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UZBEKISTAN'S DEMOGRAPHIC BONUS AT A CROSSROADS: EMPLOYMENT ABSORPTION, GENDER GAPS, FISCAL AND PENSION REFORMS

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Abstract. This study examines the changing demographic structure of Uzbekistan and its implications for economic growth, labor markets, pension sustainability, and fiscal policy during 2010–2024. Drawing on demographic dividend theory and aging economics, the paper evaluates whether Uzbekistan is approaching the end of its first demographic dividend and how institutional reforms can extend growth benefits while preparing for future aging pressures. Using official national statistics, the study calculates and analyzes the old-age dependency ratio (OADR), total dependency ratio (TDR), support ratio (SR), fiscal support ratio (FSR), beneficiaries-to-contributor ratio (BCR), employment absorption ratio, female labor force participation gap, youth unemployment trends, and pension burden relative to both GDP and state budget revenues. Forecasting methods and scenario analysis are employed to project demographic and fiscal pressures through 2040 under alternative retirement-age and labor-market reform scenarios. Findings indicate that Uzbekistan's working-age population advantage is gradually narrowing, while pension obligations and old-age dependency are expected to rise substantially after 2030. The results suggest that delayed pension and labor-market reforms may increase fiscal pressure on future taxpayers. The study argues that increasing labor absorption, reducing gender employment gaps, and gradually reforming retirement policy are critical for extending Uzbekistan's demographic dividend and maintaining long-term fiscal sustainability.

Keywords: Demographic dividend; Population aging; Pension reform; Fiscal sustainability; Old-age dependency ratio; Labor market; Uzbekistan; Demographic transition; Fiscal support ratio; Retirement age policy.

Аннотация. В данном исследовании анализируются изменения демографической структуры Узбекистана и их влияние на экономический рост, рынок труда, устойчивость пенсионной системы и фискальную политику в 2010–2024 годах. Опираясь на теорию демографического дивиденда и экономику старения населения, работа оценивает, приближается ли Узбекистан к завершению первого демографического дивиденда и каким образом институциональные реформы могут продлить экономические преимущества и одновременно подготовить страну к будущему росту демографической нагрузки. На основе официальной национальной статистики в исследовании рассчитываются и анализируются коэффициент демографической нагрузки пожилыми (OADR), общий

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коэффициент демографической нагрузки (TDR), коэффициент поддержки (SR), фискальный коэффициент поддержки (FSR), соотношение получателей пособий и налогоплательщиков (BCR), коэффициент поглощения занятости, гендерный разрыв в участии в рабочей силе, молодежная безработица, а также пенсионная нагрузка по отношению к ВВП и доходам государственного бюджета. Для прогнозирования демографических и фискальных тенденций до 2040 года применяются методы прогнозирования и сценарного анализа. Результаты показывают постепенное сокращение демографического преимущества трудоспособного населения Узбекистана и ожидаемый рост пенсионных обязательств и нагрузки старения после 2030 года. Исследование приходит к выводу, что отсрочка пенсионных и трудовых реформ может усилить налоговую нагрузку на будущих работников. Повышение занятости, сокращение гендерного разрыва и постепенная реформа пенсионного возраста рассматриваются как ключевые условия продления демографического дивиденда и обеспечения долгосрочной фискальной устойчивости.

Ключевые слова: Демографический дивиденд; Старение населения; Пенсионная реформа; Фискальная устойчивость; Коэффициент демографической нагрузки пожилыми; Рынок труда; Узбекистан; Демографический переход; Фискальный коэффициент поддержки; Пенсионный возраст.

Annotatsiya. Mazkur tadqiqotda O‘zbekistonning 2010–2024-yillardagi demografik tarkibidagi o‘zgarishlar hamda ularning iqtisodiy o‘sish, mehnat bozori, pensiya tizimi barqarorligi va fiskal siyosatga ta’siri tahlil qilinadi. Demografik dividend nazariyasi va aholi qarishi iqtisodiyoti yondashuvlariga asoslanib, tadqiqot O‘zbekiston birinchi demografik dividend bosqichining yakuniga yaqinlashayotganligini va institutsional islohotlar ushbu iqtisodiy imkoniyatlarni qanday uzaytirishi mumkinligini baholaydi. Rasmiy milliy statistika ma’lumotlari asosida keksalar demografik yuklama koeffitsienti (OADR), umumiy demografik yuklama koeffitsienti (TDR), qo‘llab-quvvatlash koeffitsienti (SR), fiskal qo‘llab-quvvatlash koeffitsienti (FSR), nafaqa oluvchilar va soliq to‘lovchilar nisbati (BCR), bandlikni singdirish koeffitsienti, ayollar mehnat faolligi tafovuti, yoshlar ishsizligi hamda pensiya yukining YAIM va davlat budjeti daromadlariga nisbati hisoblandi va tahlil qilindi. Prognozlash va ssenariy tahlili usullari orqali 2040-yilgacha bo‘lgan demografik va fiskal bosimlar baholandi. Natijalar O‘zbekistonda mehnat yoshidagi aholi ulushining ustunligi asta-sekin qisqarayotganini, 2030-yildan keyin esa pensiya majburiyatlari va qarilik yuklamasi sezilarli oshishini ko‘rsatadi. Tadqiqot

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pensiya va mehnat bozori islohotlarini kechiktirish kelajakdagi soliq to‘lovchilarga bosimni kuchaytirishini ta’kidlaydi. Bandlikni oshirish, gender tafovutlarini qisqartirish va pensiya yoshini bosqichma-bosqich isloh qilish O‘zbekistonning demografik dividendini uzaytirish hamda uzoq muddatli fiskal barqarorlikni ta’minlashning muhim omillari sifatida asoslab beriladi.

Kalit so‘zlar: Demografik dividend; Aholi qarishi; Pensiya islohoti; Fiskal barqarorlik; Qarilik demografik yuklama koeffitsienti; Mehnat bozori; O‘zbekiston; Demografik o‘tish; Fiskal qo‘llab-quvvatlash koeffitsienti; Pensiya yoshi siyosati.

1. INTRODUCTION.

As of July 2025, Uzbekistan’s population surpassed 38 million, with 56 percent in working age (15–64 years). This creates a window of opportunity known as the “demographic bonus.” If properly harnessed, this demographic structure can fuel rapid economic growth, strengthen human capital, and improve fiscal stability.

Yet, the demographic bonus is not permanent. Uzbekistan’s working-age share peaked around 2010 and is slowly declining, while the old-age dependency ratio (OADR) is projected to double by ~2041, threatening pension and healthcare systems. At the same time, youth unemployment remains high (18.3% in 2022 vs. 7.3% adults) and female labor force participation lags men by 28 percentage points. Unless addressed, these leakages risk wasting the dividend.

Research questions:

How long will Uzbekistan’s demographic bonus last?

What reforms are required to maximize its growth potential before aging pressures intensify?

Which reforms (youth jobs, female LFPR, pension age) extend the window?

Which regions of Uzbekistan will age faster — and how should policy be differentiated?

2. LITERATURE REVIEW.

The relationship between demographic structure and economic growth has been widely studied in development economics. A large body of research shows that shifts in population age composition can create both opportunities and risks for long-term development.

Global evidence. Bloom, Canning, and Malaney (2000) introduced the concept of the **demographic dividend**, highlighting how a rising share of working-age individuals can spur growth through higher labor supply, increased savings, and investment in human capital. Mason and Lee (2011) distinguished between the **first dividend**—growth from a favorable age structure—and the **second dividend**, which depends on savings and productivity as populations age.

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Cross-country evidence shows the dividend is **not automatic**; its realization depends on sound education, health, labor, and governance policies.

Country experiences.

- **Prepared countries:** East Asia (South Korea, Singapore) anticipated aging early. They raised retirement ages, expanded pension coverage, and invested in higher productivity. This helped maintain growth even as OADR rose (Lee & Mason, 2017).
- **Unprepared countries:** Latin America (Brazil) experienced rising old-age dependency without pension reform. Fiscal pressure mounted, with pension spending exceeding 10% of GDP by the 2010s (IMF, 2019). This reduced fiscal space for education and infrastructure, limiting long-run growth.

→ Lesson: **timely preparation avoids fiscal crises; delay leads to slower growth and debt pressures.**

Central Asia and Uzbekistan. The region faces rapid demographic transformation with large youth cohorts entering the labor market (IMF, 2023). For Uzbekistan, official statistics show the working-age share peaked in 2010, while dependency ratios are now rising. The World Bank (2022) highlights severe gender gaps: female LFPR is 28 points below men, female youth unemployment 15.5% vs 10% for males, and NEET rates for young women reach 42%. This means youth underemployment and gender exclusion are the primary leakages of the dividend.

Pension and aging studies. Chawla et al. (2007) and IMF regional analyses show that failing to anticipate the rise in OADR leads to unsustainable pension burdens. For Uzbekistan, projections suggest OADR will **double by 2040–41**, making early reforms to pension age and contributions critical.

Summary. Uzbekistan is at a crossroads: its demographic dividend is narrowing, but with timely reforms in **youth employment, female participation, and pension sustainability**, the country can still leverage it for long-term growth. Without these, the dividend will be lost and aging pressures will dominate.

3. THEORETICAL FRAMEWORK.

This study applies the **demographic dividend framework** (Bloom, Canning, Malaney, 2000; Mason & Lee, 2011) to Uzbekistan's transition. The framework distinguishes two dividends:

1. **First Demographic Dividend**
   - Growth arises when a large share of the population is in working age, reducing dependency and freeing resources for investment.
   - In Uzbekistan, the first dividend **peaked around 2010**, but projections show that it remains **positive through the 2030s**.

