



Republic of Catalia Introduction PROST Exercise

World Bank

Pensions Core Course
November 4, 2019
Session 2

System Design

- PAYG defined benefit system
- Contribution rate: 20% from employers
- Retirement age: 60 for men and 55 for women (no early retirement)
- Benefit formula: generous accrual rate of 2.2% per year based on final salary
- Indexation: post-retirement benefits are indexed to wage growth
- No restrictions on minimum and maximum pension (for simplicity)

Current Status

- Mature system
- Coverage rate: ~40% of population age 18 to retirement
- System Dependency Rate: 22%
- Average replacement rates for existing old-age pensioners: ~ 80% of average wage
- Total expenditure = 3.2% of GDP
- Total revenue = 3.5% of GDP

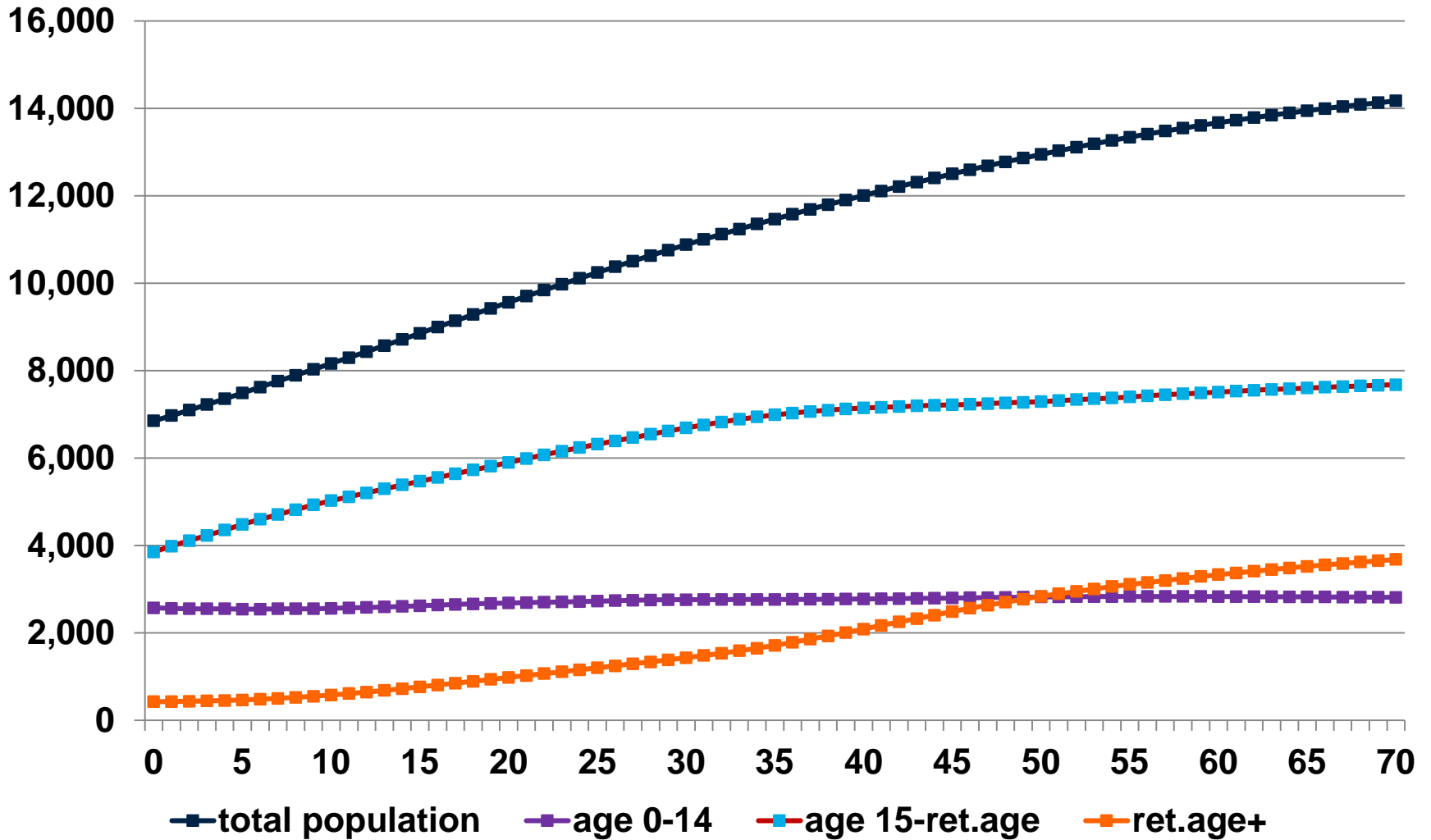
Demographic Assumptions

	Year 0	Year 20	Year 40	Year 70
Male				
Life Expectancy: At Birth	63.4	68.5	70.9	75.2
At Age 60 (retirement age)	15.6	16.7	17.7	19.8
At Age 65	12.4	13.4	14.2	16.0
Female				
Life Expectancy: At Birth	69.4	75.0	77.5	81.8
At Age 55 (retirement age)	22.2	24.6	26.0	28.8
At Age 60	18.2	20.3	21.7	24.3
At Age 65	14.5	16.4	17.6	20.0
Total fertility rate	3.1	2.3	2.2	2.1

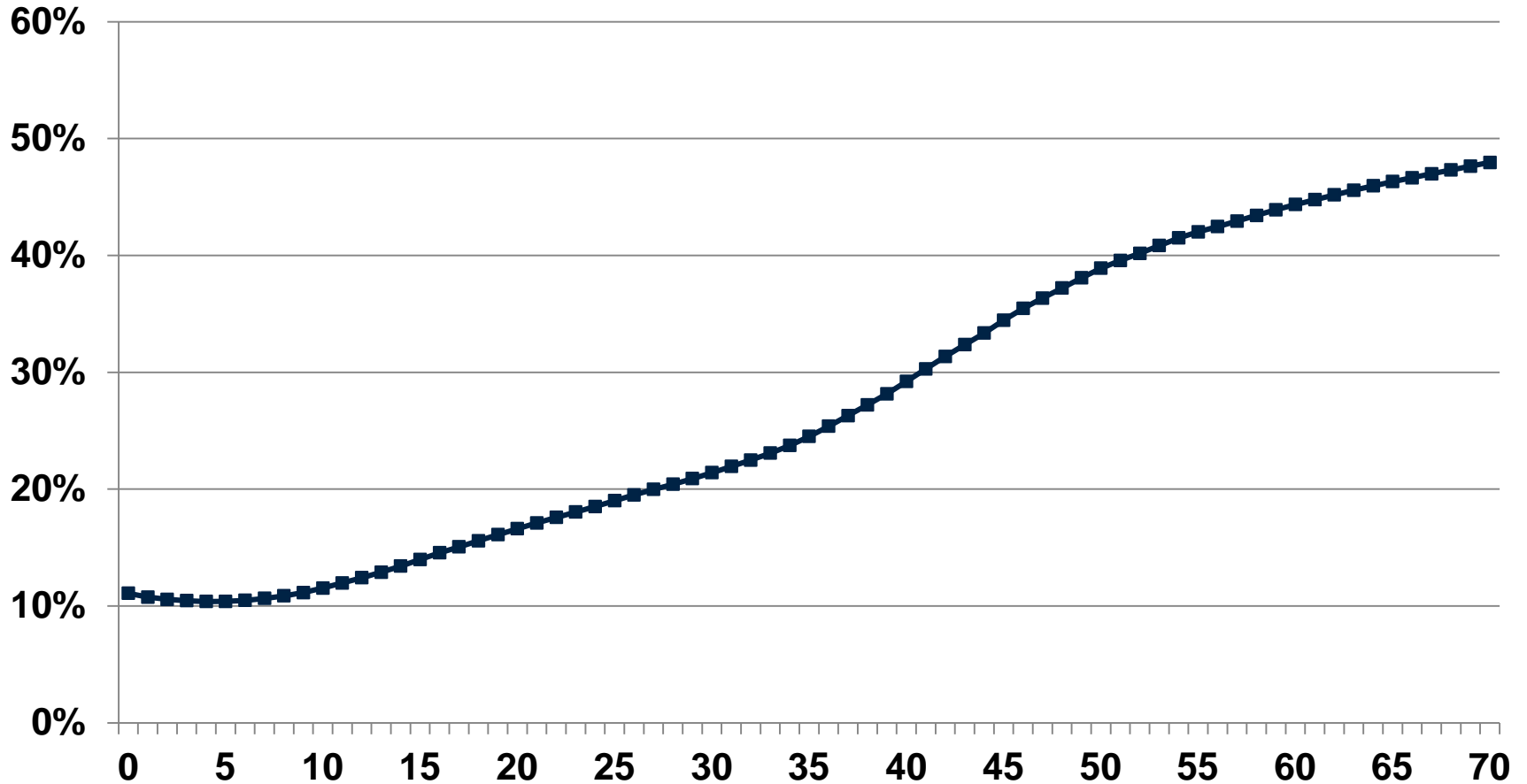
Macroeconomic Assumptions

	Year 0	Year 10	Year 20	Year 30	Year 40	Year 70
Real GDP growth	5.0%	4.5%	4.0%	3.5%	2.2%	2.2%
Inflation	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Real wage growth	2.2%	2.1%	2.4%	2.4%	2.0%	2.0%

