ - jarayonlarning vaqt bo'yicha yo'nalishining doimiy tarkibiy qismi; ε_t - tasodifiy tarkibiy qism;

Trend modellarining keng qo'llaniladigan quyidagi turlari mavjud^{3 4 5 6}:

- $y = a + bt$ - chiziqli trend modeli
- $y = ae^{bt}$ - eksponentsial trend modeli
- $y = a + b_1x + b_2x^2$ - 2-darajali polinom
- $y = at^b$ - darajali
- $y = a + blnt$ - logarifmik trend tenglamalari

Odatda, trend parametrlari eng kichik kvadratlar usuli yordamida baholanadi. Egri chiziqli trend modellari logarifmlash yo'li bilan chiziqli trend ko'rinishiga keltiriladi va tegishli hisob-kitoblar amalga oshiriladi.

Eng maqbul modelni tanlash uchun ularning determinatsiya koeffitsienti va xatoliklariga ko'zdan kechiriladi.

rxondaryo viloyatida kichik biznes va xususiy tadbirkorlikning xizmat ko'rsatish sohasidagi ulushi hajmini eksponentsial, chiziqli, darajali va 2-tartibi polinom trend modellari bilan modellashtirish uchun Microsoft Excel dasturiy ta'minotining «Анализ данных» paketidan foydalangan holda amalga oshirildi. Dastlab tahlil uchun 1-jadvaldagi ma'lumotlardan foydalanildi.

1-jadval

Surxondaryo viloyatida kichik biznes va xususiy tadbirkorlikning xizmat ko'rsatish sohasidagi ulushi hajmi (mlrd so'm)⁷

² Фукина С.П. Трендовые модели в экономических исследованиях // Экономический анализ: теория и практика. 2011. №11. URL: <https://cyberleninka.ru/article/n/trendovye-modeli-v-ekonomicheskix-issledovaniyah> (дата обращения: 28.11.2023).

³ Tuychiyeva, M. K., & Turayev, B. E. (2024). Trend modellari yordamida elektron tijorat aylanmasi hajmini modellashtirish va prognozlashtirish. Technical science research in Uzbekistan, 2(2), 193-199.

⁴ Mirzohidovna, P. M., & Turayev, B. E. (2024). Surxondaryo viloyati asosiy kapitalga kiritilgan investitsiyalar hajmini trend modellari orqali modellashtirish. Journal of Universal Science Research, 2(2), 296-302.

⁵ Xursanova, S. A., & Turayev, B. E. (2024). Hudud dehqonchilik mahsulotlari ishlab chiqarish hajmini trend modellari yordamida prognozlashtirish. Technical science research in Uzbekistan, 2(2), 200-208.

⁶ Tulaganova, M. H., & Turayev, B. E. (2024). Asosiy kapitalga kiritilgan investitsiyalarni trend modellari yordamida prognozlash (Surxondaryo viloyati misolida). Technical science research in Uzbekistan, 2(2), 223-230.

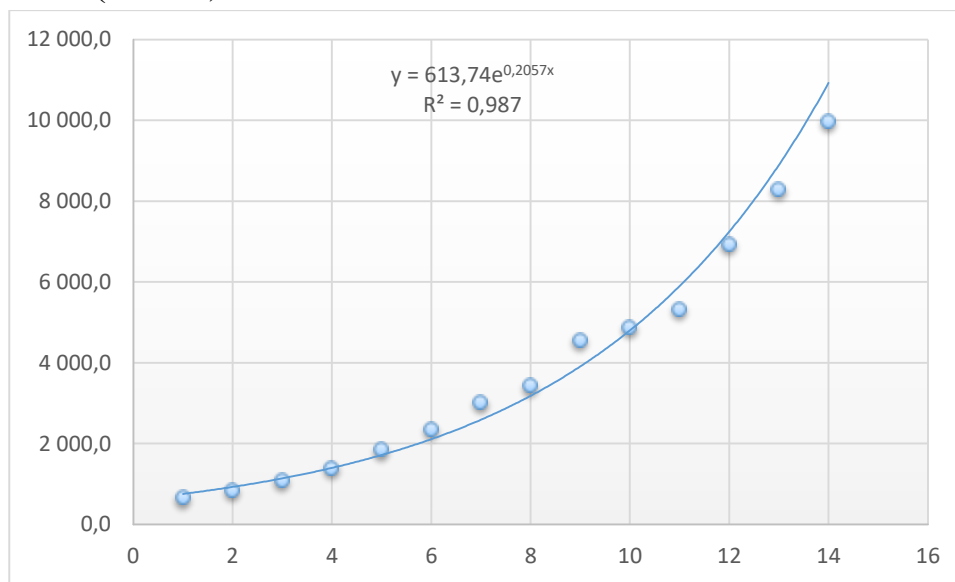
⁷ Surxondaryo viloyati Statistika boshqarmasi rasmiy sayti www.surxonstat.uz ma'lumotlari.





