

UDC 336.7

Tagimova Alua

Grade 11 student

Scientific supervisor: Altynbek Aruzhan Yessenqyzy

Aktobe Boarding School for Girls

(Aktobe, Kazakhstan)

WHO WAS LEFT BEHIND? EDUCATION AND FINANCIAL INCLUSION IN KAZAKHSTAN AND THREE CENTRAL ASIAN NEIGHBOURS, 2021-2024

Abstract: By 2024, 87% of adults in Kazakhstan had a financial account, more than in any of its Central Asian neighbours. I used the World Bank's Global Findex data for 2021 and 2024 to check whether this growth reached adults with only primary education or less, and compared Kazakhstan with Kyrgyzstan, Tajikistan and Uzbekistan. In Kazakhstan, account ownership in this group did not grow (61.9% in 2021 and 58.1% in 2024), while among adults with secondary education or more it rose from 84.3% to 91.2%. The same was true for digital payments and for saving any money. In the three neighbouring countries, account ownership among the less educated grew by 11 to 22 percentage points. The less educated group in Kazakhstan did change in one way: those who saved moved their savings into banks. The share of savers in this group who saved at a bank or similar institution rose from about 15% to about 47%, while in the more educated group it stayed at about 52%. The less educated group is small, around 13% of the sample, so the results have wide margins of error, and the widening of the gap between the two groups is not statistically certain. Still, the evidence suggests that Kazakhstan's high national average hides a group that the recent growth in financial services did not reach.

Keywords: financial inclusion; education; account ownership; saving; Global Findex; Kazakhstan; Central Asia

Introduction

Kazakhstan looks like a success story in financial inclusion. According to the World Bank's Global Findex database, the share of adults with an account at a bank, a similar institution or a mobile money provider grew from 58.7% in 2017 to 81.1% in 2021 and 87.0% in 2024 [1]. This is the highest level in Central Asia: in 2024 the figure was 72.3% in Kyrgyzstan, 59.7% in Uzbekistan and 54.5% in Tajikistan [1].

What I wanted to know is who is behind the average. A national figure of 87% can hide groups that are still far from the rest. Research on financial inclusion has shown for a long time that account ownership differs not only between countries but also between income groups inside the same country [2]. In a study of 37 African countries based on the same Findex survey, Zins and Weill found that education and income were the strongest individual factors behind financial inclusion [3]. Allen and co-authors showed that account ownership is higher where accounts are cheaper and financial institutions are closer, and that policies to lower these barriers may be especially effective for the groups most likely to be excluded [4]. There is also a knowledge side. Lusardi and Mitchell describe financial knowledge as a kind of human capital that is unevenly spread across the population [5], and a study by Cole, Sampson and Zia that combined surveys with a field experiment found that a financial education programme increased

demand for bank accounts only among people with limited education or financial literacy, while small subsidies had a much larger effect [6].

For Kazakhstan, the research is thinner. A recent review of financial inclusion in the country notes that there are few comprehensive studies of these processes in Kazakhstan [7]. The newest Findex round, collected in 2024 and published in 2025 [8], makes it possible to look at changes since the previous round in 2021 [9] and to split the results by education.

In this study I compare two education groups that Findex reports for every country: adults with primary education or less, and adults with secondary education or more. I ask three questions:

- Did account ownership among adults with primary education or less grow in Kazakhstan between 2021 and 2024, as it did among more educated adults?
- Did the way people in each group save money change, in particular the share who save at a bank?
- Is Kazakhstan's pattern the same as in Kyrgyzstan, Tajikistan and Uzbekistan?

Materials and Methods

Data. All data come from the Global Findex Database 2025, which is published by the World Bank and includes the 2017, 2021 and 2024 survey rounds [1, 8]. The survey is carried out by Gallup as part of the Gallup World Poll and interviews about 1,000 randomly selected people aged 15 and older in each economy, using nationally representative samples [10]. I did not use individual answers, only the published percentages for each country and group. I collected the numbers from the DataBank website, and they were then checked a second time against the same data downloaded through the World Bank's data interface (source 28). All values matched.

Indicators. I used five indicators, each reported separately for adults with primary education or less and for adults with secondary education or more: having an account; having made or received a digital payment; having saved any money in the past year; having saved at a bank or similar financial institution; and having saved at a financial institution or using a mobile money account. For Kazakhstan I also used the share with an account at a bank or similar institution only. The countries were Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan, and the years were 2021 and 2024. For the three neighbours, the saving-at-a-bank indicators by education are missing in most cells, so for them I compare only account ownership and saving any money.