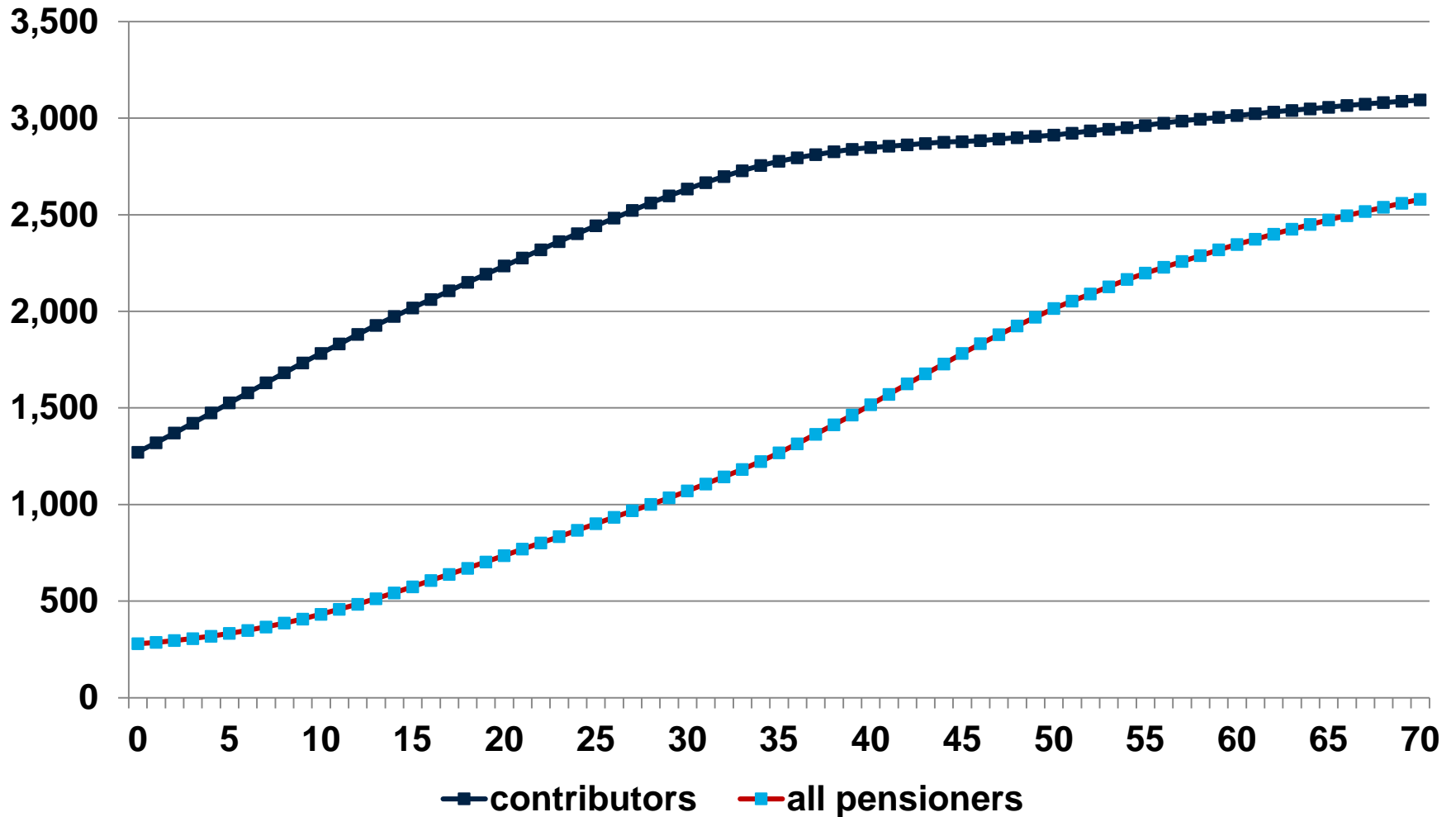
Baseline: Population (thousand persons)



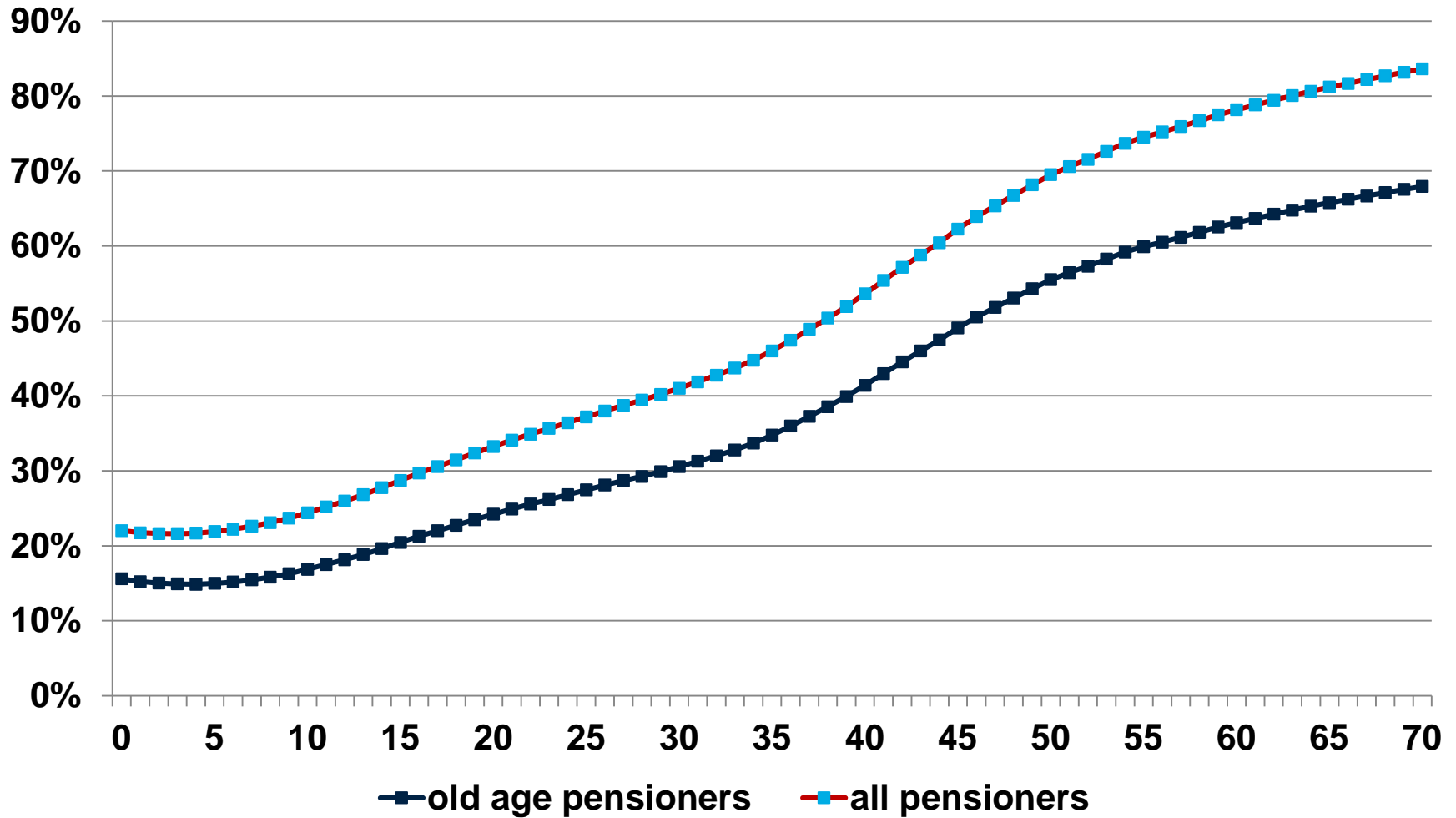
Baseline: Old Age Population Dependency Rate (old age population/working age population)