Yillar	y	Yillar	y
2010	653,6	2017	3 431,7
2011	847,9	2018	4 563,9
2012	1 088,4	2019	4 879,9
2013	1 388,2	2020	5 331,3
2014	1 845,6	2021	6 938,5
2015	2 360,0	2022	8 292,3
2016	3 015,2	2023	9 979,1

Tajriba uchun ma'lumotlarni MS Excelga yuklab oldik. Ma'lumotlar oraligini belgilab olib, "Вставка – Диаграмма – Точечная – Точечная" diagrammasini, keyin esa, istalgan nuqtani belgilab, sichqonchani o'ng tugmasini bosish orqali hosil qilinadigan menyudan "Добавить линию тренда..." ni tanladik. Natijada quyidagiga ega bo'ldik (1-rasm).

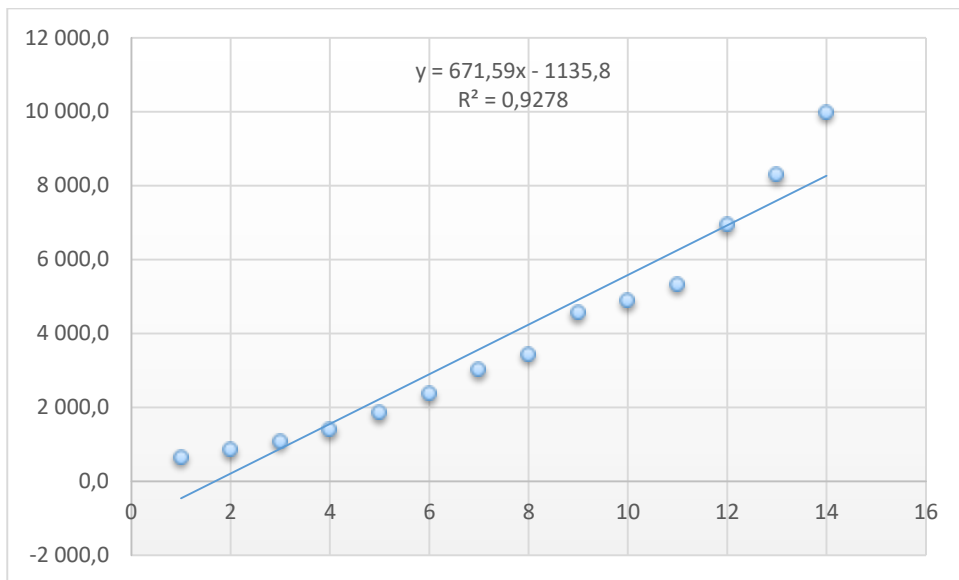


1-rasm. Eksponentsial trend modeli⁸

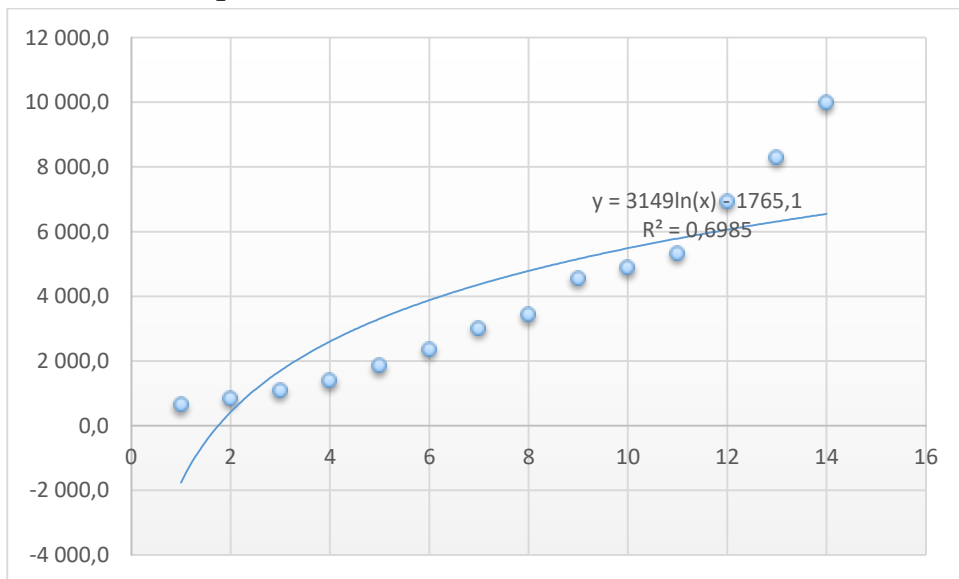
Boshqa model turlarini tanlab 2-5-rasmlardagi natijalarga ega bo'lamiz.