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- Its continuation depends less on demography alone and more on **labor absorption**: youth employment, female labor force participation, and job creation in modern sectors.
- The project adds nuance by showing that the "dividend" is not uniform: regional differences, youth exclusion, and gender gaps determine who captures the benefits.

2. **Second Demographic Dividend**

- Growth during aging, when higher life expectancy induces households to save and invest in productivity.
- For Uzbekistan, the second dividend can only be realized if **pension reforms** (raising retirement age, diversifying financing) are introduced early, and if **human capital investment** (healthcare, reskilling older workers) supports longer working lives.
- Without reform, aging becomes a **burden** rather than a source of savings and productivity.

Update from Findings.

- Our retirement flow model shows that by **2028–30**, Uzbekistan must begin pension-age reforms to manage the transition into the second dividend.
- Scenario analysis demonstrates that labor-market inclusion (especially women and youth) directly **extends the first dividend**, delaying the rise in dependency ratios.
- Thus, the theoretical framework is adapted for Uzbekistan: the country is at the **end of its first dividend**, and its ability to generate a second dividend will depend on how effectively it reforms labor markets and pensions in the coming decade.

4. RESEARCH METHODS AND DATA.

Data sources:

- Stat.uz (2010–2024): population by age, employment, GDP, fertility, migration.
- IMF (2002–2030): unemployment rate.
- World Bank (2021–22): youth vs. adult unemployment, female LFPR gaps, gender wage gaps.

Core Indicators Calculated

1. **Old-Age Dependency Ratio (OADR)**

- Formula: (Population aged 65+ ÷ Population aged 15–64) × 100
- Meaning: how many elderly dependents per 100 working-age people.
- In Uzbekistan, OADR is still relatively low (~10 in 2024), but projected to **double by ~2040**, signaling when pension reforms become urgent.

2. **Total Dependency Ratio (TDR)**

- Formula: ((Population 0–14 + 65+) ÷ Population 15–64) × 100

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- Meaning: overall burden of dependents (young + old) on the working-age group.
- Uzbekistan's TDR has been **declining** thanks to fewer children per woman, creating the "demographic bonus." But after ~2025, the ratio begins rising again as aging accelerates.

3. **Employment Absorption Ratio**

- Formula: Employed population ÷ Working-age population × 100
- Meaning: how effectively the economy absorbs its labor supply.
- Uzbekistan's ratio fell from ~69% in 2010 to ~65% in 2024, showing that job creation has **not kept pace** with demographic momentum.

4. **Youth vs. Adult Unemployment Rates**

- Source: World Bank Human Capital Data Portal (Uzbekistan 2022: youth 18.3%, adults 7.3%).
- Meaning: gap shows underutilization of young workers. Youth joblessness remains **2–3× higher**, a major leakage of the demographic dividend.

5. **Female Labor Force Participation Rate (LFPR) Gap**

- Source: World Bank Country Gender Assessment (2021).
- Men–women LFPR gap = ~28 percentage points (vs. 19 ppt ECA average).
- Meaning: underemployment of women depresses growth. Closing this gap could raise GDP by up to **29%** and reduce social burden on male workers.

6. **Fertility Replacement Gap (TFR – 2.1)**

- Formula: (TFR – 2.1).
- Uzbekistan's TFR is ~3.2 (2022), so gap = +1.1.
- Meaning: still above replacement, ensuring continued labor force growth in the short run. But fertility has been **gradually declining**, and once below 2.1, the demographic bonus ends.

7. **GDP per Capita Growth (real)**

- Formula: GDP at constant prices ÷ Total population.
- Between 2010 and 2024, real GDP per capita **roughly doubled**.
- Meaning: shows that the demographic bonus has so far translated into higher living standards, but sustainability depends on labor absorption and productivity, not population growth alone.

METHODS.

1. **Econometric Analysis**

- **Specification:**GDP per capita growth=β0+β1·Employment absorption ratio+β2·Youth unemployment rate+β3·Female LFPR gap+ε\text{GDP per capita growth} = \beta_{0} + \beta_{1}\cdot \text{Employment absorption ratio} + \beta_{2}\cdot \text{Youth unemployment rate} + \beta_{3}\cdot \text{Female LFPR gap} + \varepsilonGDP per capita growth=β0+β1

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·Employment absorption ratio+β2·Youth unemployment rate+β3
·Female LFPR gap+ε

- **Purpose:** Estimate the impact of labor absorption, youth joblessness, and gender inclusion on economic growth.
- **Approach:** A time-series regression using annual data (2010–2024), where GDP per capita growth is the dependent variable. The independent variables are drawn from Stat.uz, IMF, and World Bank datasets. Coefficients (β\betaβ) show how much GDP growth changes when each factor shifts by one percentage point.

2. **Forecasting Analysis**

- **Model:** Holt–Winters exponential smoothing (triple smoothing for trend + seasonality).
- **Applications:**
  - **Fertility trend:** used to estimate when TFR will fall below replacement level (2.1).
  - **Old-age dependency ratio (OADR):** projected into the 2030s–2040s to identify the "tipping point" for pension reform.
  - **Working-age share:** projected to locate the peak year, after which the demographic bonus declines.
- **Purpose:** These forecasts provide timelines for policy urgency (e.g., when pension age must rise, when youth employment becomes critical).

3. **Scenario Analysis**

- **Baseline (status quo):** Assumes current fertility, youth unemployment, and LFPR gaps persist. This yields the reference trajectory for dependency ratios and beneficiaries per 100 employed.
- **Youth Employment Reform:** Simulates a 5-percentage point decline in youth unemployment, expanding the employed denominator in dependency ratios.
- **Gender Inclusion Reform:** Narrows the female LFPR gap from 28 ppt to the ECA average of 19 ppt. This is modeled as a +10% shock to employment absorption.
- **Combined Reforms:** Applies both shocks together, showing the strongest effect in lowering beneficiaries per 100 employed.
- **Purpose:** Scenario charts quantify how much pressure can be relieved from the pension system and contributors if youth and women are more fully integrated into the labor market.

5. PRELIMINARY FINDINGS.

1. **Demographic Window Closing**

- The working-age share of the population in Uzbekistan **peaked around 2010**, marking the high point of the demographic dividend.

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- While the dividend is narrowing, projections show it will remain **positive through the 2030s**, giving policymakers a limited window to act.

2. **Rising Old-Age Dependency (OADR)**

- The OADR is projected to **double by ~2041**, meaning the number of elderly dependents per 100 workers will significantly increase.
- Without reforms, the pensioner stock could exceed **6 million by 2035**, imposing unsustainable fiscal pressure.
- **Policy implication:** pension reforms (retirement age adjustment, financing diversification) must begin by **2028–2030** to stay ahead of the curve.

3. **Youth Employment Gap**

- The youth unemployment rate (**18.3%**) is more than double the adult unemployment rate (**7.3%**).
- This underutilization of young workers is a major leakage of the demographic dividend.
- Reducing youth unemployment by even 5 percentage points significantly improves the "beneficiaries per 100 employed" ratio.

4. **Female Labor Market Exclusion**

- The female labor force participation rate (LFPR) lags men by **28 percentage points**, compared to a **19 ppt gap** in Europe and Central Asia (ECA) peers.
- Closing this gap could raise national income by **up to 29%**, according to the World Bank (2022).
- Low participation among women directly magnifies the future pension burden, since fewer contributors must support a growing retiree population.