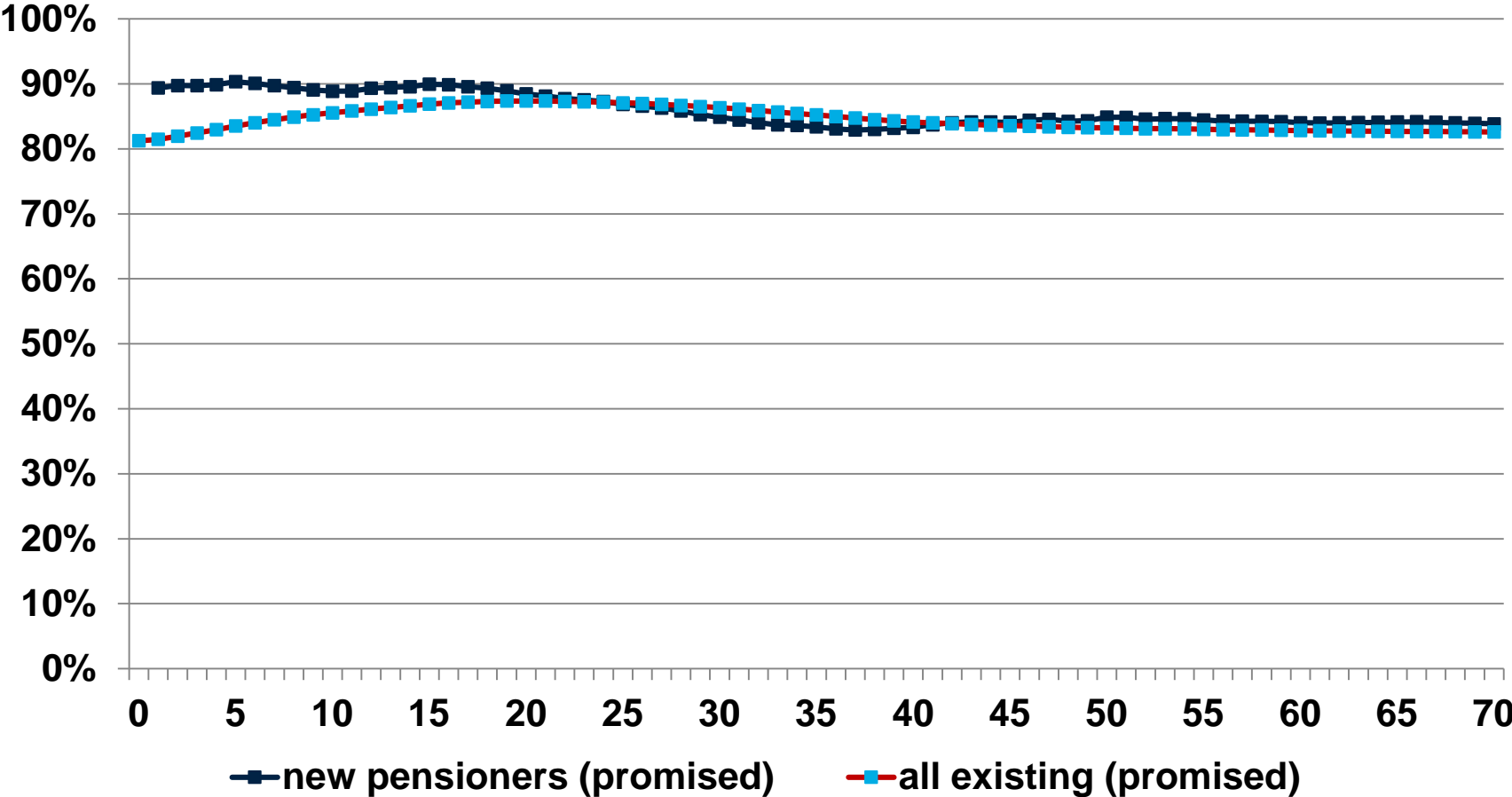
Baseline: Number of System Members (thousand persons)



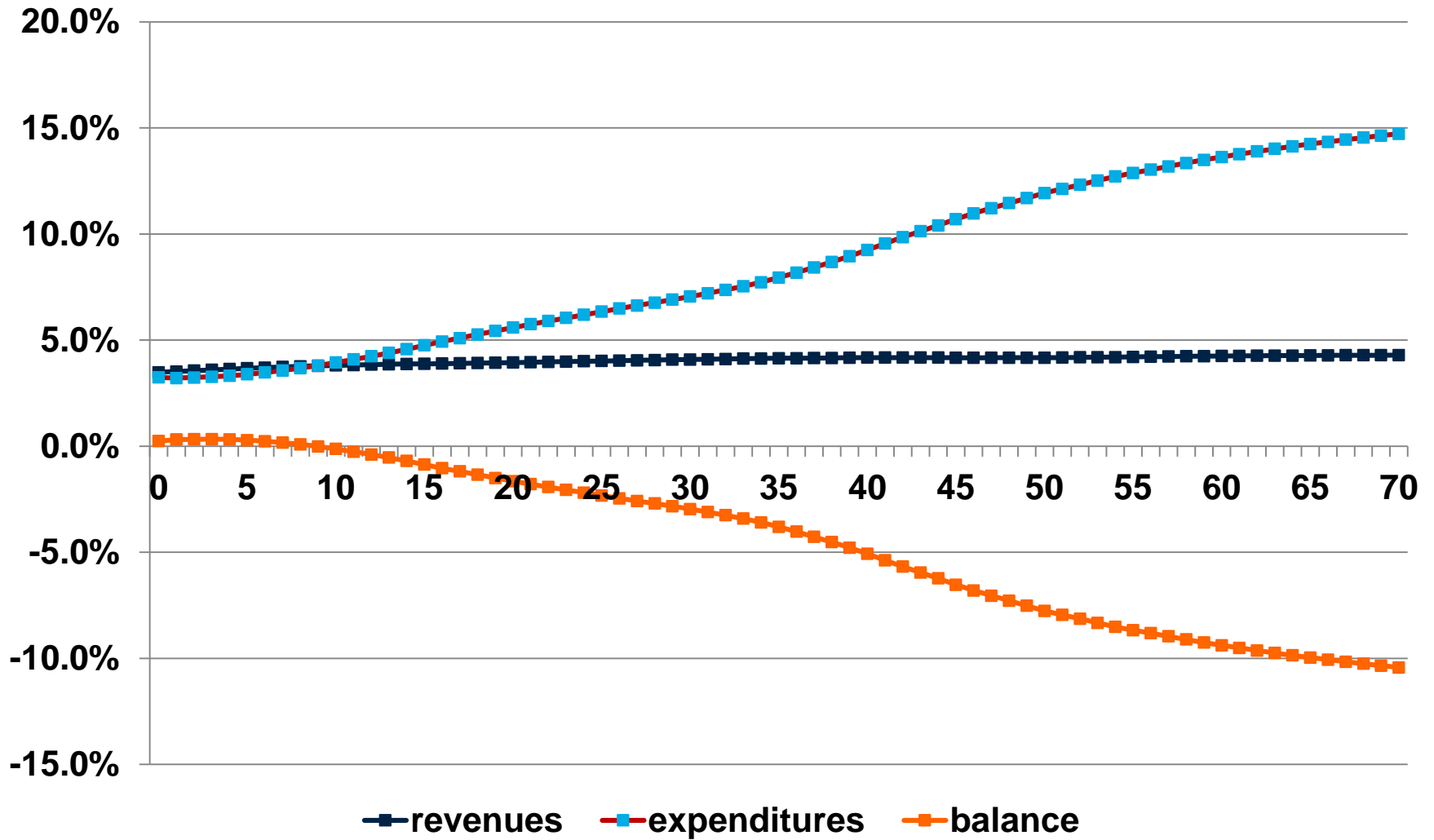
Baseline: System Dependency Rate (number of pensioners/number of contributors)



Baseline: Average Replacement Rates for Old Age Pensioners (% of average wage)