⁸ Muallif ishlanmasi



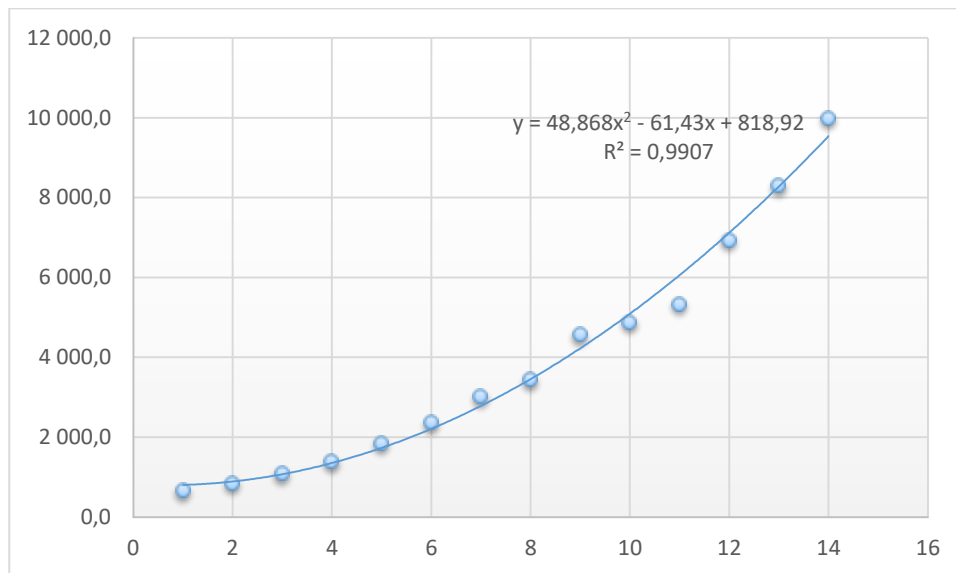


2-rasm. Chiziqli trend modeli

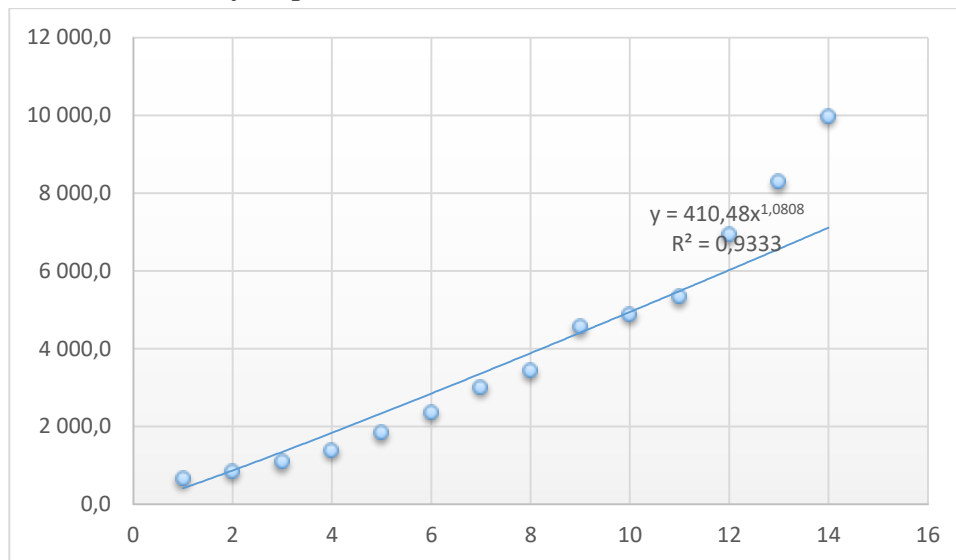


3-rasm. Logarifmik trend modeli





4-rasm. 2-darajali polinom trend modeli



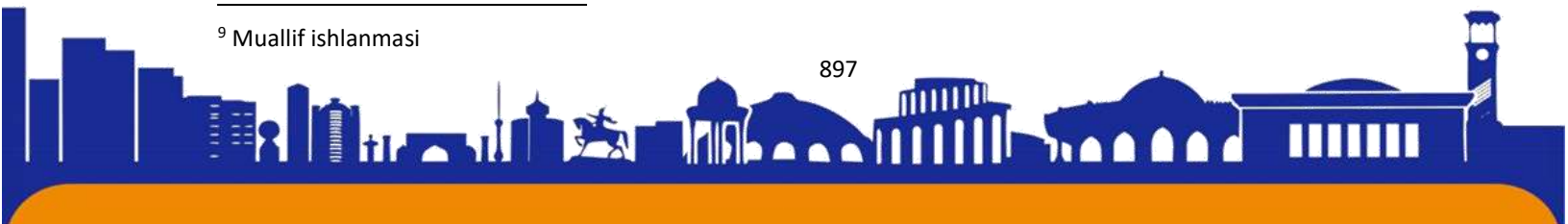
5-rasm. Darajali trend modeli.

Shunday qilib, barcha turdagi modellarni tuzib oldik. Endi ularning sifatini va ahamiyatligini tekshirib ko'ramiz (2-jadval).

2-jadval

Regression tahlil natijalari⁹

⁹ Muallif ishlanmasi





T/r	Model turi	Model tenglam,asi	Determinatsiya koeffitsienti
1	Ekspontentsial	$y = 613,74e^{0,2057t}$	0,987
2	Chiziqli	$y = 671,59t - 1135,8$	0,9278