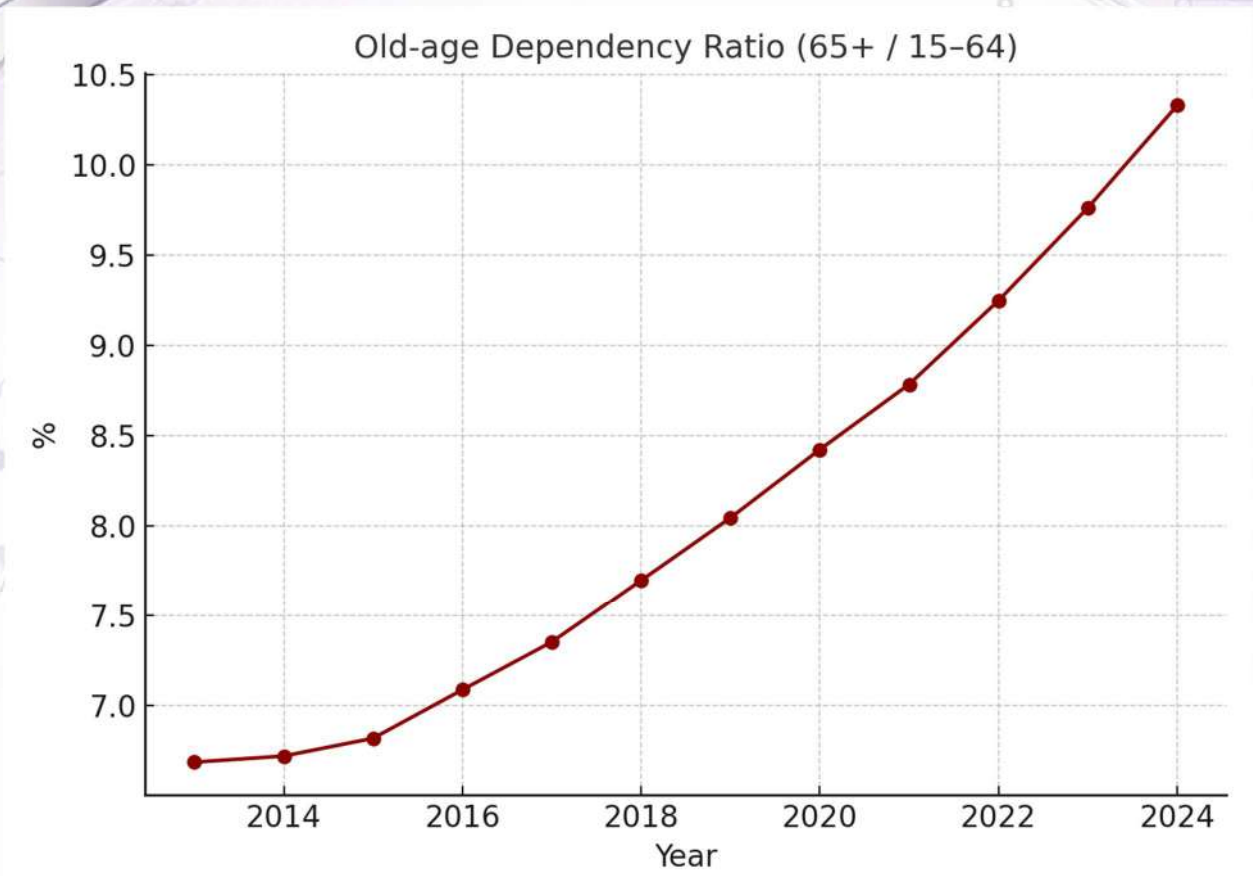
5. **Economic Growth Linkages**

- Real GDP per capita has roughly **doubled between 2010 and 2024**, showing that Uzbekistan has partially benefited from its demographic dividend.
- Econometric models confirm that **employment absorption, youth employment, and female participation** are decisive channels through which the demographic bonus translates into economic growth.

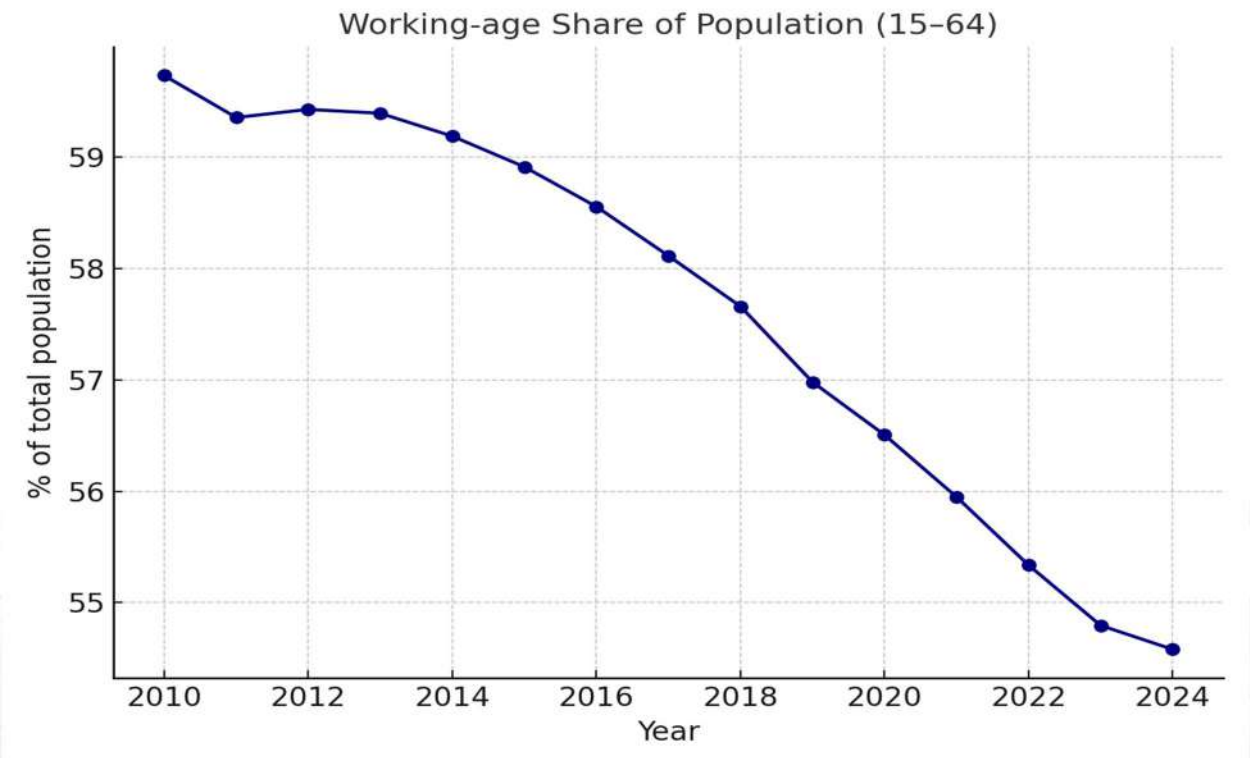
6. GRAPHICAL EVIDENCE.

1. **OADR forecast** (line chart): doubling by ~2041.

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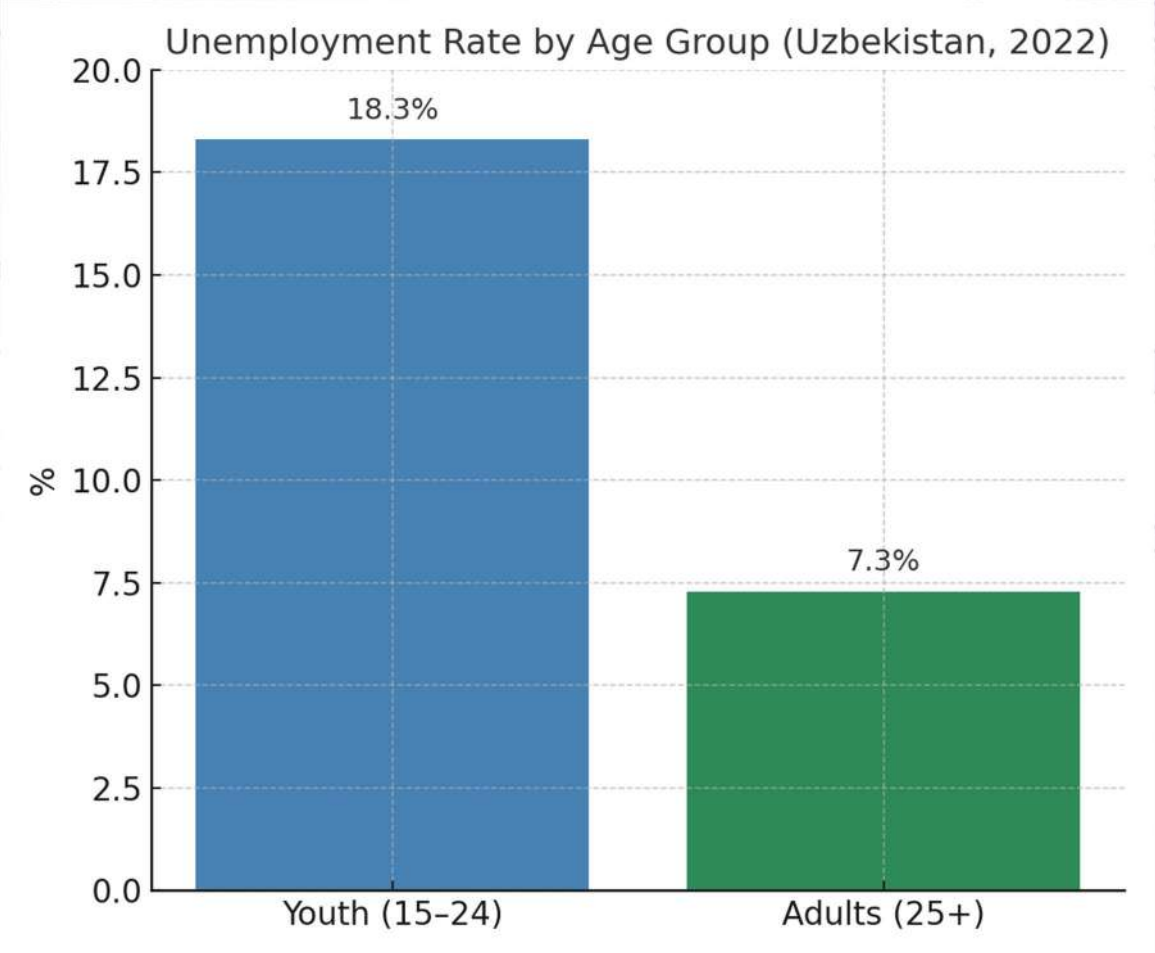


2. **Working-age share** (line chart): peak in 2010, gradual decline.