Baseline: System Finances, % of GDP



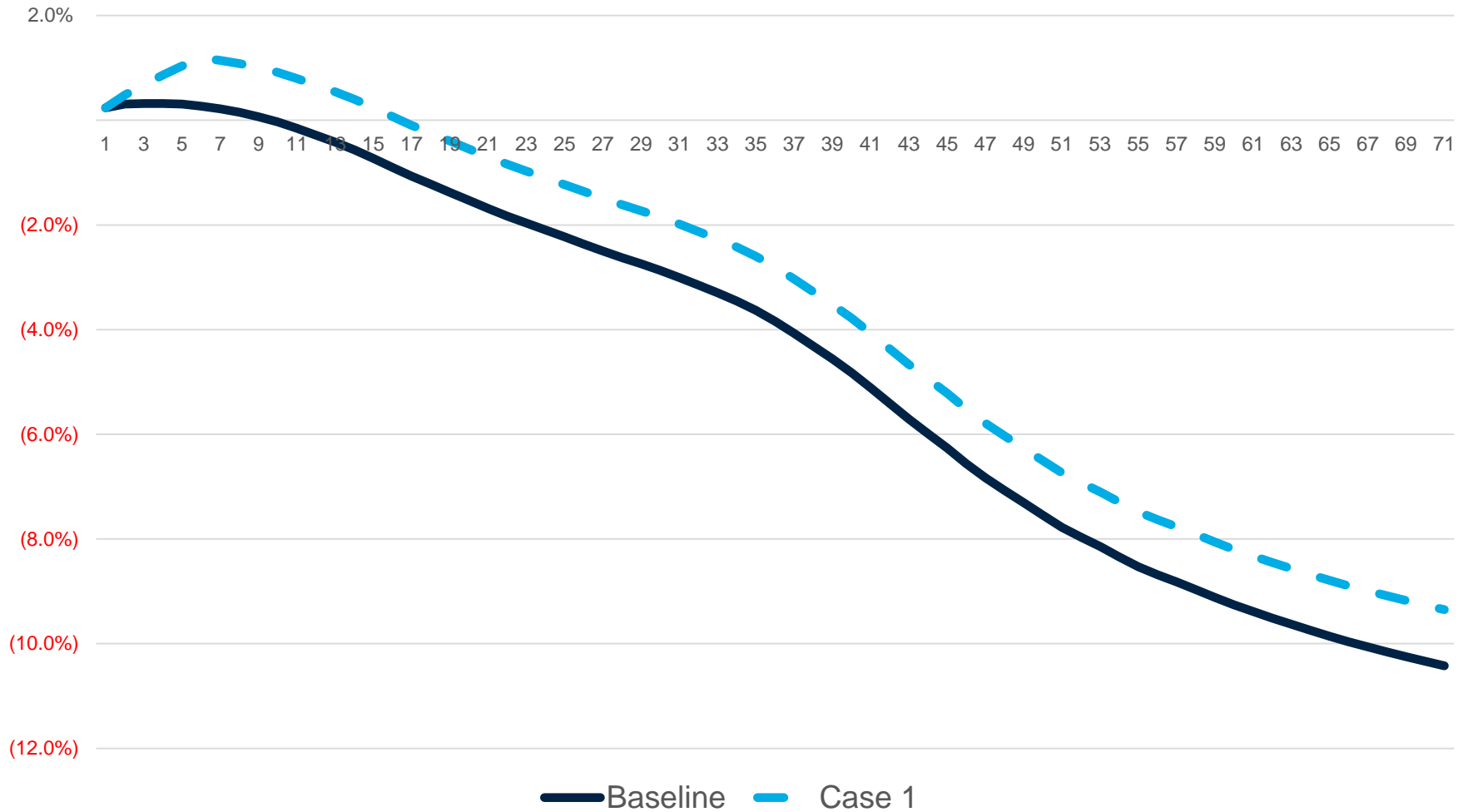
Key Issues

- Growing total dependency rate due to population aging: from current 22% to 83% in the long-run
- Generous benefit formula (high accrual rate, final salary feature)
- Expensive indexation policy
- System is financially unsustainable: deficits reach 10% of GDP in the long-run
- So, risk of defaulting on the promise in the future is high
- Estimated IPD: ~ 145% of GDP (at 4% real discount rate)
- Large uncovered population (farmers) – beyond the scope of the exercise

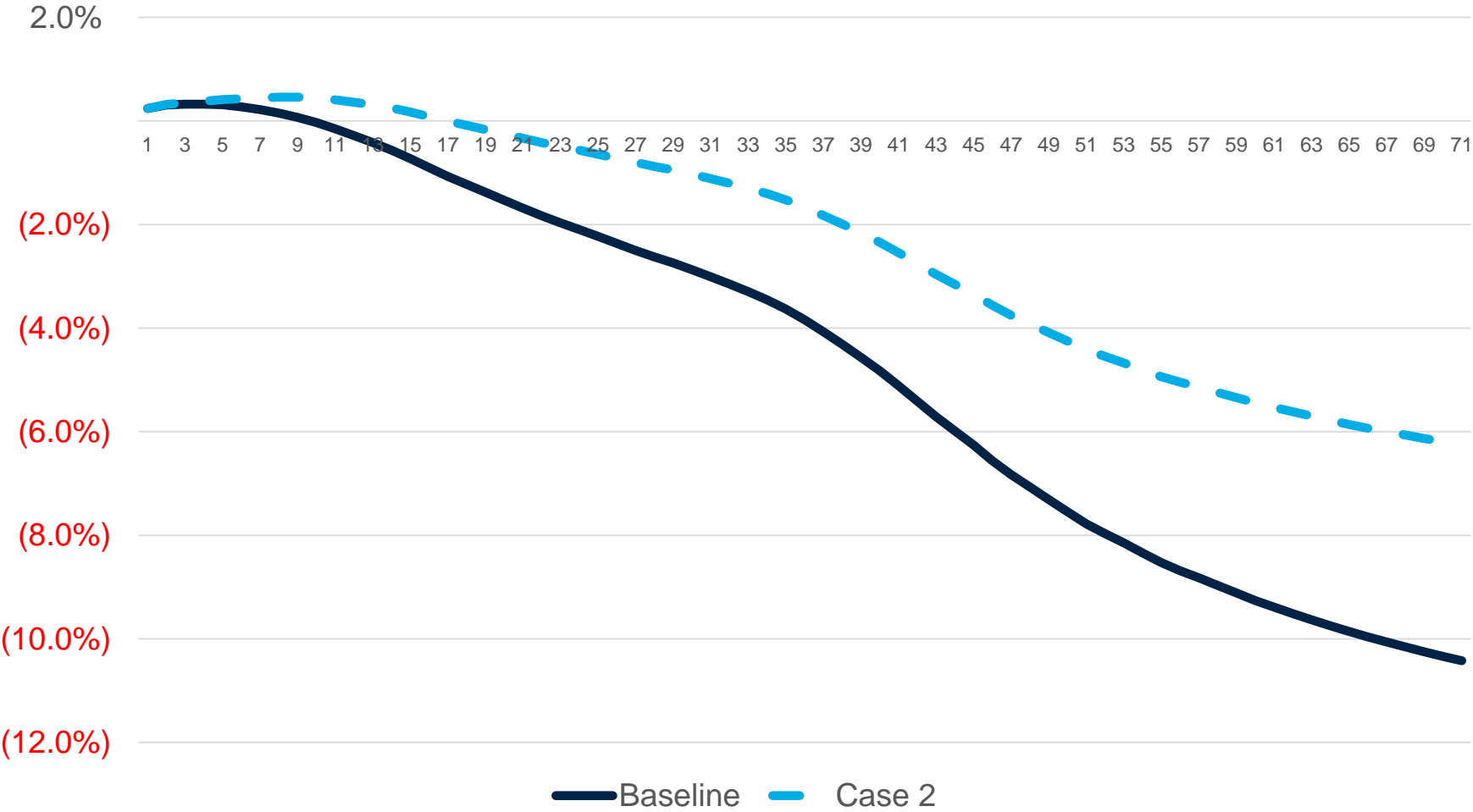
Potential Reforms

- Reform 1: Raise contribution rates from 20% to 25% by a percentage point a year starting with year 2
- Reform 2: Decrease accrual rate from 2.2% to 1.5% by 0.1 percentage point a year starting with year 2
- Reform 3: averaging period increased from last year to lifetime average earnings adding an additional year to the period each year, beginning with year 2; valorized to wage growth
- Reform 4: indexation of pensions changed from wage to price from year 2 onwards
- Reform 5: retirement age raised from 60/55 for men/women to 65/60 over the next 10 years, going up 6 months each year, starting with year 2

