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# CONTENTS

|                                                                                                                                                                           |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| GROWTH TRENDS IN ELECTRICITY CONSUMPTION IN UZBEKISTAN AND PROBLEMS OF MODERNIZING THE GRID INFRASTRUCTURE.....                                                           | 20  |
| <b>Bobobekov Ergash Abdumalikovich</b>                                                                                                                                    |     |
| DETERMINANTS OF THE INTENTION TO PARTICIPATE IN FAMILY TAKAFUL IN A PREMARKET SETTING: A STRUCTURED REVIEW OF THE EVIDENCE AND A CONCEPTUAL FRAMEWORK FOR UZBEKISTAN..... | 24  |
| <b>Usmanov Nematjon Gulomovich</b>                                                                                                                                        |     |
| TOURISM RESOURCE EFFICIENCY AND SUSTAINABLE REGIONAL SERVICE SECTOR DEVELOPMENT: AN EMPIRICAL ASSESSMENT OF UZBEKISTAN .....                                              | 40  |
| <b>Safarov Bahadirkhon Shaxriyrovich</b>                                                                                                                                  |     |
| <b>Toshkhujaev Mustafokhon Abduvosi ugli</b>                                                                                                                              |     |
| TERRITORIAL DISPARITIES IN EMPLOYMENT EFFICIENCY IN KHOREZM REGION: ASSESSMENT AND POLICY DIRECTIONS .....                                                                | 47  |
| <b>Azadova Gulnoza Sardorbekovna</b>                                                                                                                                      |     |
| ЦИФРОВАЯ ЭКОНОМИКА КАК ДРАЙВЕР ЭКОНОМИЧЕСКОГО РОСТА.....                                                                                                                  | 55  |
| <b>Динара Ташевна Гафарова</b>                                                                                                                                            |     |
| DIGITAL PLATFORM-BASED TRANSFORMATION OF ENTERPRISE E-COMMERCE SYSTEMS: FACTORS, EFFICIENCY AND DEVELOPMENT PROSPECTS .....                                               | 59  |
| <b>Tuychiyev Shavkatjon Shokirali o'g'li</b>                                                                                                                              |     |
| WAYS TO OPTIMALLY ORGANIZE AND IMPROVE DIRECT TAXATION IN UZBEKISTAN .....                                                                                                | 68  |
| <b>Kadyrov Bahodir Kudratovich</b>                                                                                                                                        |     |
| EFFICIENCY OF SMALL AND MEDIUMSIZED BUSINESS FINANCING BASED ON MUSHARAKAH: AN ANALYSIS OF OPPORTUNITIES AND RISKS.....                                                   | 73  |
| <b>Kenjaeva Durdona Ravshan qizi</b>                                                                                                                                      |     |
| СОВЕРШЕНСТВОВАНИЕ БЮДЖЕТНОГО УЧЕТА В РЕСПУБЛИКЕ УЗБЕКИСТАН В УСЛОВИЯХ ЦИФРОВИЗАЦИИ И УСИЛЕНИЯ ГОСУДАРСТВЕННОГО ФИНАНСОВОГО КОНТРОЛЯ .....                                 | 79  |
| <b>Джамбакиева Гулнора Сайфутдиновна</b>                                                                                                                                  |     |
| ANALYSIS OF INDICATORS OF HUMAN CAPITAL UTILIZATION AND LABOR RELATIONS EFFICIENCY IN THE SMALL BUSINESS SECTOR .....                                                     | 89  |
| <b>Ulugmuradova Nodira Berdimuradovna</b>                                                                                                                                 |     |
| THE EFFECT OF MANDATORY IFRS ADOPTION ON EQUITY GROWTH OF UZBEK PUBLIC INTEREST ENTITIES (PIEs).....                                                                      | 96  |
| <b>Mokhirjon Shavkatov Omon o'g'li</b>                                                                                                                                    |     |
| METHODS FOR ASSESSING THE IMPACT OF SMALL BUSINESS DEVELOPMENT ON NATIONAL ECONOMIC GROWTH.....                                                                           | 103 |
| <b>Akmaljon Adkhamovich Ermatov</b>                                                                                                                                       |     |
| LEGISLATION AS AN ENABLER OF MARKET FORMATION: THE SIGNIFICANCE OF ADOPTING ISLAMIC BANKING PRINCIPLES FOR THE DEVELOPMENT OF ISLAMIC FINANCE IN UZBEKISTAN.....          | 111 |
| <b>Sultanov Bakhtiyor Bakhodirovich</b>                                                                                                                                   |     |
| ANALYSIS OF REGIONAL INTEGRATION PROCESSES INTO FOREIGN MARKETS.....                                                                                                      | 117 |
| <b>Ozodova Farida Zarif kizi</b>                                                                                                                                          |     |
| FINANCIAL INTENSITY AND YOUTH ENTREPRENEURSHIP IN UZBEKISTAN: EVIDENCE FROM A TWO-WAY FIXED-EFFECTS REGIONAL PANEL MODEL .....                                            | 122 |
| <b>Isakjanova Saboxat</b>                                                                                                                                                 |     |