3	Logarifmik	$y = 3149 \ln(t) - 1765,1$	0,6985
4	Polinomli	$y = 48,868t^2 - 61,43t + 818,92$	0,9907
5	Darajali	$y = 410,48t^{1.0808}$	0,9333

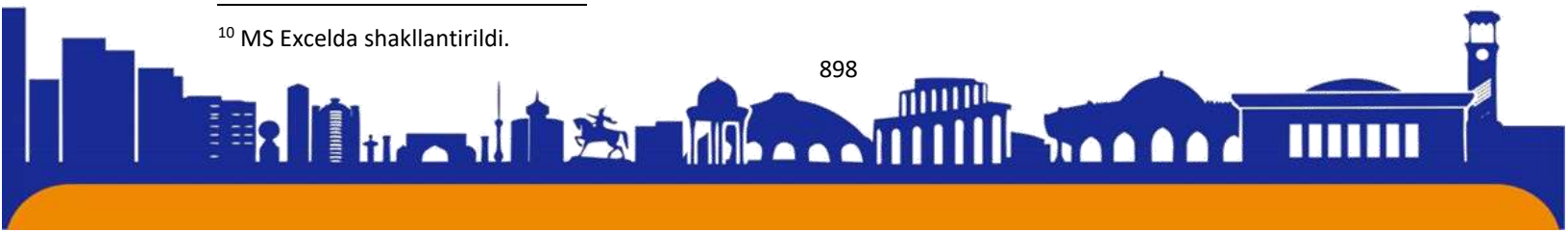
2-jadvaldan 2-darajali polinom trend modeli bo'yicha determinatsiya koeffitsienti eng katta. Demak, model sifati boshqalarga qaraganda yuqori. Modelning ahamiyatini Fisher mezoni bilan va parametrlari statistik ishonchliligini Styudent t mezoni bilan tektrishilganda ba'zi koeffitsiyentlari statistik ahamiyatga ega bo'lmadi. Shu sababli o'zgarmas qatnashmagan 2-darajali polinom model turini tajribadan o'tkazdik (3-jadval).