One detail of the data turned out to be important. For Kazakhstan, the database has no mobile money values for 2021, and in that year the share with "an account" is exactly the same as the share with a bank account (81.1%). In 2024 the account figure includes mobile money accounts. The same applies to saving: in 2021, "saved at a financial institution or using mobile money" equals saving at a bank, while in 2024 it also includes mobile money. Because of this, when I compare saving in 2021 and 2024 I use saving at a bank or similar institution, which is measured the same way in both years, and I show saving through mobile money separately.

Calculations. For each indicator I calculated the gap between the two groups (secondary or more minus primary or less) and the change from 2021 to 2024. For saving, I calculated what share of all savers in each group saved at a bank: saving at a bank divided by saving any money. All differences and shares were calculated from the unrounded values in the database and rounded only at the end, so a difference in the text can differ by 0.1 from the difference of the rounded numbers.

Margins of error. The database gives only the percentages, without margins of error, so I estimated them roughly. The less educated group is small. Comparing the national average with the two group averages shows that it makes up about 14% of the Kazakhstan sample in 2021 and about 12-13% in 2024, which is roughly 120-140 people. For each change I estimated a 95% margin of error as if the group were a simple random sample of that size. The real margins are somewhat wider, because the survey uses weights and is not a simple random sample, so I treat these numbers as a rough guide and call a change clear only when it is well outside the margin.

Results

Account ownership in Kazakhstan

The biggest difference in Kazakhstan was between the two education groups (Table 1). In 2021, 61.9% of people with primary education or less had an account, compared with 84.3% of people with secondary education or more. In 2024 the figures were 58.1% and 91.2%, so the gap grew from 22.4 to 33.2 percentage points. The change from 61.9% to 58.1% should not be treated as a

clear decline. This group is small, and the 3.8-point change is well within the rough margin of error of about ± 12 points. So it is more accurate to say that account ownership did not grow for this group, while it clearly increased for the more educated group (+7.0 points, margin about ± 3). For the same reason, the widening of the gap by 10.8 points is also within the margin of about ± 12 points and cannot be called certain.

Digital payments followed the same pattern. The share of less educated adults who made or received a digital payment stayed almost the same (55.8% and 55.3%), while among more educated adults it rose from 81.6% to 89.3%. It is interesting that this group had made a very large jump earlier: its account ownership was only 29.6% in 2017 and more than doubled by 2021. The growth stopped after 2021.

Table 1. Financial inclusion in Kazakhstan by education group, 2021 and 2024

Indicator, % of adults in the group	Primary or less, 2021	Primary or less, 2024	Secondary or more, 2021	Secondary or more, 2024
Has an account	61.9	58.1	84.3	91.2
Made or received a digital payment	55.8	55.3	81.6	89.3
Saved any money	31.4	32.2	41.6	55.7
Saved at a bank or similar institution	4.7	15.0	21.4	29.0
Saved at a bank or through mobile money	4.7*	16.5	21.4*	40.7

Source: Global Findex Database 2025. *Mobile money was not measured for Kazakhstan in 2021, so in that year this row equals saving at a bank.

Where people save

The savings numbers were more interesting to me. Among people with primary education or less, the share saving any money barely changed, from 31.4% to 32.2%. But saving at a bank or similar institution increased from 4.7% to 15.0%, which is a clear change (margin about ± 7 points). In 2021, only about 15% of savers in this group (4.7 out of 31.4) saved at a bank; in 2024 it was about 47%. So the main change was not that more people started saving, but that

more of the people who already saved moved their savings into the formal system. Mobile money added very little for this group: only 1.4% of adults in it saved through mobile money without also saving at a bank.

The more educated group showed a different pattern (Figure 1). The share saving any money increased from 41.6% to 55.7%, and saving at a bank went up from 21.4% to 29.0%. But the share of savers who saved at a bank stayed almost the same, about 52% in both years. Bank saving grew at the same speed as saving in general. What was new in 2024 was mobile money: 11.7% of adults in this group saved through mobile money without saving at a bank. If mobile money is counted, the share of savers who kept their money outside any formal channel fell from 48.4% to 27.0% in this group, and from 85.2% to 48.9% in the less educated group. Because mobile money was not measured in 2021, I think the bank-only comparison is the fairer one, and on that measure only the less educated group changed where it saves.