|                                                                                                                                                                                             |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| ENHANCING BIG DATA SOLUTIONS IN THE TOURISM INDUSTRY<br>ECONOMIC EFFICIENCY AND FORECASTS INDICATORS.....                                                                                   | 131 |
| <b>Temirov E.I.</b>                                                                                                                                                                         |     |
| DEVELOPING AN AI-BASED CONTINUING MEDICAL EDUCATION SYSTEM: A COMPARATIVE<br>ANALYSIS OF NATIONAL AND INTERNATIONAL SCHOLARLY APPROACHES .....                                              | 141 |
| <b>Nazarov Bakhrom Mustafayevich</b>                                                                                                                                                        |     |
| ADAPTIVE MANAGEMENT MECHANISM BASED ON A RESILIENT VALUE CHAIN FOR<br>THE STRATEGIC SUSTAINABLE DEVELOPMENT OF AGROCLUSTER ACTIVITIES .....                                                 | 147 |
| <b>Abdumalik Hakimovich Berdiyev</b>                                                                                                                                                        |     |
| INTERNATIONAL PRACTICE: TAX INCENTIVES FOR INVESTMENT .....                                                                                                                                 | 153 |
| <b>Fazliev Farrukh Fakhridinovich</b>                                                                                                                                                       |     |
| AN ANALYSIS OF LEADING FOREIGN BANKS' PRACTICES IN APPLYING<br>ARTIFICIAL-INTELLIGENCE-BASED MANAGEMENT SYSTEMS FOR CREDIT<br>RISK ASSESSMENT AND THE EARLY DETECTION OF PROBLEM LOANS..... | 160 |
| <b>Alovuddin Jamolov</b>                                                                                                                                                                    |     |
| DIGITAL FINANCIAL INCLUSION AS A DRIVER OF WOMEN'S ENTREPRENEURSHIP<br>AND POVERTY REDUCTION: EVIDENCE FROM UZBEKISTAN .....                                                                | 164 |
| <b>Ulashova Zarnigor Botirali qizi</b>                                                                                                                                                      |     |
| INDUSTRIAL DEVELOPMENT AND ENVIRONMENTAL SECURITY: THEORETICAL<br>AND METHODOLOGICAL FOUNDATIONS FOR<br>A REGIONAL ANALYSIS OF UZBEKISTAN.....                                              | 168 |
| <b>Erkaeva Bibirobiya Kamoladdin kizi</b>                                                                                                                                                   |     |
| PROSPECTS FOR THE USE OF GREEN FINANCE INSTRUMENTS<br>IN FINANCING THE EXPORT ACTIVITIES OF ENTERPRISES .....                                                                               | 175 |
| <b>Turaeva Yulduz Shamsiddin qizi</b>                                                                                                                                                       |     |
| IMPROVING THE MANAGEMENT SYSTEM OF PRIVATE SCHOOLS BASED<br>ON INNOVATIVE TECHNOLOGIES. METHODS USED: SEM, AHP.....                                                                         | 184 |
| <b>Shohida Esanova</b>                                                                                                                                                                      |     |
| IMPROVING THE INTERNAL AUDIT OF FINANCIAL ERRORS AND IRREGULARITIES<br>IN BUDGET ORGANIZATIONS THROUGH A RISK-BASED APPROACH .....                                                          | 194 |
| <b>Mulayev Farkhod Alisherovich</b>                                                                                                                                                         |     |
| MODELS FOR ATTRACTING INVESTMENT TO THE INDUSTRIAL<br>SECTOR AND ENSURING ITS EFFICIENT USE.....                                                                                            | 200 |
| <b>Choriev Tolib Azamovich</b>                                                                                                                                                              |     |
| DIGITAL TECHNOLOGIES AND INNOVATIVE APPROACHES TO<br>INSURING FOREIGN ECONOMIC ACTIVITY RISKS.....                                                                                          | 208 |
| <b>Raximov Timur Furqatovich</b>                                                                                                                                                            |     |
| RELATIONS BETWEEN THE CENTRAL BANK AND COMMERCIAL BANKS IN<br>UZBEKISTAN: INDEPENDENCE, POLICY TRANSMISSION AND COMPETITION .....                                                           | 215 |
| <b>Abdulazizova Ugiloy</b>                                                                                                                                                                  |     |
| ACCOUNTING IN THE INFORMATION SUPPORT SYSTEM<br>OF ENTERPRISE FINANCIAL CONTROL .....                                                                                                       | 223 |
| <b>Rano Abrorovna Mannapova</b>                                                                                                                                                             |     |
| NATIONAL FASHION ELEMENTS AS A MEDIATOR BETWEEN TOURISM EXPERIENCE AND<br>DESTINATION BRAND EQUITY: THE NF-DBE MODEL AND A FIELD RESEARCH PROTOCOL.....                                     | 228 |
| <b>Yusupova Mokhinur Farkhod qizi</b>                                                                                                                                                       |     |
| THE CONCEPT, CLASSIFICATION, AND THEORIES OF THE USE<br>OF ECONOMIC RESOURCES.....                                                                                                          | 238 |
| <b>Alimov Muxammadbobur Ibragimjonovich</b>                                                                                                                                                 |     |