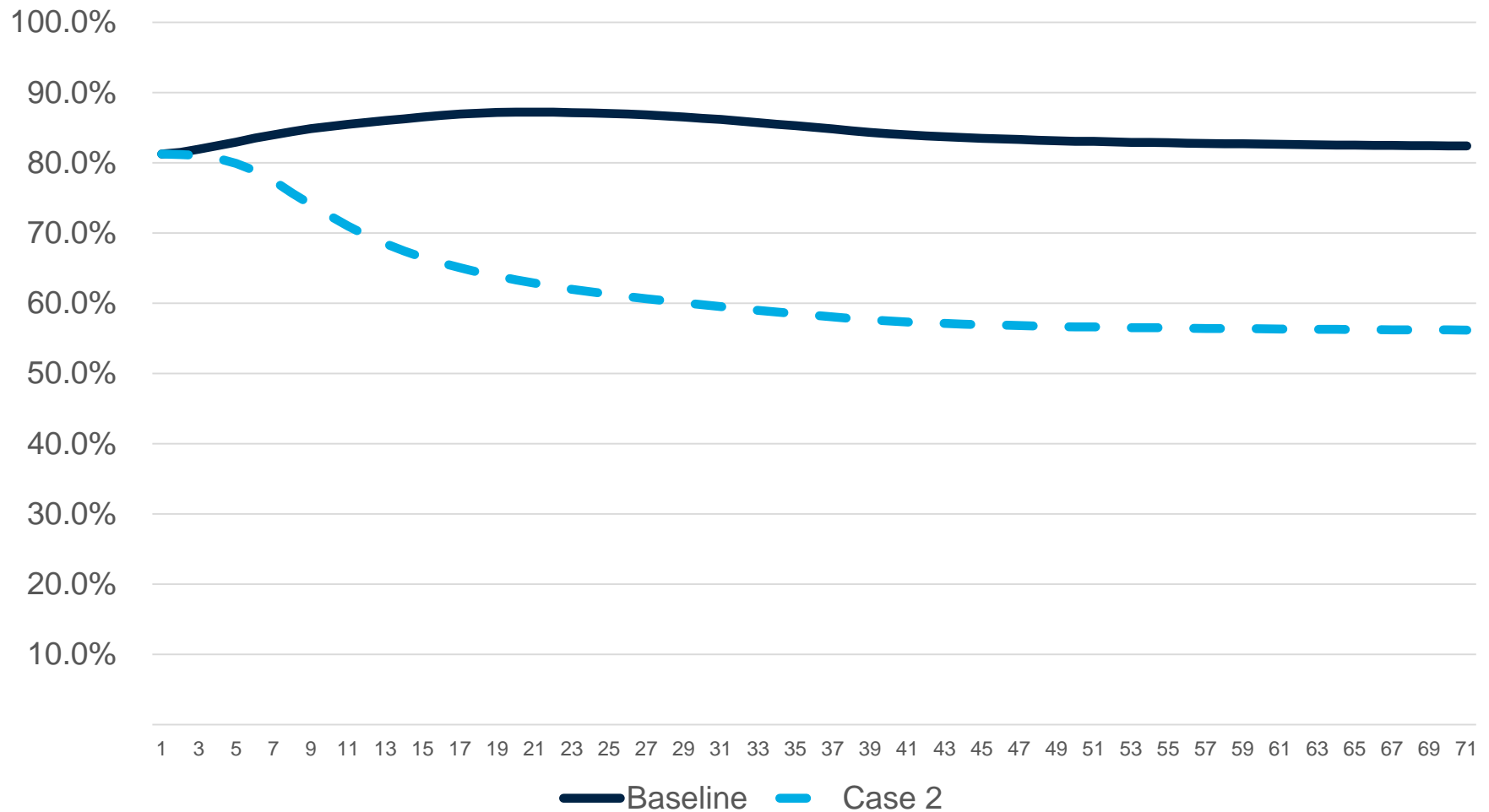
Reform 1: Raising the contribution rate



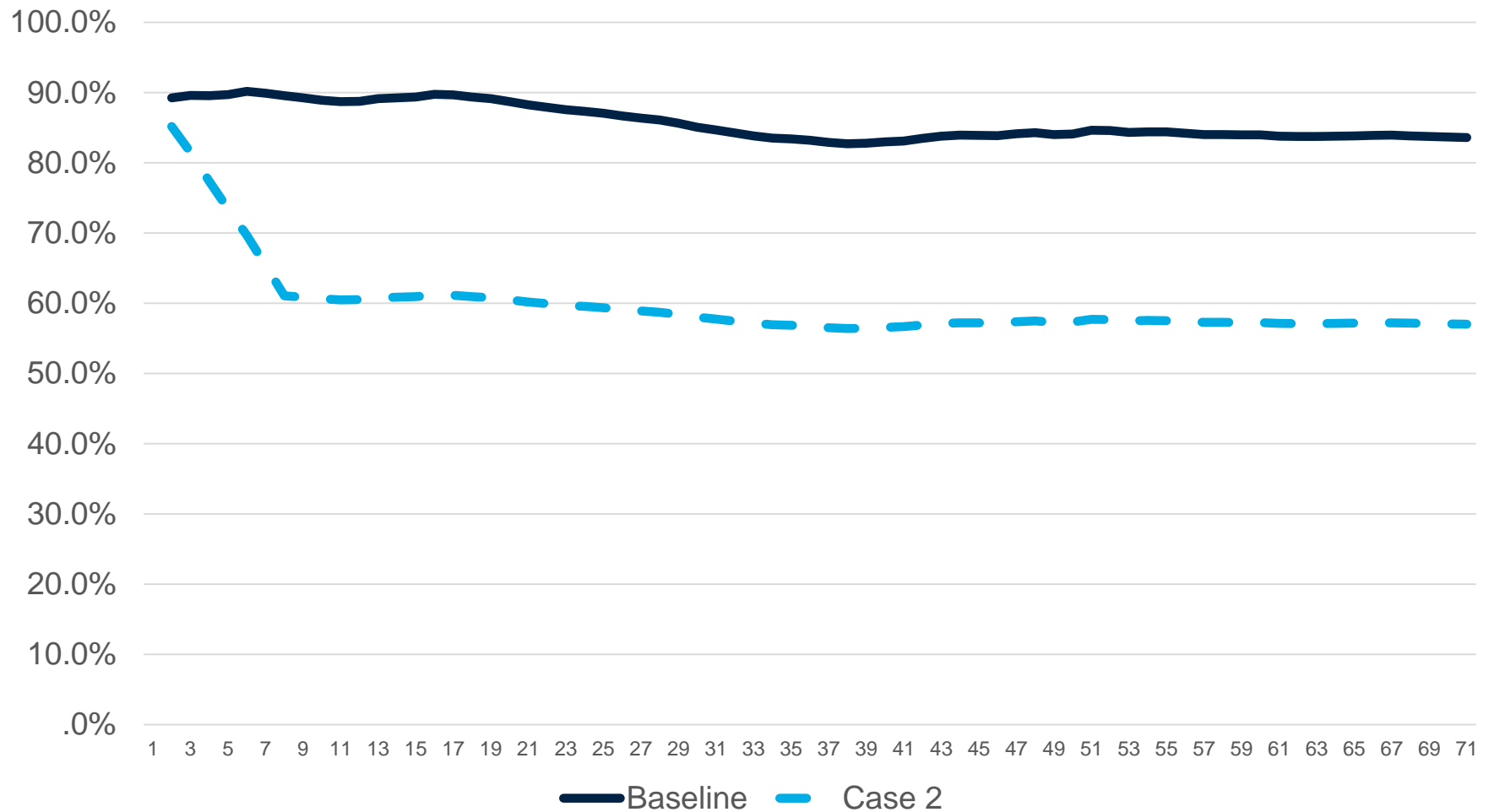
Reform 2: Decreasing the accrual rate and impact on fiscal balance