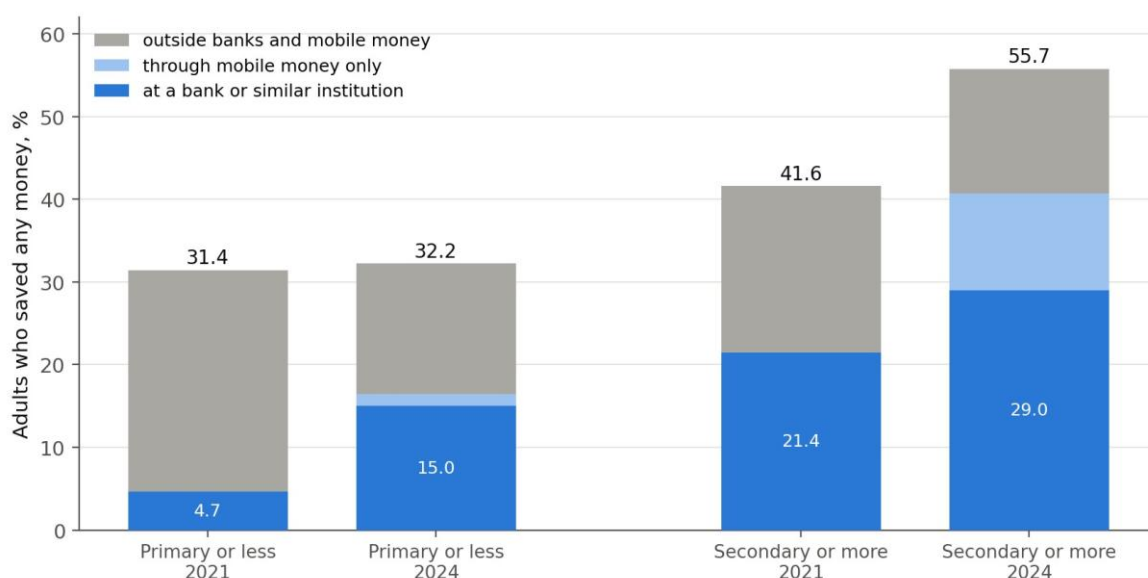


Figure 1. Kazakhstan: adults who saved any money, by where they saved, education group and year. Mobile money was not measured in 2021, so any mobile money saving in that year is included in the grey part.

Comparison with the neighbouring countries

When I compared Kazakhstan with the other three countries, the difference became clearer (Table 2, Figure 2). Among people with primary education or less, account ownership grew by 21.5 points in Kyrgyzstan, 15.4 in Uzbekistan and 11.4 in Tajikistan, and in all three countries the growth was larger than the rough margin of error. Kazakhstan did not show the same growth, although it still had the highest account ownership for this group in 2024. This means that Kazakhstan started from a higher level, but its less educated group did not make the same progress over these three years. Uzbekistan was different in one more way: it was the only country where the education gap in account ownership became smaller, from 28.0 to 24.6 percentage points, although this change is also within the margin of error.

Table 2. Account ownership by education group in four Central Asian countries, % of adults

Country	Primary 2021	Primary 2024	Change	Secondary 2021	Secondary 2024	Change	Gap 2021	Gap 2024
Kazakhstan	61.9	58.1	-3.8 (± 11.9)	84.3	91.2	+7.0	22.4	33.2
Kyrgyzstan	28.9	50.5	+21.5 (± 10.4)	48.9	75.9	+27.0	19.9	25.4
Tajikistan	32.2	43.6	+11.4 (± 8.1)	42.3	58.6	+16.3	10.1	15.0
Uzbekistan	23.9	39.3	+15.4 (± 8.9)	51.8	63.9	+12.0	28.0	24.6

Source: Global Findex Database 2025. Primary = primary education or less; secondary = secondary education or more; gap = secondary minus primary. Changes and gaps are calculated from unrounded values. The numbers in brackets are rough 95% margins of error for the change in the less educated group.