|                                                                                                                               |     |
|-------------------------------------------------------------------------------------------------------------------------------|-----|
| ECONOMETRIC ASSESSMENT OF THE RELATIONSHIP BETWEEN<br>THE SHADOW ECONOMY AND HOUSEHOLD WELFARE IN UZBEKISTAN .....            | 242 |
| <b>Afenov Nursultan Nugmatillaevich</b>                                                                                       |     |
| МАСТЕР-ПЛАН, ОРИЕНТИРОВАННЫЙ НА СОКРАЩЕНИЕ БЕДНОСТИ:<br>КОНЦЕПЦИЯ ТЕРРИТОРИАЛЬНОГО ПЛАНИРОВАНИЯ ТРЕТЬЕГО ПОКОЛЕНИЯ .....      | 247 |
| <b>Мухамедова Мадинабону Мехридиновна</b>                                                                                     |     |
| THE CURRENT STATE AND DYNAMICS OF WOMEN'S PARTICIPATION<br>IN THE STATE CIVIL SERVICE .....                                   | 257 |
| <b>Abduraxmonova Feruzabonu Abduraxmon qizi</b>                                                                               |     |
| ASSESSING THE IMPACT OF AGRICULTURAL PRODUCT ASSORTMENT<br>DIVERSIFICATION ON MARKET STABILITY .....                          | 265 |
| <b>Xudayberganov Jasur Baxodirovich</b>                                                                                       |     |
| ИННОВАЦИОННЫЕ ПОДХОДЫ К ПОВЫШЕНИЮ ЭФФЕКТИВНОСТИ<br>РАЗВИТИЯ МИСЕ-ТУРИЗМА .....                                                | 273 |
| <b>Нарзуллаева Фариза Акмалевна</b>                                                                                           |     |
| DEVELOPMENT FACTORS AND CONTEMPORARY TRENDS OF THE FOOD<br>INDUSTRY IN UZBEKISTAN: AN ECONOMIC AND STATISTICAL ANALYSIS ..... | 278 |
| <b>Gulira'no Abasova</b>                                                                                                      |     |
| PROSPECTS FOR THE DEVELOPMENT OF ISLAMIC BANKS AND FINANCE IN UZBEKISTAN .....                                                | 285 |
| <b>Khamdam Atabaevich Babajanov</b>                                                                                           |     |
| WTO ACCESSION AND ECONOMIC GROWTH: SECTORAL EVIDENCE FROM<br>CHINA AND IMPLICATIONS FOR UZBEKISTAN .....                      | 291 |
| <b>Abdullayev Axrorjon</b>                                                                                                    |     |
| ЭКОНОМИЧЕСКИЙ МЕХАНИЗМ РАЗВИТИЯ ЗЕЛЁНОГО ТУРИЗМА В УСЛОВИЯХ<br>ЦИФРОВИЗАЦИИ ЭКОНОМИКИ РЕГИОНА .....                           | 297 |
| <b>Нозимов Эльдор Анварович</b>                                                                                               |     |
| DEVELOPING AN INTER-SCHOOL TERRITORIAL CLUSTER MANAGEMENT<br>MODEL FOR THE ORGANIZATION OF INCLUSIVE EDUCATION .....          | 305 |
| <b>Rajapova Guldona Usman kizi</b>                                                                                            |     |
| ISLAMIC FINANCE AND THE SDGS IN DUAL SYSTEMS: A SELECTIVE-CHANNELS VIEW .....                                                 | 310 |
| <b>Isroilov Obid Olimjonovich</b>                                                                                             |     |
| РАЗВИТИЕ БИЗНЕСА И ОБЩЕСТВА В УСЛОВИЯХ ЦИФРОВОЙ ТРАНСФОРМАЦИИ .....                                                           | 317 |
| <b>Тарават Абдул Салам</b>                                                                                                    |     |
| THE MAIN METHODS, TOOLS, AND FEATURES OF IMPROVING<br>EMPLOYEE LABOR DISCIPLINE .....                                         | 323 |
| <b>Azizova Sayyora Xamidullaevna</b>                                                                                          |     |
| ИНВЕСТИЦИОННО-ЭКОНОМИЧЕСКИЕ МЕХАНИЗМЫ МОДЕРНИЗАЦИИ<br>ЭЛЕКТРОЭНЕРГЕТИКИ УЗБЕКИСТАНА .....                                     | 330 |
| <b>Маърупова Дилсора Абдулла кизи</b>                                                                                         |     |
| AN ECONOMETRIC ASSESSMENT OF THE FACTORS INFLUENCING INTERNAL<br>TRADE DEVELOPMENT IN THE REPUBLIC OF UZBEKISTAN .....        | 336 |
| <b>Oripova Gulira'no Nodirovna</b>                                                                                            |     |
| DESIGNING A SUSTAINABLE PENSION REFORM PATH FOR UZBEKISTAN: A<br>COMPARATIVE INSTITUTIONAL APPROACH .....                     | 342 |
| <b>Abdulazizova Nargiza Baxodir kizi</b>                                                                                      |     |