3-jadval

Regression tahlil natijalari¹⁰

ВЫВОД ИТОГОВ					
<i>Регрессионная статистика</i>					
Множественны й R	0,997				
R-квадрат	0,994				
Нормированны й R-квадрат	0,911				
Стандартная ошибка	387,527				
Наблюдения	14				

¹⁰ MS Excelda shakllantirildi.





Дисперсионный анализ					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Значи- мость F</i>
Регрессия	2	321852164	160926082	1071,577	2,48E-13
Остаток	12	1802122,13	150176,84		
Итого	14	323654286			
	<i>Коэффи- циенты</i>	<i>Стандарт -ная ошибка</i>	<i>t-ста- тистика</i>	<i>P- Значени е</i>	<i>Нижние 95%</i>
У-пересечение	0	#Н/Д	#Н/Д	#Н/Д	#Н/Д
Переменная X 1	164,032	48,801	3,361	0,006	57,703
Переменная X 2	35,910	4,351	8,253	0,000	26,430

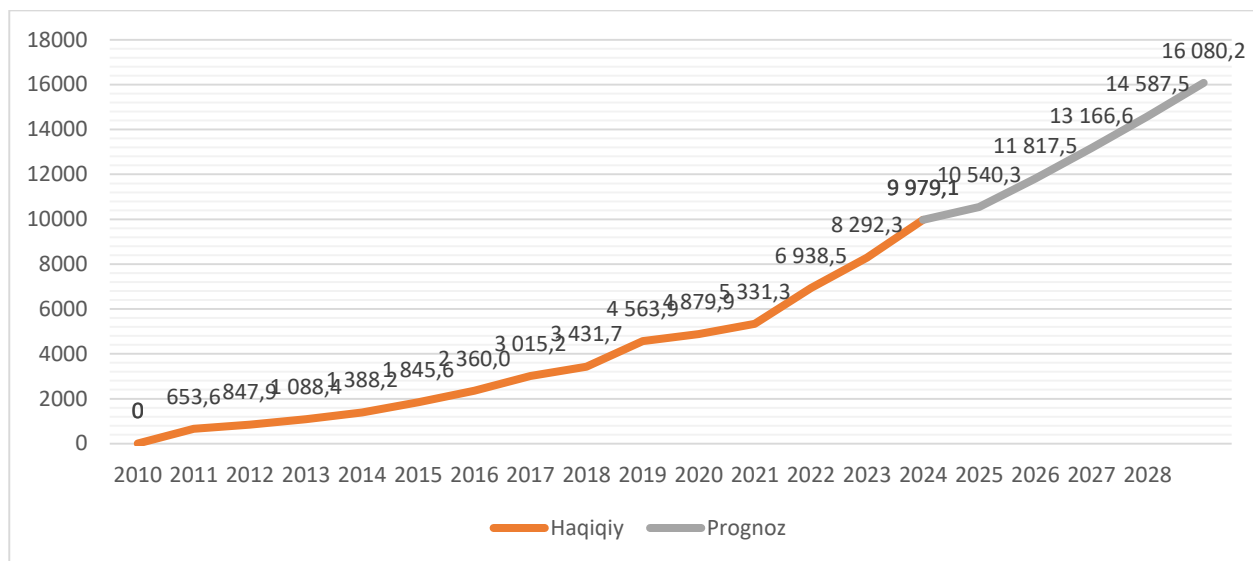
3-jadvalga ko'ra, Fisher F mezoni qiymati 1071,577. Bu qiymat jadval qiymatidan katta. Sababi, p-qiymat $2,48 \cdot 10^{-13}$ ga teng. Shuningdek, parametrlarining Student t mezoni bo'yicha qiymati esa 3,361 va 8,253 ga teng. Bunda p-qiymat 0,05 ahamiyatlilik darajasidan kichik. Demak, model iqtisodiy jarayonga mos.