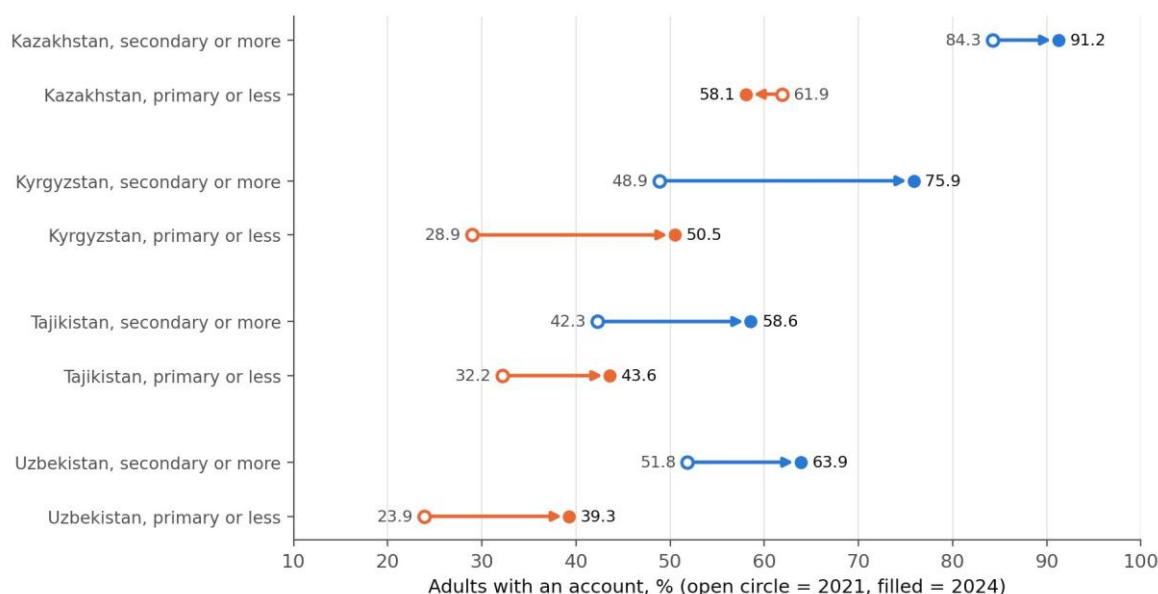


Figure 2. Account ownership by education group, 2021 (open circles) and 2024 (filled circles).

Saving any money was a different story. Among adults with primary education or less it hardly changed anywhere: from 23.7% to 26.1% in Kyrgyzstan, from 16.0% to 21.6% in Tajikistan and from 19.8% to 18.9% in Uzbekistan, and none of these changes is outside the margin of error. So in saving, Kazakhstan's less educated adults were not behind their neighbours. The difference was specific to accounts and payments.

Discussion

The main result of this study is that the recent growth of financial inclusion in Kazakhstan did not reach adults with primary education or less. Between 2021 and 2024 their account ownership, digital payments and saving all stayed at about the same level, while the more educated majority kept growing. In the three neighbouring countries, the less educated group grew clearly over the same years. This fits earlier research that finds education to be one of the strongest individual factors in financial inclusion [3], but the comparison adds something: in Kazakhstan the less educated group already had a higher level than in the neighbouring countries, and it stopped growing, while in the neighbours it was still catching up.

I can think of a few possible explanations, but the data used here cannot test them. One reason could be that Kazakhstan already had a relatively high percentage of people with primary education using banking services. Those who still did not have accounts may have been harder to reach because of limited information, difficulties using banking services or a lack of trust. In Kyrgyzstan, Tajikistan and Uzbekistan the initial percentage was much lower, so there were more people who were only beginning to use bank accounts as banking became more common. This may explain why growth among people with primary education was more noticeable there, while Kazakhstan saw little change. The less educated group in Kazakhstan is also small and may be different from the same group in other countries. It is about 13% of the sample in Kazakhstan, compared with about 27% in Tajikistan and 27-29% in Uzbekistan in 2021, so in Kazakhstan the people who remain in this group could be the ones who are hardest to reach for other reasons, such as age or where they live. Another is that financial services in Kazakhstan now work mostly through apps, which need a certain amount of knowledge and confidence. Research on financial literacy shows that this knowledge is spread unevenly [5], and the experiment by Cole and co-authors suggests that for people with little education both knowledge and costs matter [6]. Studies of the barriers people report, such as cost, distance and documents [2, 4], could help check these ideas for Kazakhstan.

The saving results give a more positive picture. Less educated adults in Kazakhstan did not start saving more, but those who saved were much more likely to use a bank in 2024 than in 2021. For people who do save, this is a real change, because money in a bank is usually safer than cash kept at home. At the same time, their share of bank accounts alone fell from 61.9% to 46.1% while their total account ownership, including mobile money, only moved from 61.9% to 58.1%. I do not want to read too much into this: the 2024 data include mobile money accounts for Kazakhstan while the 2021 data do not, and some people may have described the same account differently in the two rounds. It shows, though, that results for Kazakhstan need to be compared carefully across these two survey rounds.