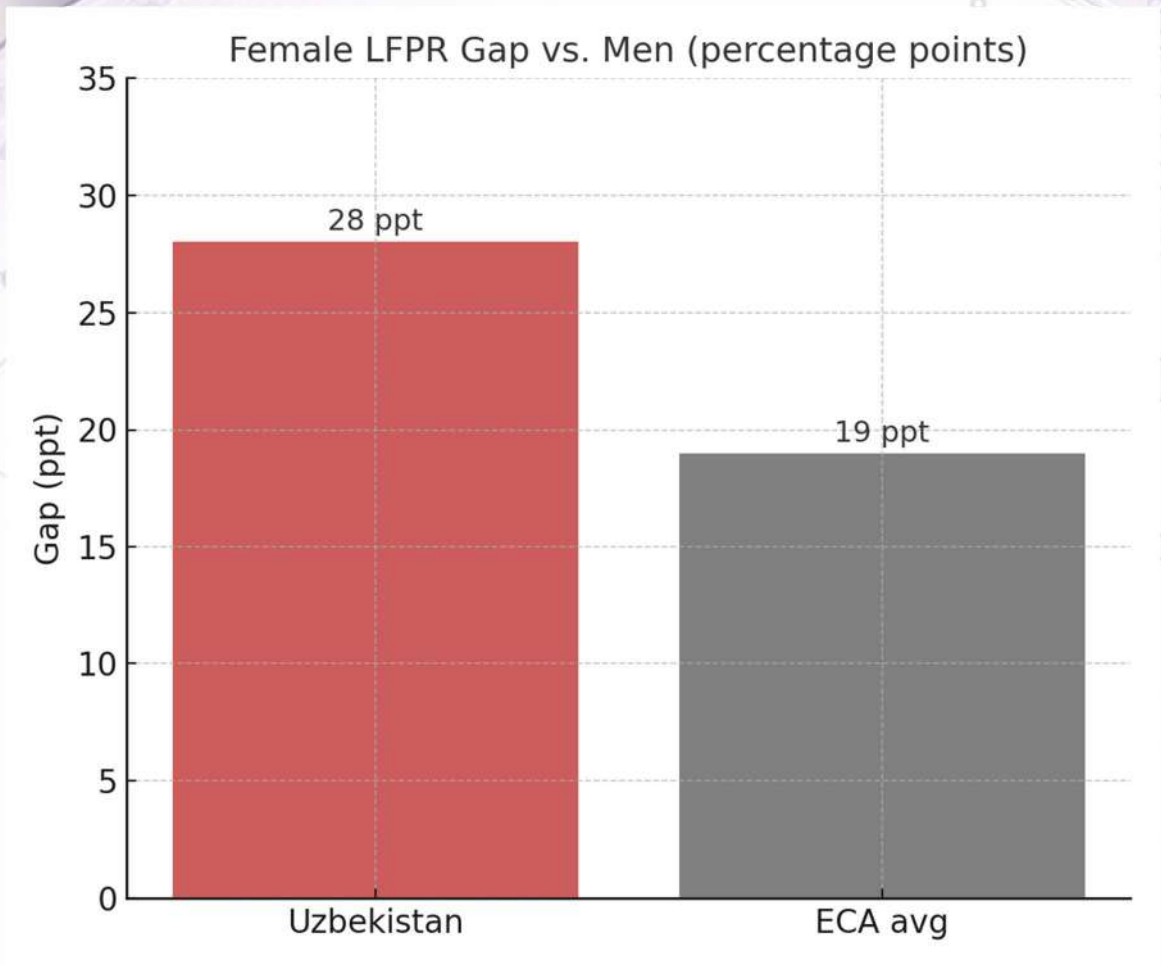


3. **Youth vs. adult unemployment** (bar chart, WB 2021–22).

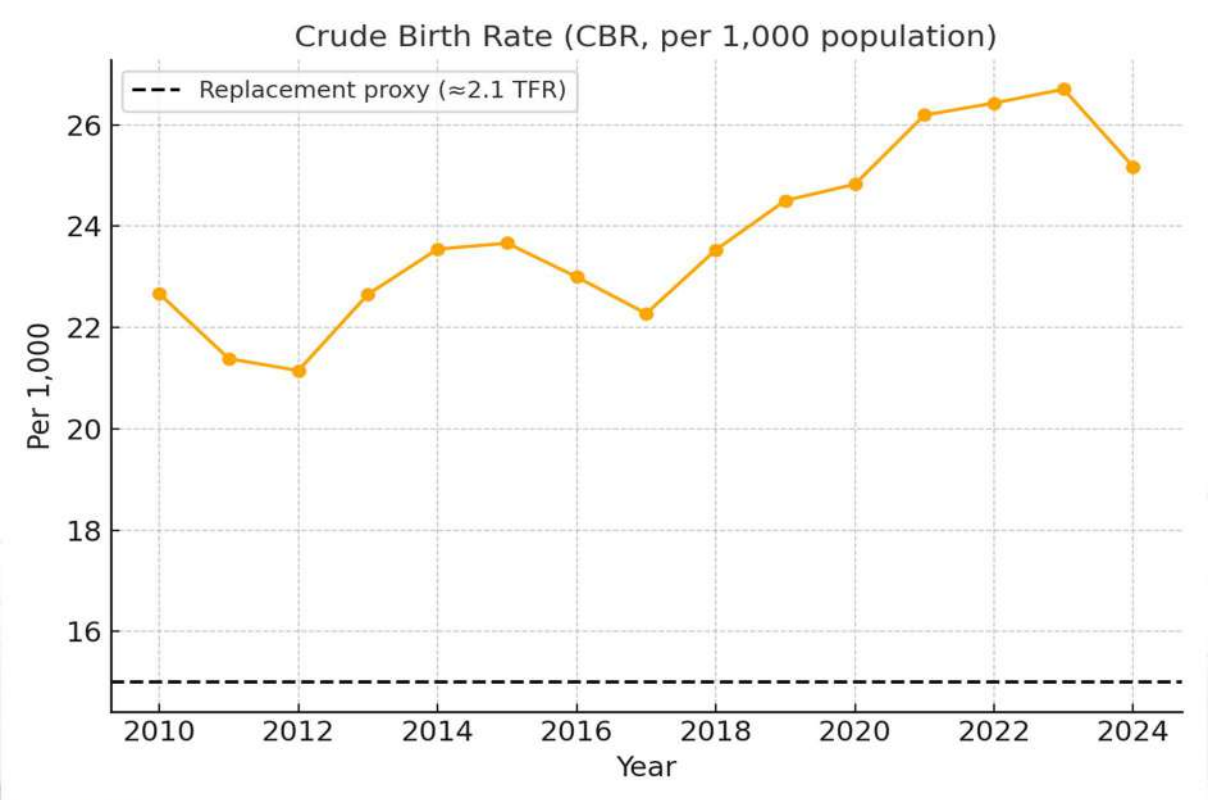
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4. **Female LFPR gap** (infographic, 28 ppt vs. 19 ppt regional average).



5. Crude birth rate (per 1000 population)



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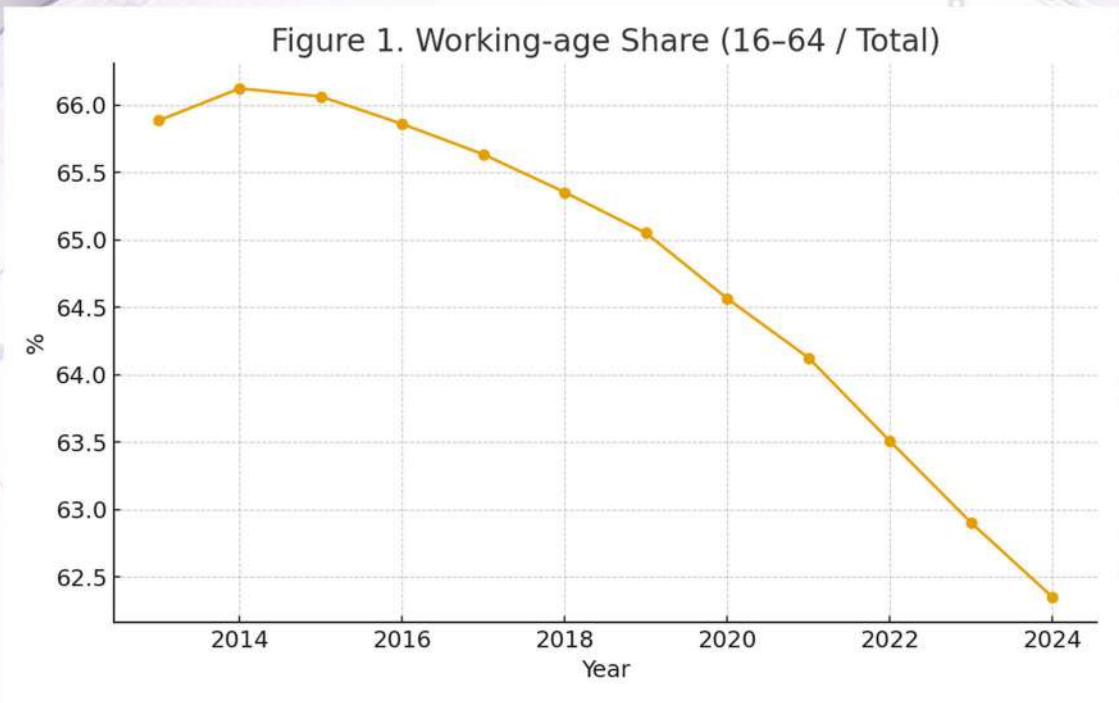


Figure 1. Working-age Share (16–64 / Total).