Shunday qilib, rxondaryo viloyatida kichik biznes va xususiy tadbirkorlikning xizmat ko'rsatish sohasidagi ulushi hajmi bo'yicha modeli umumiy ko'rinishi quyidagicha bo'ldi:

$$y = 48,868t^2 - 61,43t + 818,92 \tag{2}$$

Bu modeldan foydalanib, hudud kichik biznes va xususiy tadbirkorlikning xizmat ko'rsatish sohasidagi ulushi hajmi prognoz qilindi. (6-rasm)



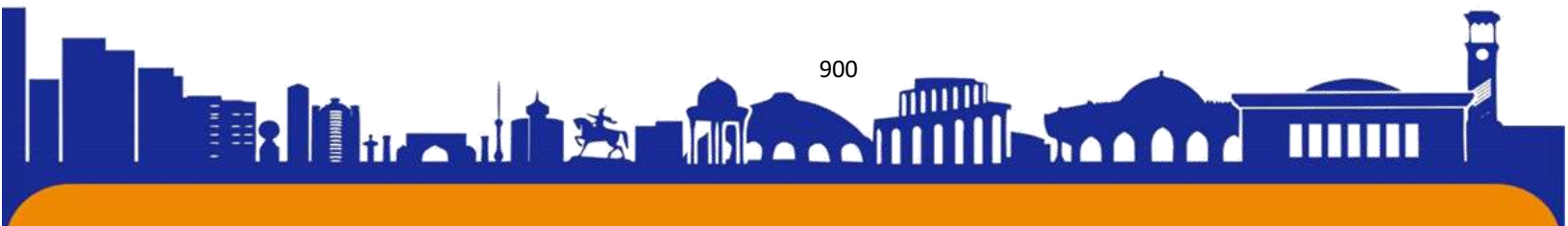


6-rasm. Surxondaryo viloyatida kichik biznes va xususiy tadbirkorlikning xizmat ko'rsatish sohasidagi ulushi hajmi (mlrd so'm).

6-rasmga ko'ra 2028 yilga kelib, rxondaryo viloyatida kichik biznes va xususiy tadbirkorlikning xizmat ko'rsatish sohasidagi ulushi hajmi 16 080,2 mlrd so'mni, o'sish esa 161% ni tashkil etishi kutilmoqda.

FOYDALANILGAN ADABIYOTLAR

1. Буранова, Л. В. (2023). Повышение эффективности управления кредитными ресурсами предприятия. *O'zbekistonda fanlararo innovatsiyalar va ilmiy tadqiqotlar jurnali*, 2(19), 329-333.
2. Фукина С.П. (2011). Трендовые модели в экономических исследованиях // *Экономический анализ: теория и практика*. №11.
3. Shodiyev T.Sh., Hakimov T.X., Boltaeva L.R., Ishnazarov A.I., Nurullayeva Sh., Muminova M.A. (2007). *Ekonometrika: o'quv qo'llanma*. – T.: TDIU – 178 b.
4. Тураев, Б. (2021). Корреляционно-регрессионный анализ доли строительных работ в валовом региональном продукте Сурхандарьинской области. *Экономика и инновационные технологии*, (6), 205-214.
5. Tuychiyeva, M. K., & Turayev, B. E. (2024). Trend modellari yordamida elektron tijorat aylanmasi hajmini modellashtirish va prognozlashtirish. *Technical science research in Uzbekistan*, 2(2), 193-199.





ISSN (E): 2181-4570 ResearchBib Impact Factor: 6,4 / 2023 SJIF 2024 = 5.073/Volume-2, Issue-5

6. Xursanova, S. A., & Turayev, B. E. (2024). Hudud dehqonchilik mahsulotlari ishlab chiqarish hajmini trend modellari yordamida prognozlashtirish. *Technical science research in Uzbekistan*, 2(2), 200-208.

7. Mirzohidovna, P. M., & Turayev, B. E. (2024). Surxondaryo viloyati asosiy kapitalga kiritilgan investitsiyalar hajmini trend modellari orqali modellashtirish. *Journal of Universal Science Research*, 2(2), 296-302.

8. Tulaganova, M. H., & Turayev, B. E. (2024). Asosiy kapitalga kiritilgan investitsiyalarni trend modellari yordamida prognozlash (Surxondaryo viloyati misolida). *Technical science research in Uzbekistan*, 2(2), 223-230.

9. Субханова, М. А., & Тураев, Б. Э. (2024). Корреляционно-регрессионный анализ ликвидности коммерческих банков. *Multidisciplinary Journal of Science and Technology*, 4(3), 38-43.

10. Khurramov, E. X. (2019). Role of innovation in increasing efficiency of production of agricultural products in forestry. *Theoretical & Applied Science*, (10), 518-521.