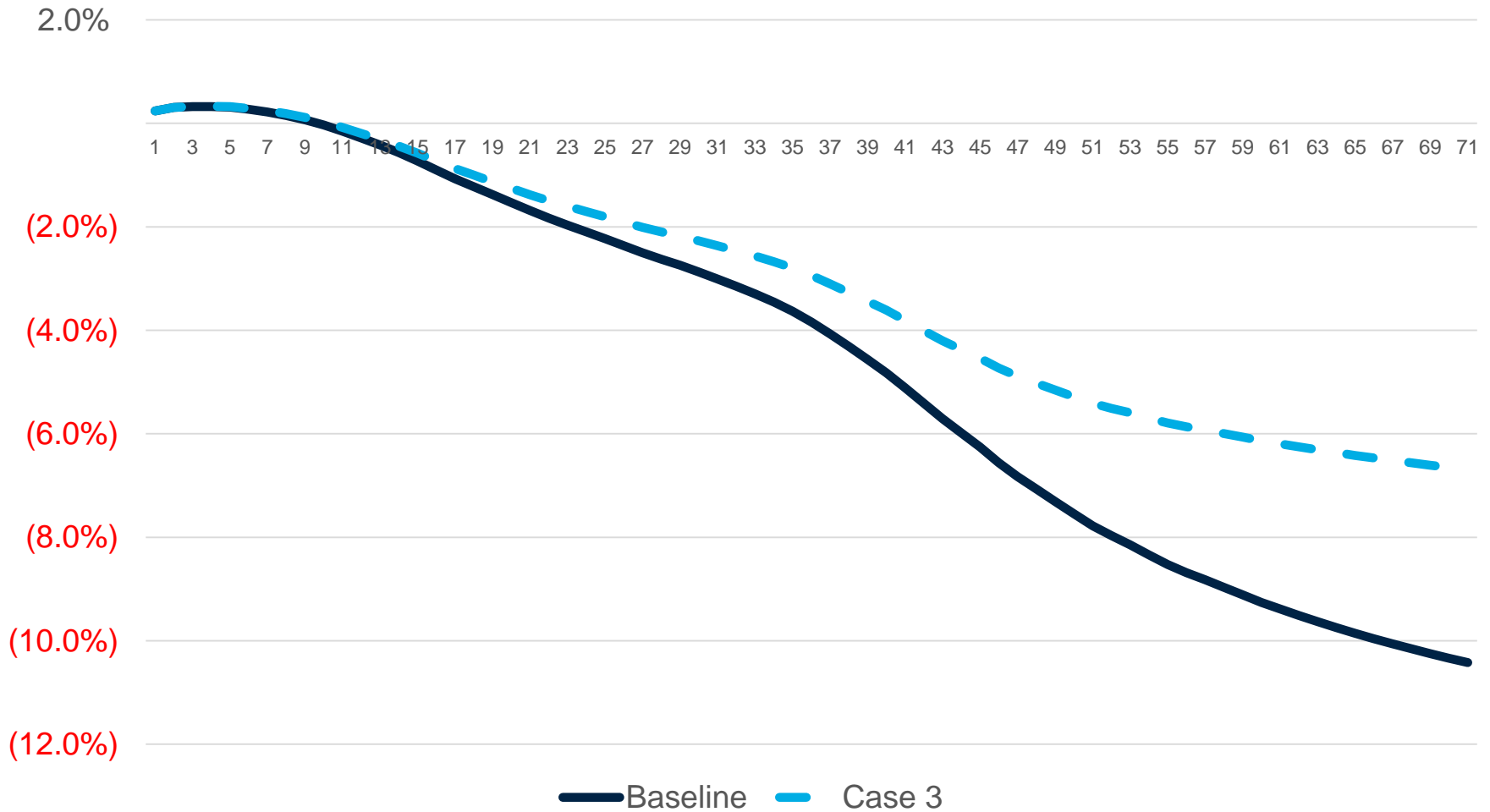
Reform 2 impact on existing old age benefits



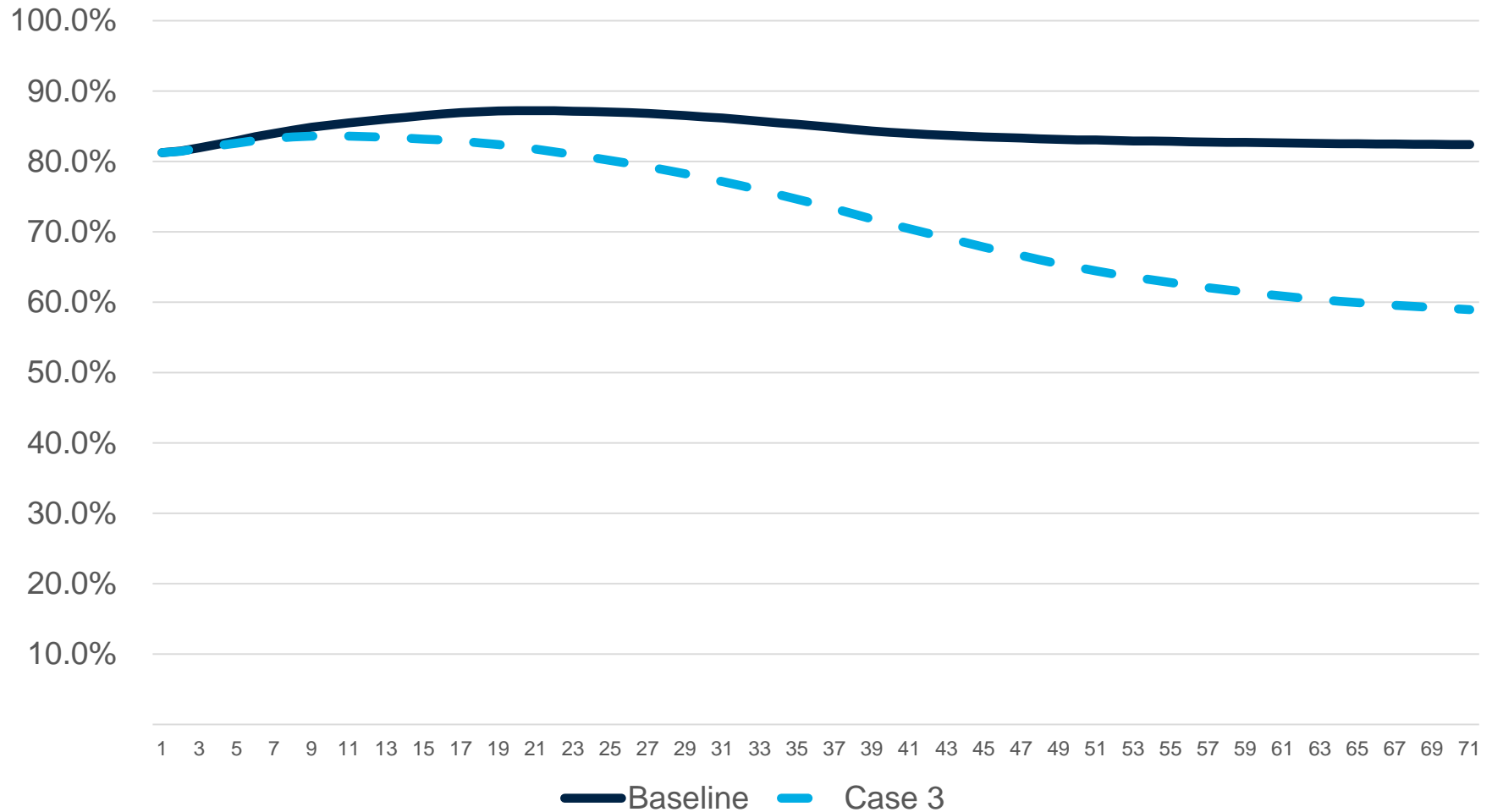
Reform 2 impact on new pension benefits



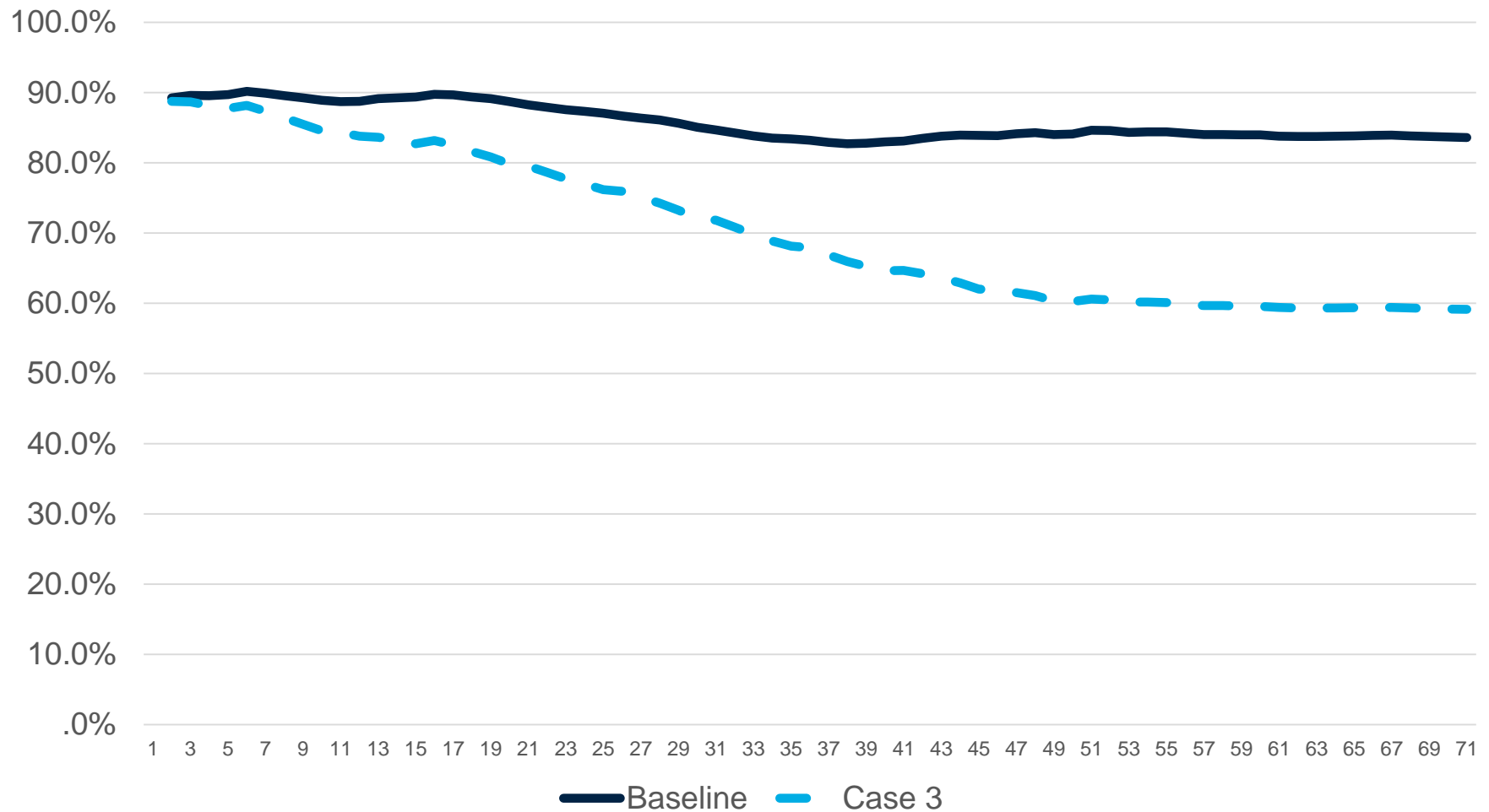
Reform 3 changing indexation period and impact on pension balance