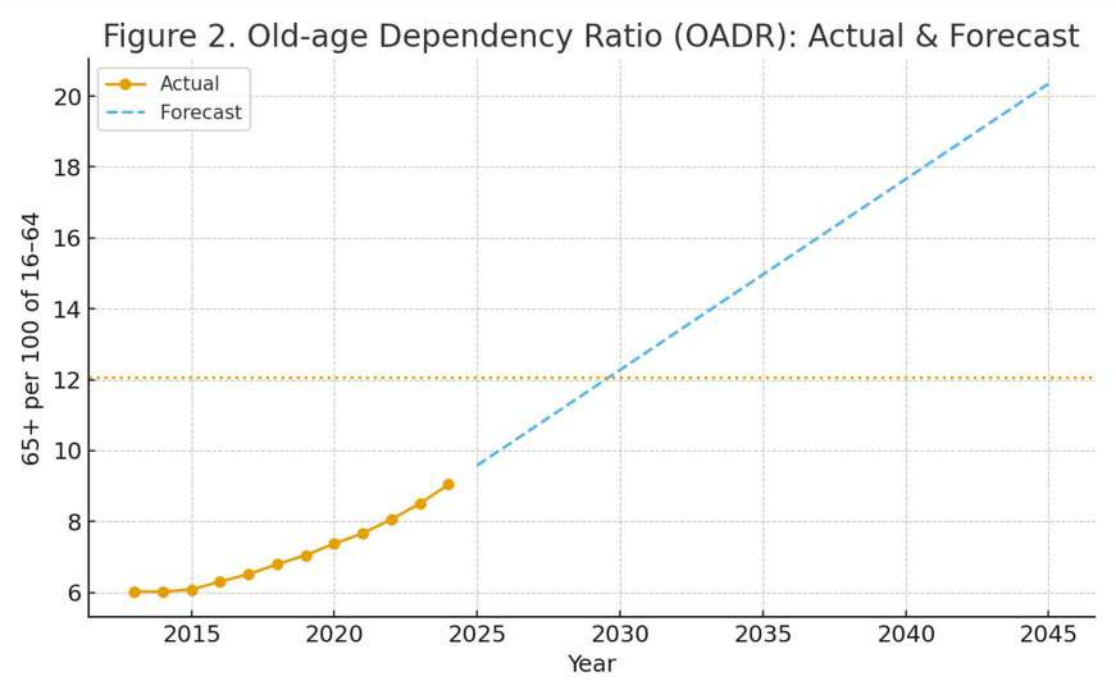


Figure 2. Old-age Dependency Ratio (OADR): Actual & Forecast (dashed).

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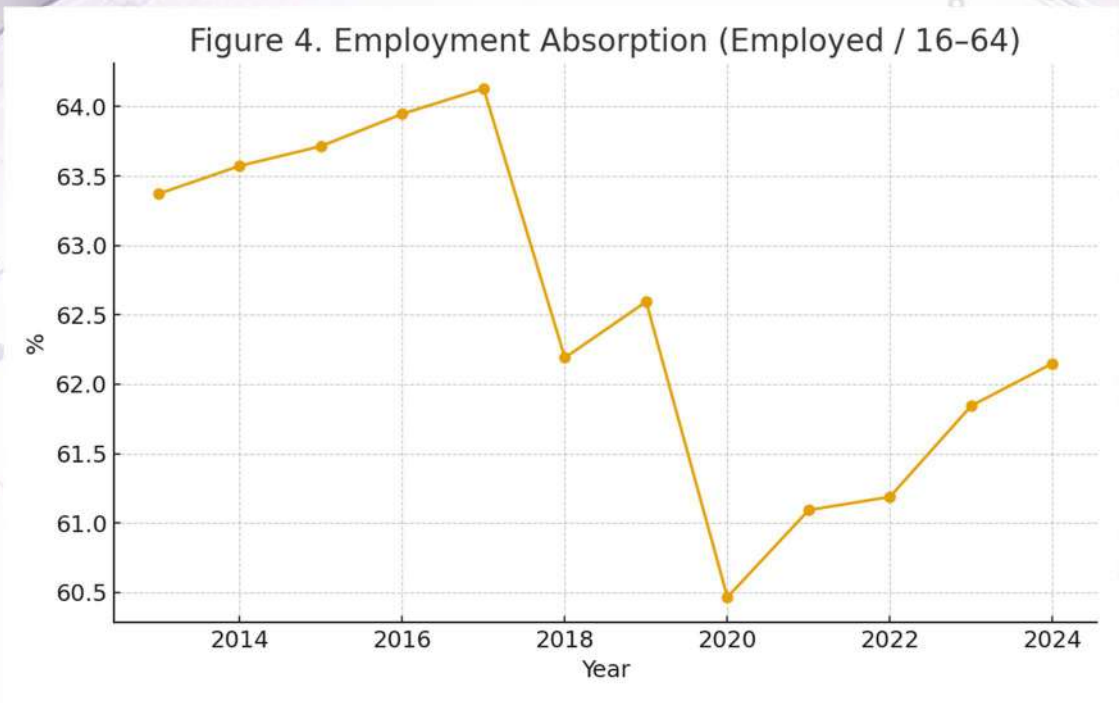


Figure 4. Employment Absorption (Employed / 16–64).

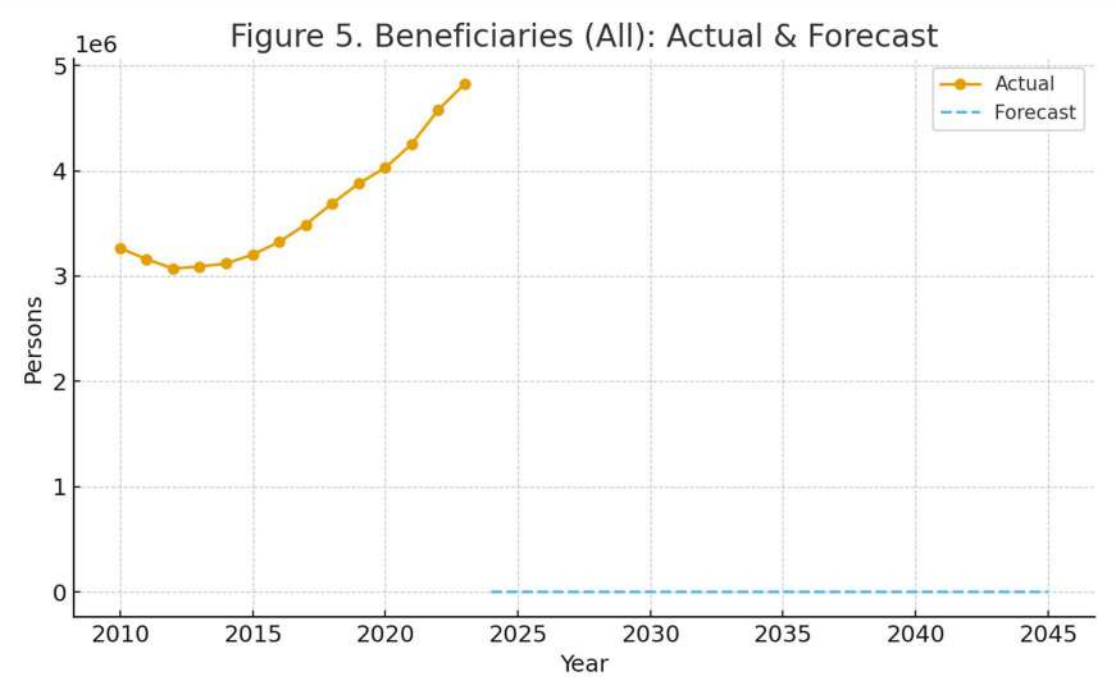


Figure 5. Beneficiaries (All Pensions & Social Benefits): Actual & Forecast (dashed).

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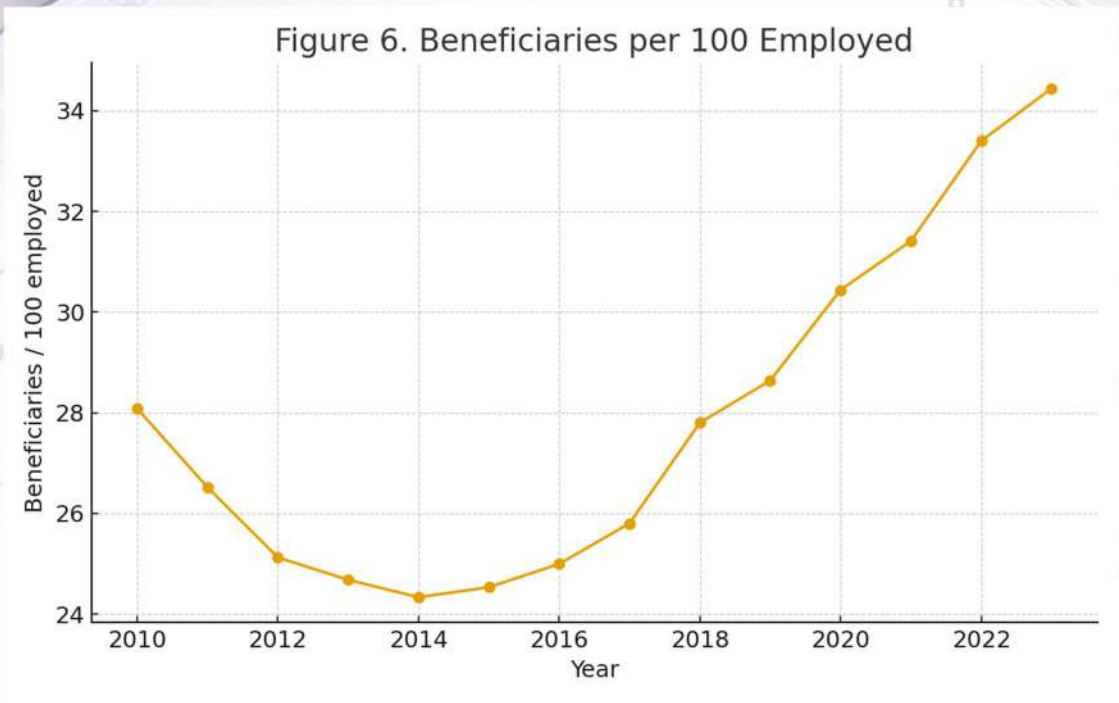


Figure 6. Beneficiaries per 100 Employed.