# DESIGNING A SUSTAINABLE PENSION REFORM PATH FOR UZBEKISTAN: A COMPARATIVE INSTITUTIONAL APPROACH

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**Abstract:** Uzbekistan's pension reform must reconcile financial sustainability with adequate old-age protection. This article compares Sweden, the United States, Japan and Singapore through financing, coverage, demographic adjustment, adequacy and risk allocation, and assesses the transferability of their reform mechanisms to Uzbekistan. The analysis shows that Sweden offers lessons in contribution–benefit transparency and automatic adjustment; the United States in diversification and its distributional limits; Japan in linking pension parameters with older-worker employment; and Singapore in compulsory saving supported by strong administration. For Uzbekistan, direct replication is inappropriate. A sequenced hybrid architecture is proposed: minimum protection, a financially disciplined contributory PAYG pillar and a gradually strengthened funded component, supported by actuarial assessment, transparent indexation, broader contribution coverage and unified digital pension accounts.

**Keywords:** pension reform; Uzbekistan; developed countries; pension sustainability; pension adequacy; NDC; funded pensions; informal employment; multi-pillar system.

**Аннотация:** Реформирование пенсионной системы Узбекистана требует согласования финансовой устойчивости с обеспечением достаточного уровня социальной защиты в старости. В статье проводится сравнительный анализ опыта Швеции, США, Японии и Сингапура по таким направлениям, как финансирование, охват населения, демографическая адаптация, адекватность пенсионных выплат и распределение рисков, а также оценивается возможность переноса механизмов их пенсионных реформ на условия Узбекистана. Результаты анализа показывают, что опыт Швеции представляет интерес с точки зрения прозрачности взаимосвязи между взносами и пенсионными выплатами, а также механизмов автоматической корректировки; опыт США — в части диверсификации и связанных с ней ограничений распределительного характера; опыт Японии — в вопросах взаимосвязи параметров пенсионной системы с занятостью работников старшего возраста; опыт Сингапура — в области обязательных сбережений, поддерживаемых эффективным государственным администрированием. Для Узбекистана прямое копирование данных моделей является нецелесообразным. В связи с этим предлагается поэтапная гибридная архитектура, включающая минимальный уровень социальной защиты, финансово дисциплинированный распределительный пенсионный компонент (PAYG) и постепенно укрепляемый накопительный компонент. Данная система должна поддерживаться актуарной оценкой, прозрачной индексацией, расширением охвата плательщиков пенсионных взносов и созданием единых цифровых пенсионных счетов.