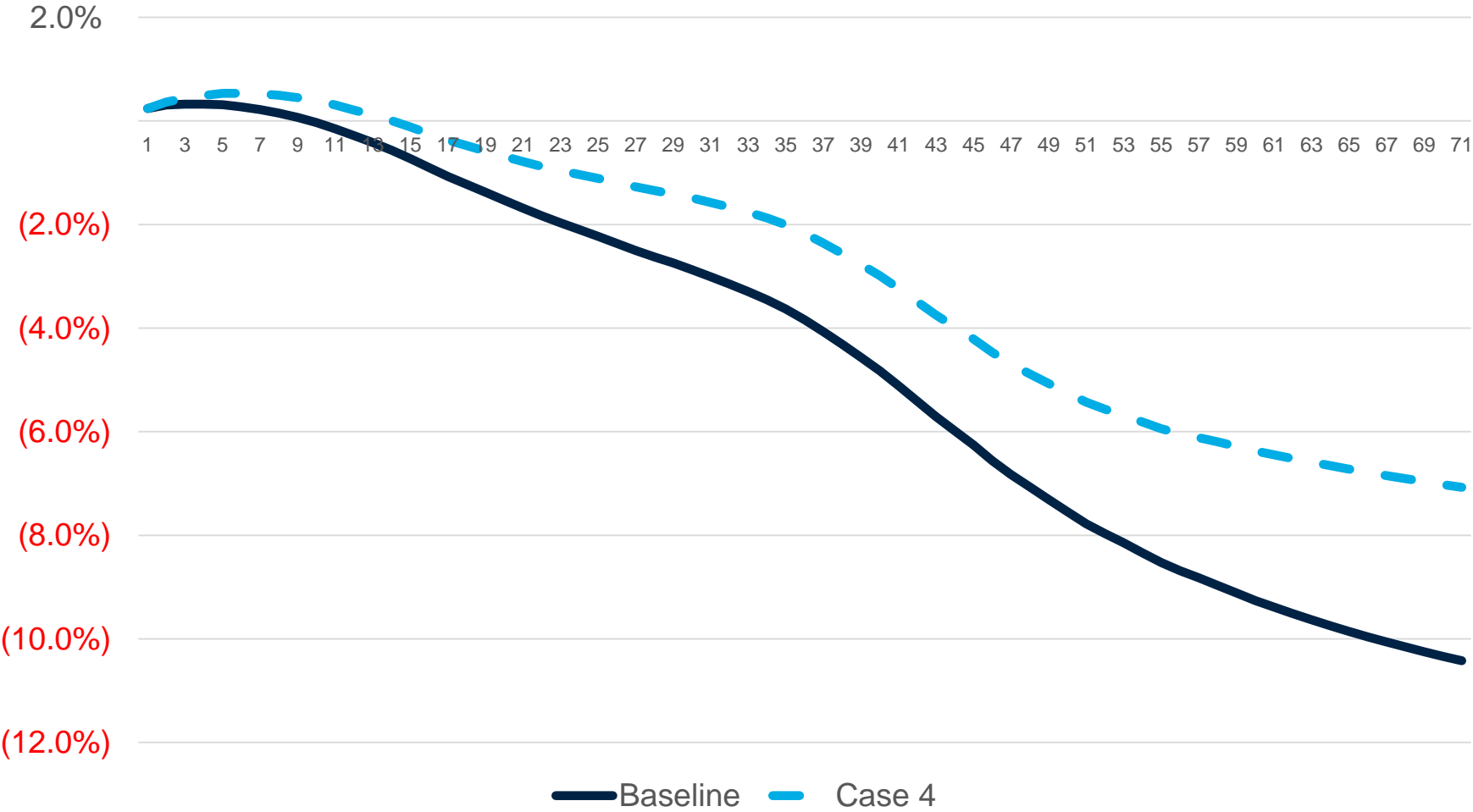
Reform 3 impact on existing old age benefits



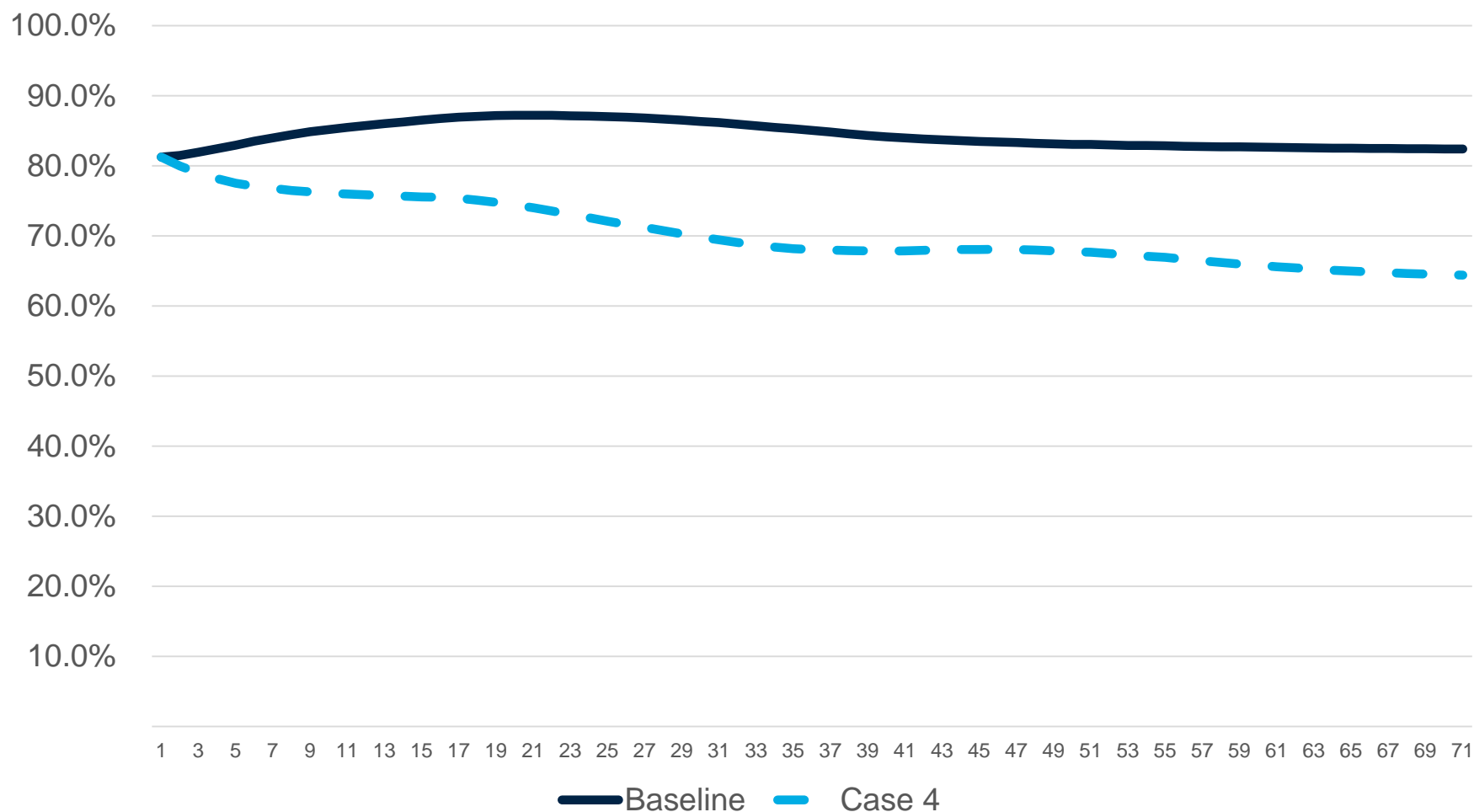
Reform 3 impact on benefits of new pensioners