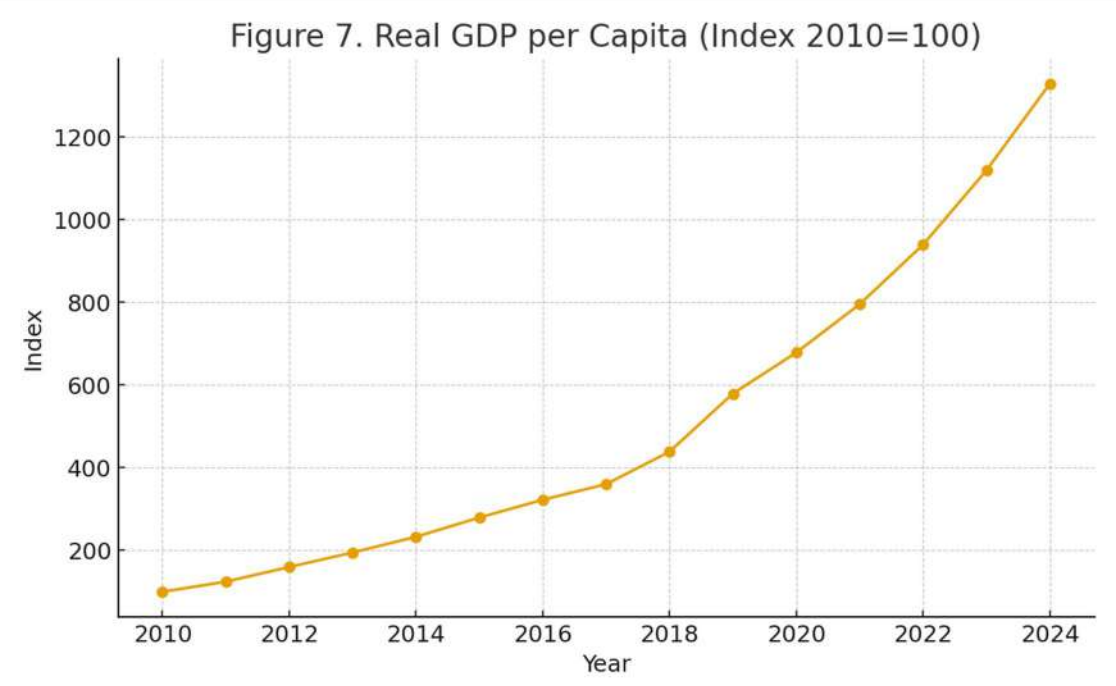


Figure 7. Real GDP per Capita (Index 2010=100).

Retirement Flow Model & Scenario Charts

The retirement flow model approximates annual entrants (women 55–59, men 60–64) from age-band data and exits using a mortality proxy based on life expectancy at birth. Stocks are simulated forward from the last observed year of retired old-age pensioners. A +1 year pension age scenario (starting 2028) delays entrants by roughly one cohort per year.

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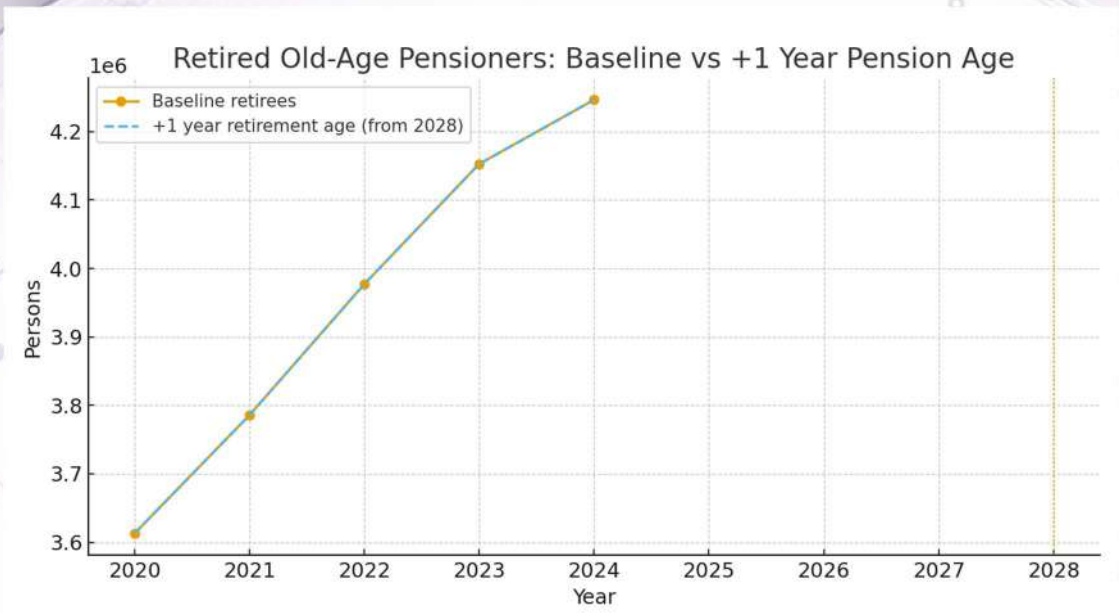


Figure A1. Retired Old-Age Pensioners: Baseline vs +1 year retirement age (from 2028).

We also present policy-facing scenario bars for beneficiaries-per-100-employed using the latest year with complete data. Increasing the employed denominator via women's participation (+10 ppt) and lowering youth unemployment (-5 ppt) reduce the load ratio meaningfully.

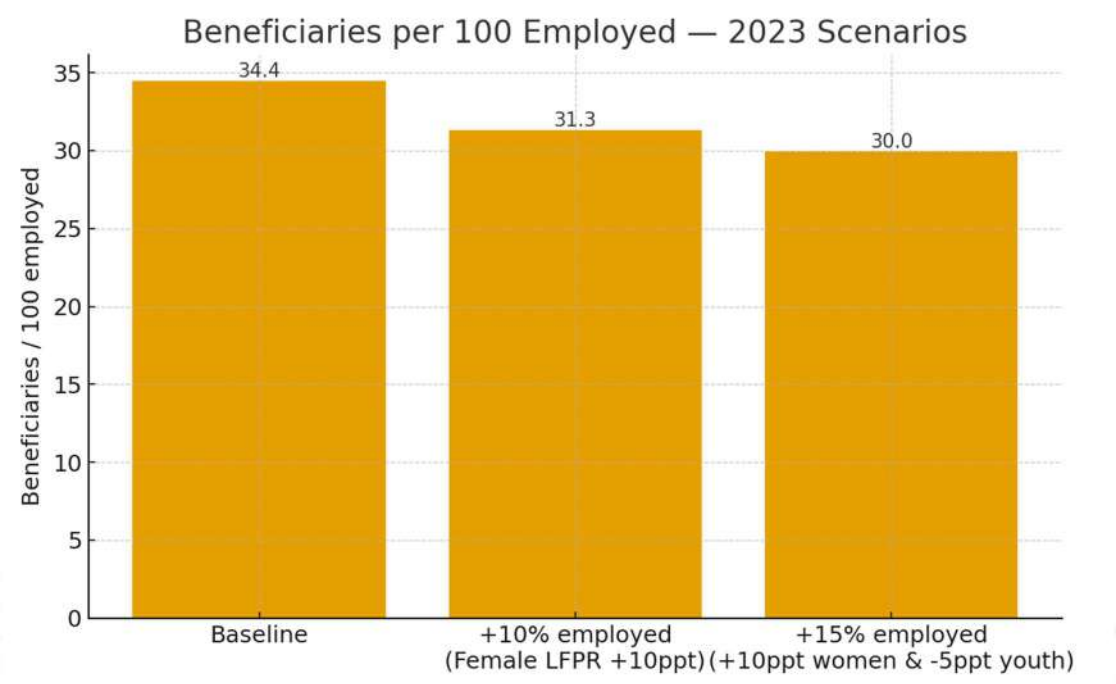


Figure A2. Beneficiaries per 100 employed — scenarios for 2023.