**Ключевые слова:** пенсионная реформа; Узбекистан; развитые страны; устойчивость пенсионной системы; адекватность пенсионных выплат; NDC; накопительные пенсии; неформальная занятость; многоуровневая пенсионная система.

## INTRODUCTION

Pension reform is increasingly shaped by population ageing, labour-market change and fiscal opportunities. For Uzbekistan, reform opportunities may emerge alongside demographic development as contribution coverage expands and expenditure is aligned with the contributory base. The reform process is therefore both demographic and institutional.

Sweden, the United States, Japan and Singapore illustrate different allocations of pension risk: Sweden combines PAYG financing with NDC adjustment; the United States mixes public insurance with employer and individual saving; Japan relies on broad public coverage and parametric adaptation; and Singapore uses compulsory funded accounts backed by strong administration.

The purpose of this article is therefore to identify which elements of these reform experiences are institutionally transferable to Uzbekistan and to formulate a sequenced package of practical recommendations for strengthening pension sustainability, coverage and adequacy. The research hypothesis is that Uzbekistan will obtain better results from selective institutional adaptation than from replication of any single foreign pension model.

## REVIEW OF LITERATURE ON THE SUBJECT

Pension reform literature increasingly emphasizes the trade-off between financial sustainability, benefit adequacy and risk distribution. Barr and Diamond (2008) argue that pension systems should be evaluated not only by their financing method, but also by their capacity to provide consumption smoothing, poverty protection and insurance against socioeconomic risks [2]. Holzmann and Hinz (2005) further demonstrate that multi-pillar pension arrangements can diversify demographic, fiscal and investment risks by combining public redistribution, mandatory contributory provision and supplementary funded savings [3].

Within this debate, Palmer (2000) identifies notional defined-contribution (NDC) systems as a mechanism for maintaining PAYG financing while strengthening the relationship between lifetime contributions and pension entitlements [4]. Settergren and Mikula (2005) show that automatic balancing mechanisms can further improve the long-term financial adjustment of PAYG systems [5]. These studies suggest that pension sustainability depends less on a simple choice between PAYG and funded models than on the institutional mechanisms through which risks are allocated and adjusted.

Building on this literature, the present study evaluates the transferability of selected pension reform mechanisms to Uzbekistan through five criteria: financial sustainability, pension adequacy, coverage, automatic adaptability and institutional feasibility. This approach allows international experience to be assessed not as a model for direct replication, but as a source of institutionally adaptable reform instruments.

## RESEARCH METHODOLOGY

The study applies a structured comparative institutional method. Sweden, the United States, Japan and Singapore are treated as contrasting cases rather than a statistical sample. Official pension-administration and OECD data establish institutional parameters, while IMF and ILO sources assess Uzbekistan's constraints. Each mechanism is evaluated by its contribution to sustainability or adequacy, its institutional preconditions and its transferability to Uzbekistan. This prevents international practices from being assessed independently of administrative capacity, labour-market informality and social safeguards.

## ANALYSIS AND RESULTS

Sweden's national public pension credits 18.5 per cent of pensionable income: 16 percentage points to the PAYG-financed income pension and 2.5 points to the funded premium pension [6, 7]. Its notional accounts strengthen the lifetime contribution–benefit link and incorporate longevity and balance adjustments [4, 5]. For Uzbekistan, the transferable lesson is not immediate NDC replication but rule-based discipline through reliable individual records, actuarial assessment and predefined adjustment rules.

United States: diversification works, but voluntary saving does not guarantee universal adequacy. The U.S. system combines Social Security with employer and individual retirement saving. The OASDI payroll tax is 12.4 per cent, normally shared equally by employer and employee [8], while supplementary defined-contribution plans transfer more investment and contribution-history risk to individuals. The continuing financing imbalance [9] shows that diversification does not remove fiscal pressure. For Uzbekistan, funded saving should therefore supplement, not replace, compulsory social insurance and should operate with low fees, sound governance and transparent disclosure.