11. Norbek, N. (2022). Agrar sohada raqamli texnologiyalarni qo 'llashning ustuvor yo 'nalishlari. *Архив научных исследований*, 2(1).

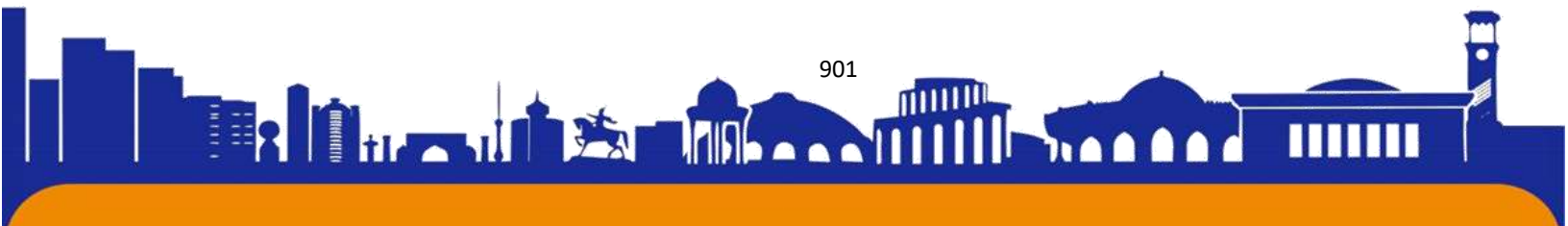
12. Khatamov, O. K., & Shakarova, D. R. (2023). Correlation-Regression Analysis Of The Main Use Indicators Of Railway Transport. *Baltic Journal of Law & Politics*, 16(3), 3657-3662.

13. Abdugabbarovna, D. L., & Abdurashidovich, A. O. (2024). The role of small business and private entrepreneurship in ensuring the employment of the population and increasing their income. *Open Access Repository*, 10(1), 54-57.

14. Safarovna K. S. et al. Surxondaryo viloyati aholi jon boshining asosiy kapitaliga o'zlashtirilgan investitsiyalar hajmini arima modeli yordamida prognozlashtirish //Journal of Universal Science Research. – 2024. – T. 2. – №. 2. – С. 257-266.

15. Буранова, Л. В. (2023). Повышение эффективности управления кредитными ресурсами предприятия. *O'zbekistonda fanlararo innovatsiyalar va ilmiy tadqiqotlar jurnali*, 2(19), 329-333.

16. Ortikov, S. M. (2021). Experience in statistical study and analysis of employment in foreign countries. *Thematics Journal of Business Management*, 10(7).





17. Khidirberdievich, A. E., & Mamadillayevich, Z. S. (2021). Issues of Regulation of Blockchains in the Digital Economy and World Experience in Reducing, Preventing the "Hidden Economy". *International Journal of Multicultural and Multireligious Understanding*, 8(7), 591-597.

18. Azamat, K., Akmal, I., Nusratillo, N., & Otabek, M. (2022). Improving The Investment Environment In The Country: The Role And Analysis Of Banks In The Modernization Of Industry. *Journal of Positive School Psychology*, 6(10), 2220-2227.

19. Allayor o'g'li, X. R. (2023). Globallashuv sharoitida hududning eksport salohiyatini yanada takomillashtirish yo'nalishlari. *Journal of Universal Science Research*, 1(6), 799-803.

20. Алтиев, А. С., Очилов, И. С., & Султонов, Х. Ф. (2021). Global experiences in improving the economic mechanisms of irrigated land improvement. *Экономика и социум*, (6-1), 418-426.

21. Turolova, N. (2023). O 'zbekiston moliya tizimida mahalliy moliyaning o'ziga xos xususiyatlari.

22. Solidjonovna, S. R. (2024). The role of localization of production in the stable and consistent development of the economy. *Web of Scientists and Scholars: Journal of Multidisciplinary Research*, 2(3), 1-4.

23. Gulnoza, E. (2024). The status of the population's use of the stock market in Uzbekistan. *Western European Journal of Linguistics and Education*, 2(4), 145-149.