This study has several limitations. The less educated group is only about 12-14% of the sample, roughly 120-140 people per round, so small changes cannot be detected, and my margins of error are rough and probably too narrow. I only used published percentages, so I could not control for age, income, gender or region, which are connected with education. Mobile money was not measured for Kazakhstan in 2021, which limits the comparison of account ownership and formal saving. Finally, this is a comparison of two years and shows what changed, not why.

Conclusion

Kazakhstan has the highest account ownership in Central Asia, but between 2021 and 2024 this growth did not reach adults with primary education or less. Their account ownership, digital payments and saving stayed flat, while they grew among more educated adults in Kazakhstan and among less educated adults in Kyrgyzstan, Tajikistan and Uzbekistan. The one clear change in this group was that people who save moved much of their savings into banks. For policy, this suggests looking beyond the national average: a small group can be left behind even when the country as a whole looks close to full inclusion. A study with individual Findex data, which could control for age, income and region, would be the natural next step.

Data availability

All data are publicly available from the World Bank Global Findex Database 2025 [1]. The table of all values used in this paper and the script that calculates every number are available from the author on request.

AI and tools disclosure

I collected the data from the Global Findex database and made the first calculations myself. Generative AI tools were used for language editing and structural revision of the text, and to help re-check the calculations and prepare the figures in Python. No data, results or citations were generated by AI: all numbers come from the World Bank database and were checked against it, and all cited sources were checked against the originals. I have reviewed the final manuscript and take full responsibility for it.

Acknowledgements

I thank my supervisor, Altynbek Aruzhan Yessenqyzy, for supporting this work.

References:

1. World Bank. Global Findex Database 2025 [Electronic resource]. URL: <https://databank.worldbank.org/source/global-financial-inclusion> (accessed: 28.09.2026).
2. Demirgüç-Kunt A., Klapper L. Measuring financial inclusion: Explaining variation in use of financial services across and within countries // *Brookings Papers on Economic Activity*. 2013. Vol. 2013, No. 1. P. 279-340. DOI: 10.1353/eca.2013.0002.
3. Zins A., Weill L. The determinants of financial inclusion in Africa // *Review of Development Finance*. 2016. Vol. 6, No. 1. P. 46-57. DOI: 10.1016/j.rdf.2016.05.001.
4. Allen F., Demirguc-Kunt A., Klapper L., Martinez Peria M.S. The foundations of financial inclusion: Understanding ownership and use of formal accounts // *Journal of Financial Intermediation*. 2016. Vol. 27. P. 1-30. DOI: 10.1016/j.jfi.2015.12.003.
5. Lusardi A., Mitchell O.S. The economic importance of financial literacy: Theory and evidence // *Journal of Economic Literature*. 2014. Vol. 52, No. 1. P. 5-44. DOI: 10.1257/jel.52.1.5.
6. Cole S., Sampson T., Zia B. Prices or knowledge? What drives demand for financial services in emerging markets? // *The Journal of Finance*. 2011. Vol. 66, No. 6. P. 1933-1967. DOI: 10.1111/j.1540-6261.2011.01696.x.
7. Svyatov S.A., Bendyuk D.Yu. Financial inclusion: international experience and Kazakhstan case // *Central Asian Economic Review*. 2023. No. 2. P. 140-152. DOI: 10.52821/2789-4401-2023-2-140-152.
8. Klapper L., Singer D., Starita L., Norris A. The Global Findex Database 2025: Connectivity and financial inclusion in the digital economy. Washington, DC: World Bank, 2025. DOI: 10.1596/978-1-4648-2204-9.
9. Demirgüç-Kunt A., Klapper L., Singer D., Ansar S. The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19. Washington, DC: World Bank, 2022. DOI: 10.1596/978-1-4648-1897-4.
10. World Bank. Global Findex: Methodology [Electronic resource]. URL: <https://www.worldbank.org/en/publication/globalfindex/methodology> (accessed: 28.09.2026).