Japan: demographic pressure requires labour-market and pension reform to move together. Japan combines the National Pension with Employees' Pension Insurance; the EPI contribution rate is 18.3 per cent and is shared between employers and employees [10–13]. Coverage expansion and incentives for later retirement show that pension-age policy must be coordinated with older-worker employment. For Uzbekistan, any future retirement-age adjustment should therefore be gradual, predictable and accompanied by employment measures and safeguards for arduous work and long contribution histories.

Singapore: funded saving requires strong formalization and governance. Singapore's CPF is a compulsory funded defined-contribution system. In 2026, the total contribution rate for employees aged 55 and below is 37 per cent—17 per cent from employers and 20 per cent from employees [14, 15]. Its performance depends on enforcement, centralized administration and investment governance. Uzbekistan can adapt digital accounts, portability and governance principles, while high compulsory contribution rates can be effectively introduced alongside payroll formalization and strengthened administrative capacity. The comparison becomes policy-relevant when aligned with Uzbekistan's pension dynamics. Pension recipients increased from 3.61 million in 2020 to 4.25 million in 2024 (+17.5%), while the average monthly pension rose from UZS 848.5 thousand to UZS 1,495.6 thousand (Table 1).

Table 1. Selected pension-system indicators of Uzbekistan, 2020–2024<sup>1</sup>

| Year | Pension recipients, thousand | Annual growth, % | Average pension, thousand UZS | Average pension growth, % | Minimum old-age pension, thousand UZS | Minimum / average, % |
|------|------------------------------|------------------|-------------------------------|---------------------------|---------------------------------------|----------------------|
| 2020 | 3,612.6                      | —                | 848.5                         | —                         | 513.4                                 | 60.5                 |
| 2021 | 3,785.3                      | 4.8              | 963.6                         | 13.6                      | 623.0                                 | 64.7                 |
| 2022 | 3,976.9                      | 5.1              | 1,080.8                       | 12.2                      | 698.0                                 | 64.6                 |
| 2023 | 4,152.6                      | 4.4              | 1,234.5                       | 14.2                      | 800.0                                 | 64.8                 |
| 2024 | 4,246.4                      | 2.3              | 1,495.6                       | 21.2                      | 834.0                                 | 55.8                 |

Pension and social-benefit recipients per 10,000 population increased from 1,166.0 in 2020 to 1,317.2 in 2024. Although broader than the pensioner count, the indicator signals rising social-protection obligations and reinforces the need to expand the contributory base and actuarial monitoring (Figure 1).

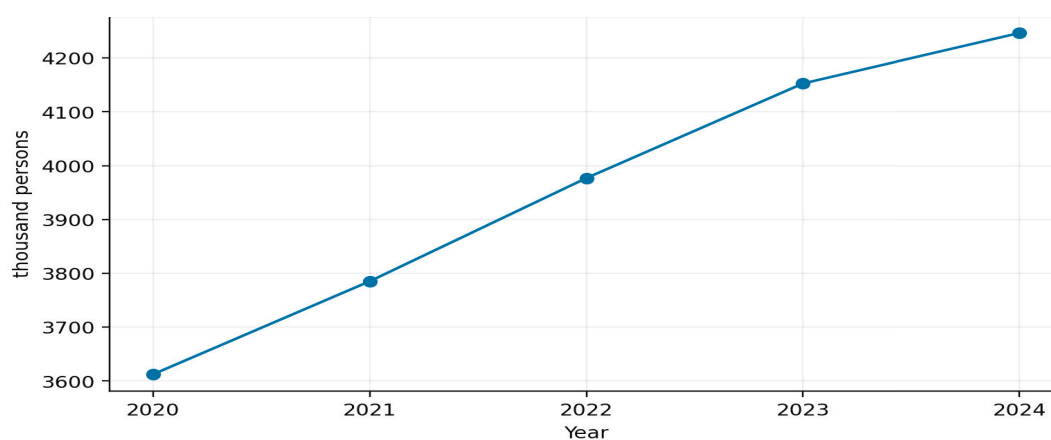
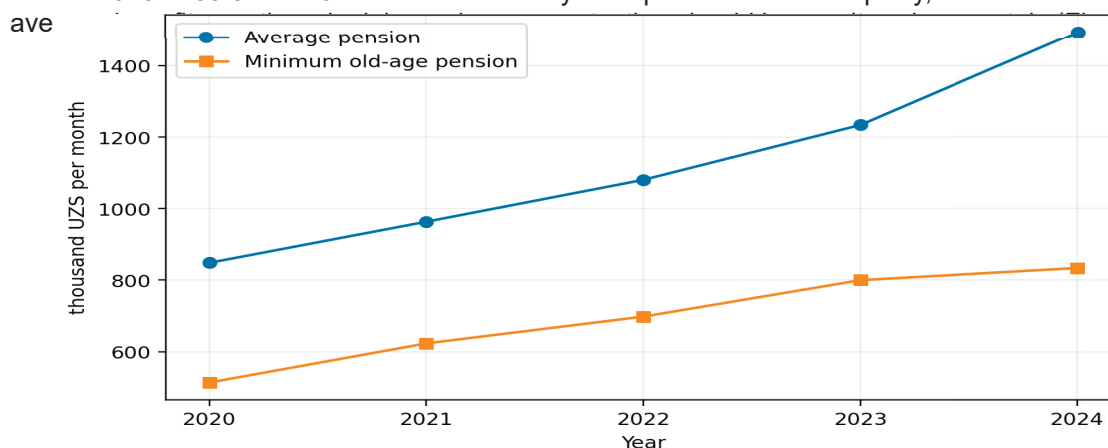
Figure 1. Number of pension recipients in Uzbekistan, 2020-2024<sup>2</sup>