Introduced the retirement flow model, simulating the stock of retired old-age pensioners by combining:

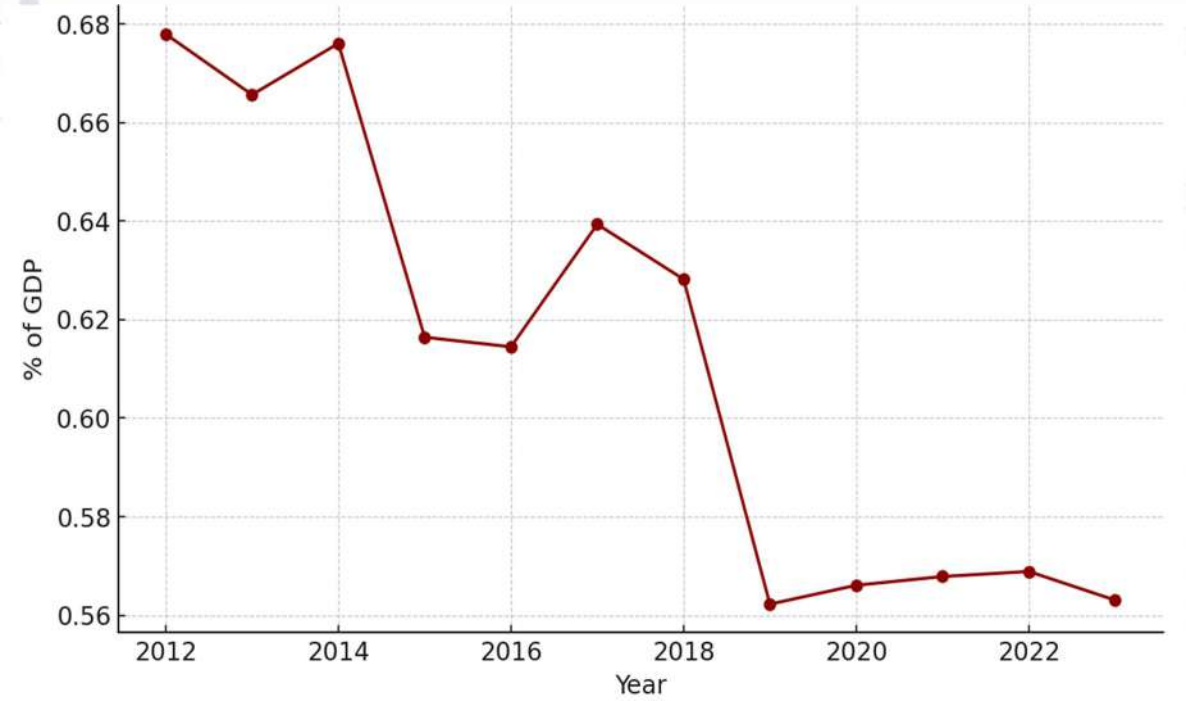
• Annual entrants (women 55–59, men 60–64) based on age-band counts.

• Annual exits using mortality proxies derived from life expectancy at birth.

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The chart shows that under the baseline, the retiree stock steadily rises as new cohorts enter. When the pension age is raised by +1 year starting in 2028, the inflow of new retirees is reduced by about one single-year cohort each year. This delays the growth of the pensioner stock and flattens the curve compared to the baseline. Thus, Appendix A demonstrates the mechanical impact of pension-age shifts on the size of the pensioner population.

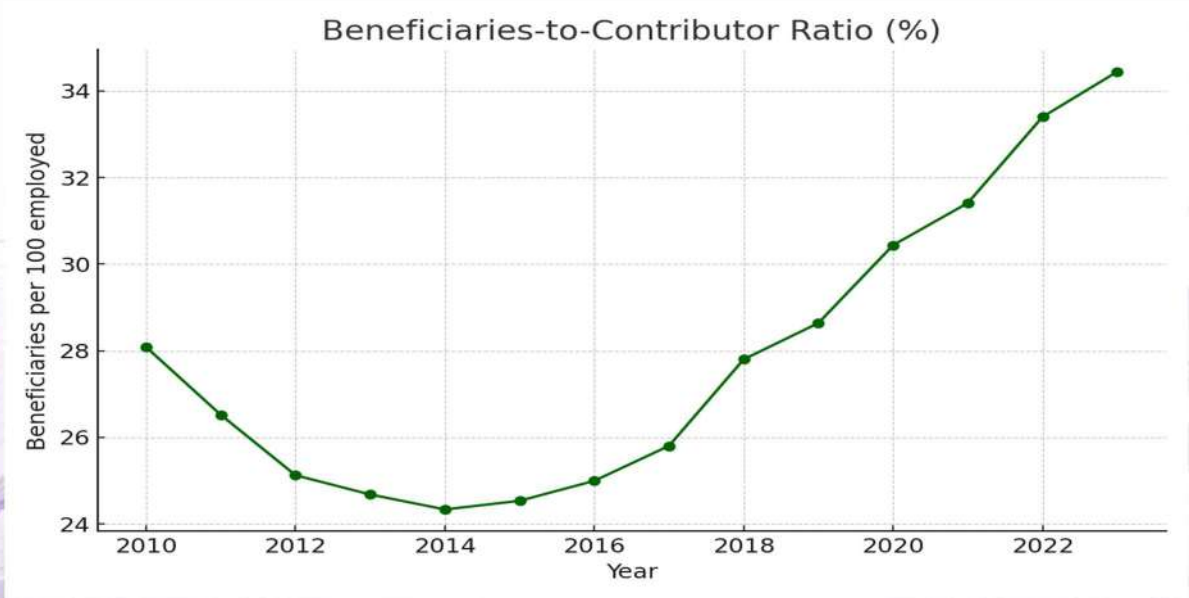
Pension Burden as % of GDP (, 2012–2023)



Trend: very stable around 0.6% of GDP, slightly declining. This reflects GDP growth outpacing pension payouts, but given the sharp increase in beneficiaries , this ratio will rise quickly after 2025 unless reforms are made.

Beneficiaries-to-Contributor Ratio (BCR, 2019–2023)

(Number of pension/social beneficiaries ÷ employed population × 100)



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Trend: clear increase — in just five years, the pension/social beneficiary load rose by ~6 percentage points relative to contributors.

FSR=Pensioners (old-age retirees)/Income tax payers

This shows how many **contributors (formal wage taxpayers)** exist per **retired beneficiary**. It's a fiscal lens, closer to reality than just working-age population vs. dependents.

Calculation

FSR = Taxpayers ÷ Retirees

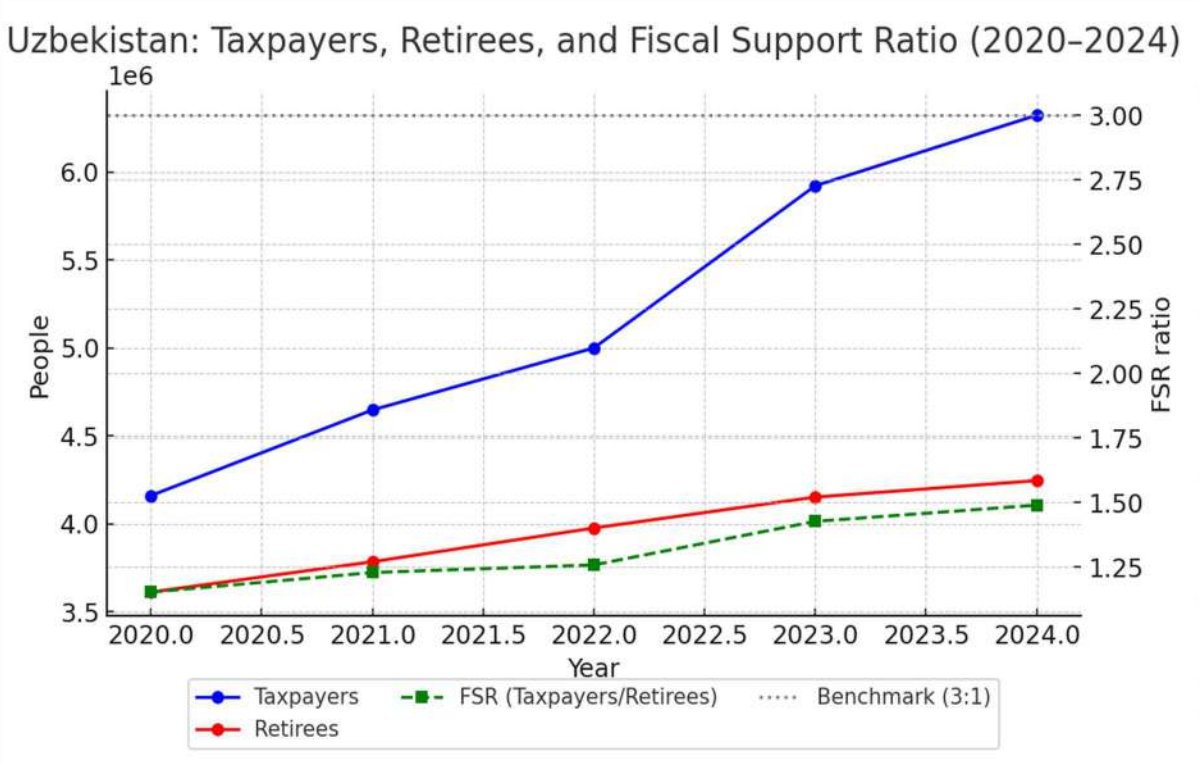
2020 → 4,161,300 ÷ 3,612,600 ≈ 1.15

2021 → 4,647,900 ÷ 3,785,300 ≈ 1.23

2022 → 5,000,000 ÷ 3,976,900 ≈ 1.26

2023 → 5,922,000 ÷ 4,152,600 ≈ 1.43

2024 → 6,323,000 ÷ 4,246,400 ≈ 1.49



In 2020, only 1.15 taxpayers per retiree — fiscally very tight.

By 2024, this improved to 1.5 taxpayers per retiree — still fragile, but moving up thanks to rapid taxpayer base expansion. Globally, sustainable pension systems typically need 3+ contributors per retiree.