МАЗМҰНЫ – СОДЕРЖАНИЕ – CONTENT

ӘЛЕУМЕТТІК-ЭКОНОМИКАЛЫҚ ЖӘНЕ ҚҰҚЫҚ ҒЫЛЫМДАРЫ - СОЦИАЛЬНО-ЭКОНОМИЧЕСКИЕ И ЮРИДИЧЕСКИЕ НАУКИ - SOCIO-ECONOMIC AND LEGAL SCIENCES

Төлегенов Тимур Сейфуллаулы

**ДИНАМИКА ТУРИСТСКИХ ПОТОКОВ И ЭФФЕКТИВНОСТЬ ИНФРАСТРУКТУРЫ
ТУРКЕСТАНА: ОТ ЭКСТЕНСИВНОГО РОСТА К СМАРТ-УПРАВЛЕНИЮ 10**

Alexander Gorevoy

**WHICH INEQUALITY STATISTICS SURVIVE AN ADMINISTRATIVE BOUNDARY CHANGE?
EVIDENCE FROM KAZAKHSTAN, 2010–2023 14**

Rakhimov Djalil

**DOES THE SHIFT TO CASHLESS PAYMENTS GO TOGETHER WITH FASTER GROWTH IN
HOUSEHOLD CREDIT? EVIDENCE FROM THE REGIONS OF KAZAKHSTAN, 2023-2025 26**

Kazhgerey Asan

**HOW MANY FOOD BASKETS DOES AN AVERAGE WAGE BUY? WAGES AND FOOD PRICES IN
THE 20 REGIONS OF KAZAKHSTAN, 2024-2026 37**

Tagimova Alua

**WHO WAS LEFT BEHIND? EDUCATION AND FINANCIAL INCLUSION IN KAZAKHSTAN AND
THREE CENTRAL ASIAN NEIGHBOURS, 2021-2024 44**

Wei Wei, Mynzhanova Gulzhakan, Niyetalina Gaukhar

**DIGITAL–PHYSICAL INTEGRATION AND ECONOMIC PERFORMANCE IN INDUSTRIAL
INTEGRATED ENERGY SYSTEMS: A SCENARIO-BASED ANALYSIS OF SMART GRID
CONTROL, BATTERY ENERGY STORAGE, AND DIGITAL TWINS 51**

Xu Fumin, Wei Wei, Ruziyeva Elvira, Moldabekova A.

**FROM CULTURAL RESOURCES TO GLOBAL CONSUMER VALUE: THE BRIDGE–IMC MODEL
AND THE INTERNATIONALIZATION OF BLACK MYTH: WUKONG UNDER THE BELT AND
ROAD INITIATIVE 64**

Ibraimkhan Alikhan

**WHICH CRIMES CAN A 14-YEAR-OLD BE TRIED FOR? THE LIST IN ARTICLE 15 OF
KAZAKHSTAN'S CRIMINAL CODE COMPARED WITH 30 OTHER JURISDICTIONS 80**

Yerboluly Madi

**DID IMPORTED CARS REALLY GET CHEAPER? CHINESE CARS AND THE AVERAGE
CUSTOMS VALUE OF PASSENGER CARS IMPORTED INTO KAZAKHSTAN, 2015-2025 91**

Салимбаев Ербол Аманжолович

**АНАЛИЗ ИНВЕСТИЦИОННОЙ АКТИВНОСТИ КАК ИНДИКАТОР ИЗМЕНЕНИЙ
ПОТЕНЦИАЛЬНОГО СПРОСА НА КОНСАЛТИНГОВЫЕ УСЛУГИ 99**

Rambergenov Ramil

**REGIONAL NEW-FIRM FORMATION IN UZBEKISTAN AFTER THE 2017 REFORMS:
PERSISTENCE IN SCALE, CONVERGENCE IN INTENSITY, AND RECOMPOSITION TOWARD
TRADE 107**

Abdesh Dinara

**FROM A WOMEN'S LEAD TO A MEN'S LEAD: THE GENDER GAP IN DIGITAL PAYMENTS IN
KAZAKHSTAN AND THREE CENTRAL ASIAN NEIGHBOURS, 2021-2024 116**

Amangeldi Aidana

**DID SMALL BUSINESS IN KAZAKHSTAN REALLY SHRINK IN 2026? THE NEW TAX CODE,
REGIONAL TAX RATES AND THE FALL IN THE NUMBER OF INDIVIDUAL ENTREPRENEURS 124**