Table 1 shows that pension-recipient growth slowed from 5.1% in 2022 to 2.3% in 2024, whereas the average nominal pension grew by 21.2% in 2024. The minimum old-age pension fell from 60.5% of the average pension in 2020 to 55.8% in 2024. This does not by itself prove weaker adequacy, but it demonstrates why

Figure 2. Average and minimum pensions Uzbekistan, 2020-2024<sup>3</sup>

1 Source: compiled and calculated by the author from the National Statistics Committee of the Republic of Uzbekistan, Social Protection Statistics and SIAT datasets (2025–2026).

2 Source: author's compilation based on the National Statistics Committee of the Republic of Uzbekistan.

3 Source: author's compilation based on SIAT official statistical data.

These trends support a three-part monitoring framework for Uzbekistan: sustainability (revenue, expenditure, contributor-to-beneficiary ratios and actuarial liabilities), adequacy (replacement rates and minimum-pension purchasing power) and coverage (contribution density and participation of self-employed and informal workers) (Table 2).

Table 2. Transferability of Selected International Pension Reform Mechanisms to Uzbekistan<sup>4</sup>

| Foreign mechanism                                                | Potential value for Uzbekistan                       | Transferability | Required adaptation                                                                                                |
|------------------------------------------------------------------|------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------|
| Sweden: lifetime contribution record + automatic balance rules   | Strengthens actuarial discipline and transparency    | High, in stages | Start with unified records, career-average earnings and actuarial monitoring; consider deeper NDC elements later   |
| United States: public pillar + employer/individual funded saving | Diversifies retirement income and investment sources | Medium–high     | Use supplementary saving with default mechanisms and fee/governance safeguards; retain mandatory public protection |
| Japan: later retirement + broader employee coverage              | Improves contributor-beneficiary balance             | Medium–high     | Phase in slowly; link to older-worker employment and safeguards for arduous/long careers                           |
| Singapore: compulsory funded accounts and digital administration | Improves ownership, portability and long-term saving | Selective       | Adopt digital-account and governance principles first; avoid copying high contribution rates before formalization  |

Recent international assessments place pension reform among Uzbekistan's medium-term sustainability priorities. The IMF's 2025 Article IV report recommended gradual adjustment of retirement ages and the standard contribution rate, use of career-average earnings and automatic price-based indexation [16].

The 2026 IMF assessment reports that a Pension System Reform concept note has been drafted, with comprehensive reform progressing through further actuarial analysis and institutional development [17]. Consequently, retirement-age, contribution-rate and replacement targets can be calibrated on the basis of a baseline actuarial model and alternative scenarios. ILO evidence also highlights the importance of informality for social-protection coverage [18, 19], making coverage expansion a pension-finance priority as well as a labour-market opportunity.