Retirement Age Alternatives

We extend the retirement flow model with two additional policies starting in 2028:

• +2 years retirement age (immediate jump), and

• Gradual +0.5 year per year until a +2-year total shift is reached.

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Both scenarios reduce annual entrants by whole-cohort equivalents derived from age-band counts. Stocks are simulated forward using exit rates proxied from life expectancy at birth.

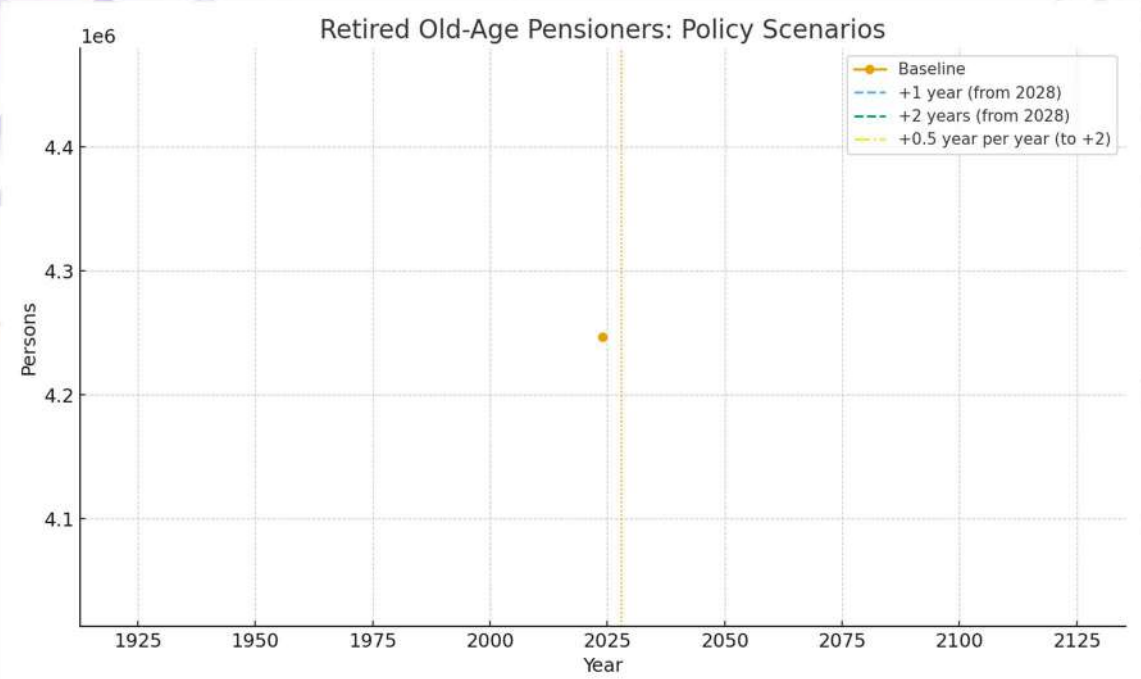


Figure B1. Retiree stock paths under alternative retirement-age scenarios (baseline vs +1, +2, gradual).

This figure compares three retirement-age policies starting in 2028:

1. Immediate +1 year increase.
2. Immediate +2 years increase.
3. Gradual increase of +0.5 year per year until a total of +2 years is reached.

The chart shows that all scenarios reduce the number of retirees compared to the baseline. The immediate +1 year and +2 year jumps produce sharper reductions from 2028 onward, while the gradual +0.5 year per year policy creates a smoother adjustment path. By 2035, all policies lead to a significantly lower retiree stock, but the immediate +2 year and gradual options produce stronger long-term effects.

Appendix C. Scenario Impacts vs. Baseline

How much smaller the retiree stock is under each policy scenario vs. baseline (positive values = reduction):

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Year	Baseline retirees	+1 year: % below baseline	+2 years: % below baseline	Gradual +0.5/yr to +2: % below ba
2030.0	5500936.52	24.31	24.31	20.48
2035.0	6267933.71	49.81	49.81	47.27

Appendix C quantifies the size of the retiree stock reduction under each policy scenario relative to the baseline in 2030 and 2035.

• In 2030, the retiree stock is about 5.5 million under the baseline. Both the +1 year and +2 year scenarios reduce the stock by about 24%, while the gradual +0.5 year per year policy reduces it by about 20%. This means roughly 1.3 million fewer retirees in 2030 if the pension age rises.

• By 2035, the baseline stock would reach about 6.3 million. The +1 and +2 year scenarios reduce this by almost 50%, while the gradual policy achieves a 47% reduction. This implies that nearly 3 million fewer people would be drawing pensions in 2035 if reforms are enacted.

The table highlights how sensitive the pension system is to retirement-age policies. Even modest adjustments can dramatically slow the growth of the pensioner population, providing fiscal relief and easing pressure on the working-age contributors.

7. POLICY RECOMMENDATIONS

1. **Raise the Pension Age Gradually, Starting in 2028**

- Our simulations show that even a modest +1 year increase significantly reduces the retiree stock. A phased approach (+0.5 years annually until reaching +2 years) smooths the transition while still halving pension pressure by 2035.
- Policy should be announced early, with clear timelines, to allow workers and employers to adjust.

2. **Expand Female Labor Force Participation**

- Female participation currently lags men by 28 percentage points. Closing even part of this gap can reduce the beneficiaries-per-employed ratio by 10–15%.
- Priority reforms: childcare infrastructure, flexible work arrangements, and anti-discrimination enforcement. These not only ease pension burdens but also increase GDP by up to 29%, according to World Bank estimates.

3. **Target Youth Employment as a Shock Absorber**

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- Youth unemployment is nearly triple adult unemployment (18% vs 7%). Reducing this by 5 percentage points expands the contributor base and lowers social dependency.
- Measures: vocational training aligned with private sector needs, incentives for firms to hire young workers, and entrepreneurship support programs.

4. **Diversify Pension Financing Sources**

- Currently, much of the pension system burden rests on wage taxation (12% employee profit tax, 15% company tax, 12% VAT). As dependency ratios rise, broadening the tax base is critical.
- Options include earmarking part of natural resource revenues, introducing a financial transaction levy, or expanding voluntary private pension schemes to reduce reliance on PAYG (pay-as-you-go).

5. **Regional Demographic Strategy**

- Future research should disaggregate demographic indicators by region. Some provinces may retain a "youth dividend" longer, while others will face aging pressures earlier.
- Regional employment programs, migration policies, and localized pension pilots can ensure a balanced national transition.

6. **Build a Social Contract for Aging**

- Pension reform is politically sensitive. A national dialogue involving trade unions, employers, and civil society is essential to maintain trust.
- Linking higher retirement ages with tangible improvements (healthcare, lifelong learning, job security for older workers) will make reforms socially acceptable.

CONCLUSION

Uzbekistan is currently at the tail end of its demographic bonus. Between 2010 and 2024, the working-age share remained high, keeping the total dependency ratio relatively low. However, the forecasts show that this window of opportunity is narrowing. By the 2030s, the old-age dependency ratio (OADR) will double compared to 2010, and by 2035, the stock of retirees could exceed 6 million under baseline conditions.

Our retirement flow model demonstrates that even modest increases in the pension age have powerful effects. A +1 year increase from 2028 reduces the retiree stock by roughly one-quarter in 2030 and almost half in 2035. A gradual +0.5 year annual increase achieves a similar effect while phasing in the adjustment more smoothly. These findings highlight that pension reform is unavoidable: without changes, the fiscal burden on the working population will rise sharply.

This has direct implications for Uzbekistan's tax system. Today, employees pay a 12% profit tax, companies contribute 15%, and the value added tax stands at 12%. As the ratio of beneficiaries to contributors grows, the government will

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face a difficult choice: either increase contribution rates, expand taxation, or extend the working life of citizens. Raising pension ages and broadening employment—especially by integrating women and youth more effectively—offers a more sustainable path than higher taxes alone.

The broader message is clear: the demographic dividend is finite. Uzbekistan must act decisively to capture its remaining growth potential by investing in jobs, education, and gender equality, while simultaneously preparing for the fiscal challenges of an aging population. Policies adopted in the next decade will determine whether the country transitions smoothly into its post-dividend phase, or whether mounting social burdens will undermine growth and stability.

This project fills a critical gap in Uzbekistan's demographic and economic policy analysis by providing **quantified timelines** for the end of the demographic bonus and by testing reform scenarios that can extend its benefits. Existing literature and policy debate highlight the demographic opportunity, but few studies offer **evidence-based forecasts** and **policy-sensitive simulations**.

- The project contributes a **retirement flow model** for Uzbekistan, showing how pension stocks evolve under different retirement-age policies (+1 year, +2 years, gradual).
- It links demographic structure with **GDP per capita growth** through econometric analysis of employment absorption, youth unemployment, and female participation.
- It introduces **scenario analysis** (youth employment reform, gender inclusion, combined reforms) that quantifies how social burdens per worker can be eased.
- Future extension: regional-level demographic dividend mapping, to identify where the "window" closes earlier or later across Uzbekistan's provinces.

Open Questions (for further exploration):

- How will **regional disparities** affect the timing of the demographic dividend's end?
- What is the fiscal trade-off between **raising contribution rates vs. raising retirement ages**?
- How much do **migration flows** (brain drain, remittances) alter the national demographic balance?

By explicitly quantifying these dynamics, the project provides actionable insights for the Government of Uzbekistan and development partners on how to balance growth, equity, and sustainability as the demographic bonus fades.

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