Cheng Che	
BUILD, BUY, OR PARTNER? ENTRY MODE SELECTION AND RISK GOVERNANCE FOR WIND POWER INVESTMENT IN KAZAKHSTAN	133
Wang Liang	
FROM CAPACITY EXPANSION TO SYSTEM VALUE: COORDINATED DEVELOPMENT OF RENEWABLE ENERGY, GRID FLEXIBILITY AND ENERGY STORAGE IN KAZAKHSTAN	146
Chen Jun	
CONSTRUCTION-PERIOD CREDIT RISK MANAGEMENT FOR LARGE INFRASTRUCTURE PROJECT FINANCE IN KAZAKHSTAN	159
Alniyaz Danial	
HOW MUCH FUEL DOES A HYBRID REALLY SAVE? A SAME-MODEL COMPARISON OF HYBRID AND GASOLINE CARS IN US FUEL ECONOMY	173

ТЕХНИКАЛЫҚ ҒЫЛЫМДАР - ТЕХНИЧЕСКИЕ НАУКИ - TECHNICAL SCIENCE

Nurmakhan Almira	
ADVANTAGES OF FIBER OPTIC COMMUNICATION OVER TRADITIONAL COPPER CABLES	180
Kozhabai Bereke	
SECURITY CHALLENGES IN IOT-BASED TELECOMMUNICATION NETWORKS	188
Azamatuly Yerassyl	
WHY AI-GENERATED CODE FAILS A BENCHMARK: A FAILURE ANALYSIS OF THREE OPEN LANGUAGE MODELS ON 30 HUMANEVAL+ TASKS	197
Nurzhan Sanzhar	
A FEW SHELLS, A FEW OPERATORS: WHERE LOW EARTH ORBIT IS CROWDED IN AN ALTITUDE-INCLINATION MAP OF 16,620 ACTIVE SATELLITES	206
Askarbek Nurislam	
CAN THE WEATHER TELL WHICH DAYS IN ASTANA WILL BE POLLUTED? CLASSIFYING PM2.5 EXCEEDANCE DAYS WITH MACHINE LEARNING AND CHECKING THE DATA AGAINST A GROUND MONITOR	212
Iliyas Arman	
SHOOTING ON THE MOVE: HOW MUCH AIM A ROBOT LOSES BY IGNORING ITS OWN VELOCITY, AND WHETHER A VIRTUAL-TARGET CORRECTION RECOVERS IT	223
Ануар Әлімжан Бахытжанұлы, Сексенбаева Айша Курманбековна	
СРАВНИТЕЛЬНЫЙ АНАЛИЗ СТАНДАРТОВ И МЕТОДИК ОБУЧЕНИЯ КИБЕРБЕЗОПАСНОСТИ: NICE FRAMEWORK, ECSF И ПРАКТИКО- ОРИЕНТИРОВАННЫЕ ТЕХНОЛОГИИ	229
Mukhamedzhan Yerganat	
GROWTH OF GITHUB DEVELOPER COMMUNITIES IN KAZAKHSTAN, UZBEKISTAN AND KYRGYZSTAN, 2020-2026: EVIDENCE FROM THE GITHUB INNOVATION GRAPH	239

ПӘНДЕР АРАЛЫҚ ҒЫЛЫМДАР – МЕЖДИСЦИПЛИНАРНЫЕ НАУКИ – INTERDISCIPLINARY SCIENCES

Albiyev Asser	
HOW MUCH OF AN ARTICLE COUNT IS HUMAN WORK? DECOMPOSING THE CREATION OF FIVE WIKIPEDIAS, 2010–2025	251
Amangeldy Nurbolat	
HOW MUCH OF KAZAKHSTAN'S URBAN BUILT STOCK PREDATES ITS SEISMIC CODES, AND WHERE DOES THAT STOCK SIT RELATIVE TO HAZARD?	261

Torekhan Sabrina

WHERE ALMATY WALKS ITS OWN WAY: INFORMAL SHORTCUTS IN OPENSTREETMAP AND THE DETOURS THEY AVOID	267
---	------------

ӘЛЕУМЕТТІК ЖӘНЕ ГУМАНИТАРЛЫҚ ҒЫЛЫМДАР - СОЦИАЛЬНО-ГУМАНИТАРНЫЕ НАУКИ - SOCIAL SCIENCES AND HUMANITIES

Мұқатаева Айзат Амантайқызы, Стамбекова Жанат Байғазықызы, Слямханова Гүлім Болатқызы, Қызырбек Аяулым Ерболқызы