Based on the comparative evidence, a seven-component reform package is proposed.

1. Introduce an actuarial pension balance and annual sustainability report.

Before major parametric changes, the Pension Fund should publish a 20–30-year actuarial balance with baseline and stress scenarios covering contributors, pensioners, revenue, expenditure and sensitivity to wages, inflation, longevity, employment and migration. This directly addresses the actuarial gap identified by the IMF in 2026.

2. Move the benefit formula toward career-average earnings.

A career-average formula would strengthen the lifetime contribution–benefit link and reduce incentives to concentrate reported earnings near retirement. The transition should protect accrued rights and extend the earnings period gradually.

3. Establish transparent automatic indexation with an explicit adequacy safeguard.

Indexation should follow a published rule. A price-based floor can protect purchasing power, while a mixed price-and-wage rule may be used if actuarial projections confirm affordability; minimum-pension protection should shield low-income pensioners.

4. Adjust retirement age gradually and conditionally, not as a stand-alone fiscal measure.

Any retirement-age increase should be gradual, announced in advance and linked to older-worker employment, retraining and occupational-health measures, with safeguards for arduous occupations and long contribution histories.

5. Create a simplified contributory route for self-employed, informal and migrant workers.

Self-employed, informal and migrant workers should have flexible digital contribution channels linked to a unified individual account. Targeted temporary matching may be tested for low-income contributors, while remote contributions and justified bilateral social-security arrangements can support migrant coverage.

6. Strengthen the funded pillar only after governance safeguards are in place.

<sup>4</sup> Source: author's synthesis based on [1], [4–15] and the institutional conditions of Uzbekistan discussed in [16–19].

A funded component should expand only under clear fiduciary rules, asset limits, independent custody and audit, fee disclosure and performance benchmarks. Low-cost diversified default portfolios can reduce risks for inexperienced participants.

7. Build a single digital pension account and reform-monitoring dashboard.

A unified digital account should display verified contribution history, accrued rights, funded balances and projected pensions. A system-level dashboard should track coverage, contribution density, effective retirement age, replacement rates, expenditure, old-age poverty, administrative cost and funded-pillar performance (Table 3).

Table 3. Proposed Sequencing of Pension Reform Measures in Uzbekistan<sup>5</sup>

| Phase               | Priority measures                                                                                                                                        | Expected result                                       |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Phase I: 1–2 years  | Actuarial baseline; unified contribution records; reform dashboard; career-average formula preparation; indexation rule design                           | Reliable evidence base and transparent pension rights |
| Phase II: 3–5 years | Gradual formula transition; coverage incentives for self-employed/informal workers; older-worker employment measures; cautious retirement-age adjustment | Broader contributory base and improved PAYG balance   |
| Phase III: 5+ years | Expansion of professionally governed funded pillar; possible deeper NDC-type mechanisms after evaluation                                                 | Greater risk diversification and long-term resilience |

The proposed sequence avoids direct importation of foreign models. Sweden contributes automatic discipline, the United States risk diversification, Japan coordination between pension parameters and older-age employment, and Singapore digital administration and funded-account governance. These mechanisms are useful only where their institutional preconditions can be created in Uzbekistan.

Reform success should therefore be assessed jointly through sustainability, adequacy and coverage: lower expenditure is not sufficient if old-age poverty rises, funded assets are not sufficient if contribution coverage is narrow, and a higher retirement age is not sufficient if older workers leave employment.

## CONCLUSIONS AND SUGGESTIONS

The comparative analysis shows that the main lesson for Uzbekistan is institutional sequencing rather than the superiority of one pension model. Sweden demonstrates rule-based PAYG adjustment; the United States the benefits and limits of supplementary saving; Japan the need to coordinate demographic adjustment with employment; and Singapore the administrative preconditions of compulsory funding.

Uzbekistan should pursue a calibrated multi-pillar architecture: strengthen the contributory PAYG pillar through actuarial monitoring, career-average earnings, transparent indexation and gradual retirement-age adjustment; expand coverage through simplified contributions and unified digital accounts; and develop supplementary funded saving under professional governance. Because the IMF identifies actuarial analysis as unfinished [17], precise numerical reforms should follow a credible long-term baseline. The central priority is therefore to institutionalize continuous measurement and correction of pension-system imbalances while preserving minimum old-age protection.

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<sup>5</sup> Source: Author's own work.

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