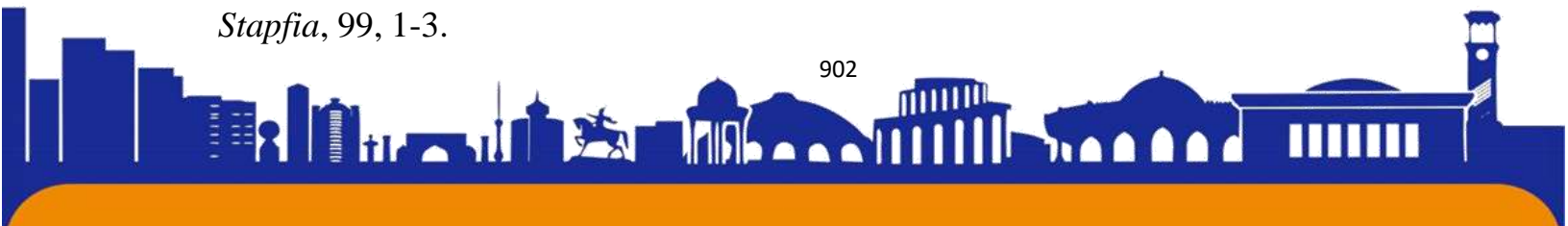
24. qizi Egamnazarova, G. X. (2024). Kreditning mohiyati, asosiy funksiyalari va tashkil qilishning nazariy asoslari. *Multidisciplinary Journal of Science and Technology*, 4(3), 748-754.

25. qizi Egamnazarova, G. X. (2024). Kredit turlari va uning ilmiy-nazariy asoslari. *Multidisciplinary Journal of Science and Technology*, 4(3), 755-762.

26. qizi Egamnazarova, G. X. (2024). Aholi farovonligini oshirishda kredit mablag'laridan foydalanishning ilg'or xorij tajribalari. *Multidisciplinary Journal of Science and Technology*, 4(3), 763-770.

27. Allayarov, P. (2022). The factors affecting Kyrgyzstan's bilateral trade: a gravity-model approach. *Архив научных исследований*, 4(1).

28. Khassanov, F. O., Khuzhanazarov, U., Rakhimova, N., Esankulov, A., & Achilova, N. (2013). Two new species of Iris L.(Iridaceae Juss.) from Uzbekistan. *Stapfia*, 99, 1-3.





ISSN (E): 2181-4570 ResearchBib Impact Factor: 6,4 / 2023 SJIF 2024 = 5.073/Volume-2, Issue-5

29. Bozorov, R. K., & Esankulov, A. E. (2019). Practice of analysis of financial stability indicators of major commercial banks in Uzbekistan. *International Journal of Advanced Science and Technology*, 28(20), 873-880.

30. Eshquvvatov, O. A. (2024). Activation of the human factor in the innovative economy. *Multidisciplinary Journal of Science and Technology*, 4(3), 475-479.

31. Eshquvvatov, O. A. (2024). The role of information in the implementation of foreign economic activity. *Multidisciplinary Journal of Science and Technology*, 4(3), 470-474.

32. Solijonovna, S. R. (2023). Import Replacement-As an Assistant Mechanism for Diversification of Production and Approval of Foreign Trade.

33. Sultonov, X. G. (2022). Effectiveness of attracting investments in improving the ecological condition of irrigated lands. *Экономика и соцуум*, (4-1 (95)), 56-60.

34. Allayor o'g'li, X. R. (2024). Eksport faoliyatini takomillashtirishning xorijiy mamlakatlar tajribasi. *Technical science research in uzbekistan*, 2(2), 154-160.

35. Norqobilov, N., & Abdullayev, J. (2023). Specific features of solving the housing problem in our country in the context of economic reforms. *Multidisciplinary Journal of Science and Technology*, 3(2), 21-23.

36. Jumanazar o'g'li, X. M., & Eshpo'latovich, A. J. (2024). Bozor iqtisodiyotining mazmuni va asosiy belgilari. *Ijtimoiy fanlarda innovasiya onlayn ilmiy jurnali*, 4(4), 39-41.

37. O'G'Li, S. M. F., & Eshpo'latovich, A. J. (2024). Iqtisodiyot va uning tarmoqlarini raqamlashtirish. Iqtisodiyot sohasiga raqamli texnologiyalarni olib kirilishi. *Ijtimoiy fanlarda innovasiya onlayn ilmiy jurnali*, 4(4), 56-60.

38. Surxondaryo viloyati Statistika boshqarmasi rasmiy sayti www.surxonstat.uz ma'lumotlari.