ЖАСАНДЫ ИНТЕЛЛЕКТ ДӘУІРІНДЕГІ ҒЫЛЫМИ ТАНЫМ: ПОППЕР, КУН ЖӘНЕ ЛАКАТОС ИДЕЯЛАРЫ ТҮРҒЫСЫНАН ТАЛДАУ	272
--	------------

Мұқатаева Айзат Амантайқызы, Сапарханова Мадина Төлегенқызы, Окенова Аружан Муратхановна, Тұрсынғазыева Ақерке Ерболатқызы

ШӘКӘРІМ ФИЛОСОФИЯСЫНДАҒЫ ЕРКІНДІК ЖӘНЕ МОРАЛЬДЫҚ ТАҢДАУ МӘСЕЛЕСІ	282
---	------------

Komekova Saida

DO UNHAPPY REVIEWERS MIX IN MORE RUSSIAN? STAR RATINGS AND KAZAKH-RUSSIAN CODE-SWITCHING IN 175,002 ONLINE REVIEWS	291
---	------------

Zhumagali Yerbol

DOES A BIGGER MODEL CLOSE THE GAP? KAZAKH-LANGUAGE ACCURACY ON KAZAKHSTAN-SPECIFIC VERSUS UNIVERSAL SCHOOL SUBJECTS IN SMALL OPEN-WEIGHT LANGUAGE MODELS	304
---	------------

Abdrakhmanova Madina

DOES A MEDAL BUY ATTENTION? WIKIPEDIA VIEWS OF KAZAKHSTAN'S ATHLETES BEFORE AND AFTER THE PARIS 2024 OLYMPIC	308
---	------------

ПЕДАГОГИКАЛЫҚ ЖӘНЕ ПСИХОЛОГИЯЛЫҚ ҒЫЛЫМДАР – ПЕДАГОГИЧЕСКИЕ И ПСИХОЛОГИЧЕСКИЕ НАУКИ – PEDAGOGICAL AND PSYCHOLOGICAL SCIENCES

Kaldarbek Mergen

FAMILY OR SCHOOL? SOCIOECONOMIC COMPOSITION AND MATHEMATICS ACHIEVEMENT IN KAZAKHSTAN, PISA 2022 AND 2025	316
--	------------

Zhenis Adilzhan

WHICH OLYMPIAD PROBLEMS DO STUDENTS TAKE TO THE BOARD? CHOICES AND DEFENCES IN THE 8TH-GRADE LEAGUE OF KARAGANDY MATHBATTLES 2026	323
--	------------

Базарбаева Айнура Бектуровна

ДЕТСКИЙ ФОЛЬКЛОР И ПОДВИЖНЫЕ ИГРЫ КАК ИНСТРУМЕНТЫ ФОРМИРОВАНИЯ ОСНОВ ПРАВОВОЙ КУЛЬТУРЫ У ДЕТЕЙ СТАРШЕГО ДОШКОЛЬНОГО ВОЗРАСТА	330
---	------------

БИОЛОГИЯ ҒЫЛЫМДАР - БИОЛОГИЧЕСКИЕ НАУКИ - BIOLOGICAL SCIENCES

Bazhenova Diana

GROWTH DYNAMICS OF STERLET (<i>Acipenser ruthenus</i> L.) REARED IN A RECIRCULATING AQUACULTURE SYSTEM	333
---	------------

ТУРИСТИЧЕСКИЕ И СПОРТИВНЫЕ НАУКИ - ТУРИСТІК ЖӘНЕ СПОРТ ҒЫЛЫМДАРЫ - TOURISM AND SPORTS SCIENCES

Төлеп Жазира Маратқызы

ГАСТРОНОМИЯЛЫҚ ФЕСТИВАЛЬДЕРДІҢ ТУРИСТІК ДЕСТИНАЦИЯ ТАРТЫМДЫЛЫҒЫН ҚАЛЫПТАСТЫРУДАҒЫ РӨЛІ МЕН ДАМУ ҮРДІСТЕРІ	340
--	------------

ЕСТЕСТВЕННЫЕ НАУКИ - ЖАРАТЫЛЫСТАНУ ҒЫЛЫМДАРЫ - NATURAL SCIENCES

Нургельдина Асель Ермаковна, Серикбаева Жанерке Алимжановна

ШЕКАРАСЫЗ ФИЗИКА: ӘР ЕЛДЕГІ ФИЗИКАЛЫҚ БІЛІМДІ САЛЫСТЫРУ 347