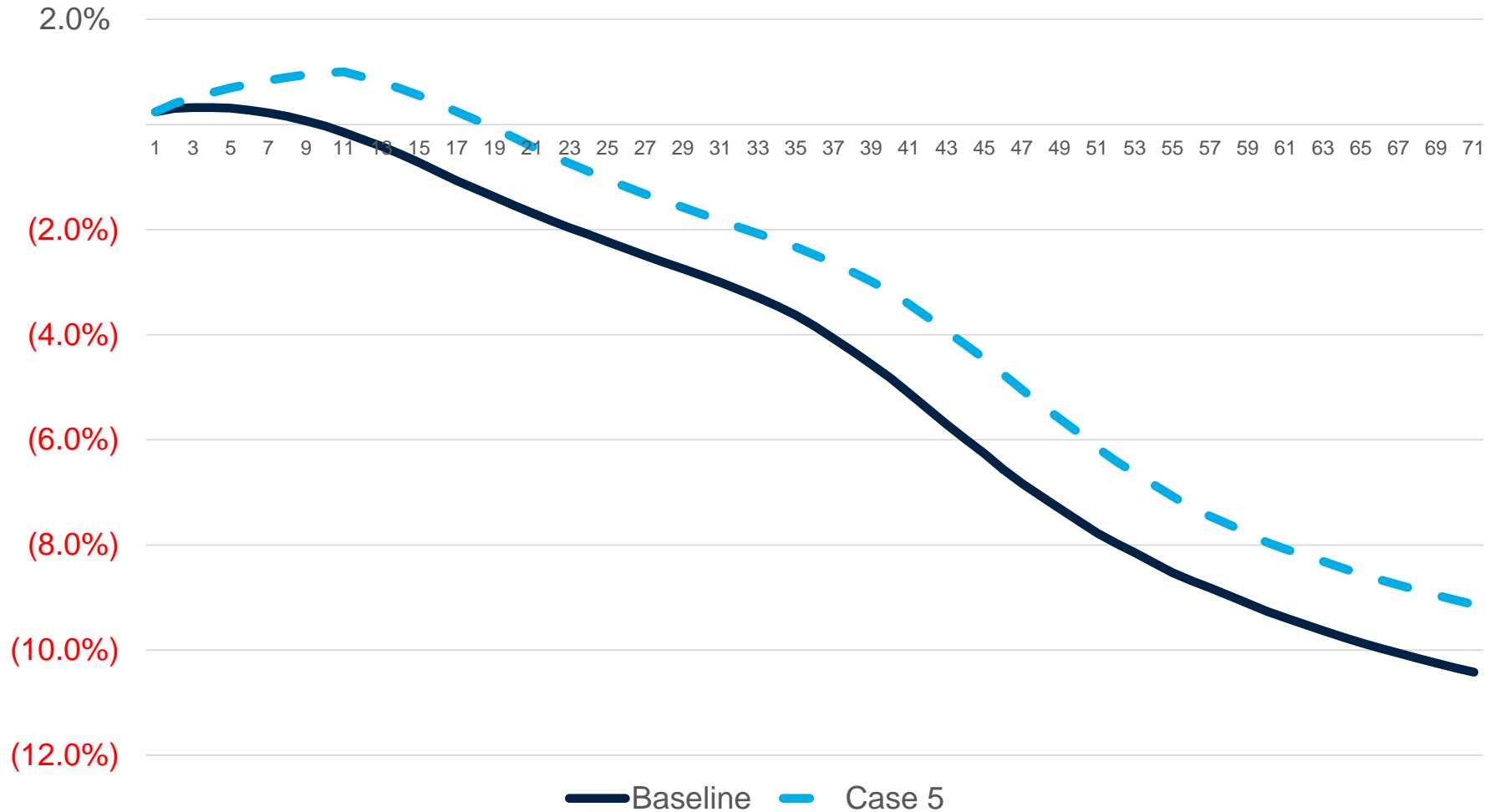
Reform 4: Impact of change in indexation on pension fund balance



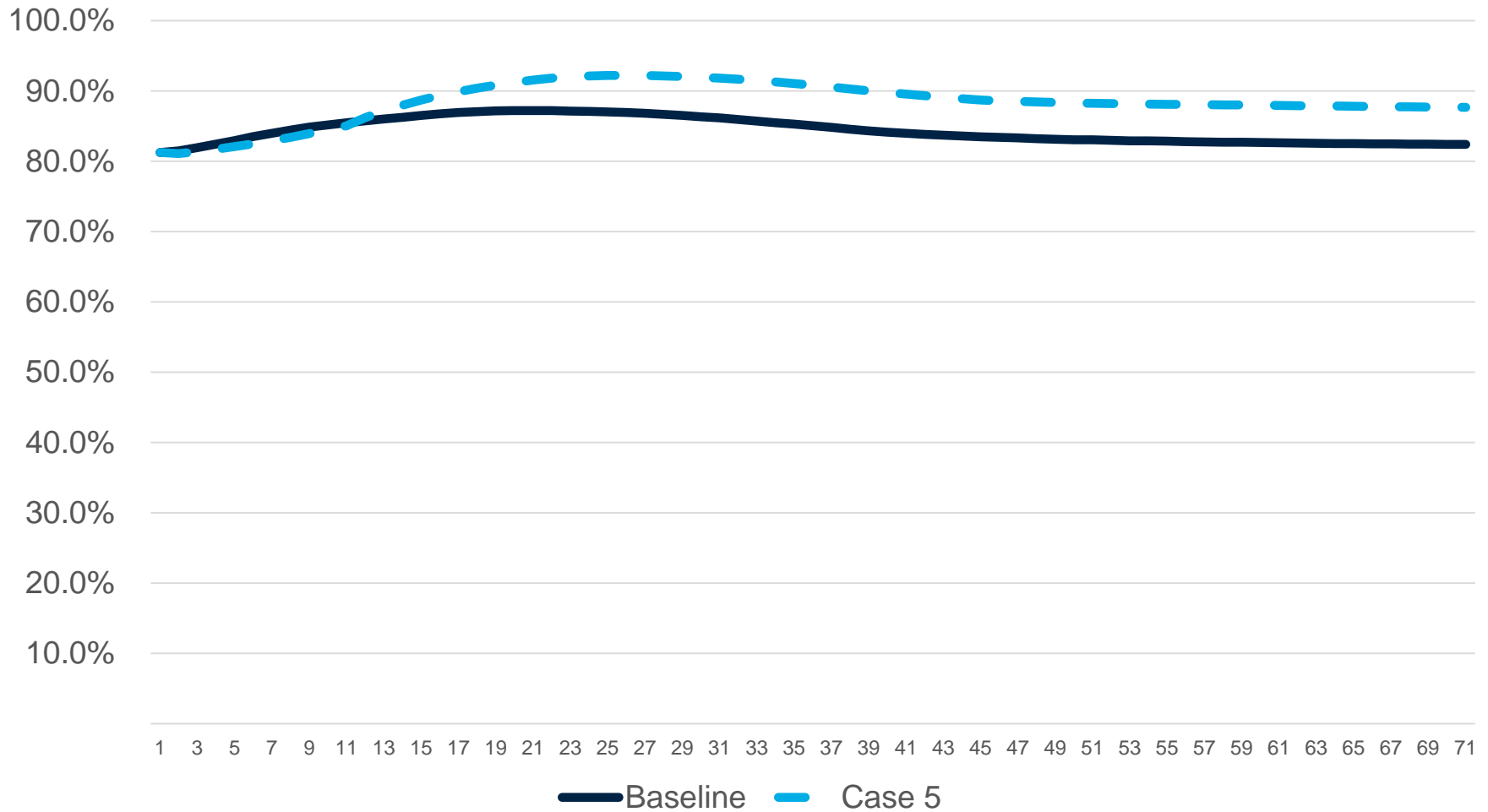
Reform 4 impact on benefit levels of existing pensioners



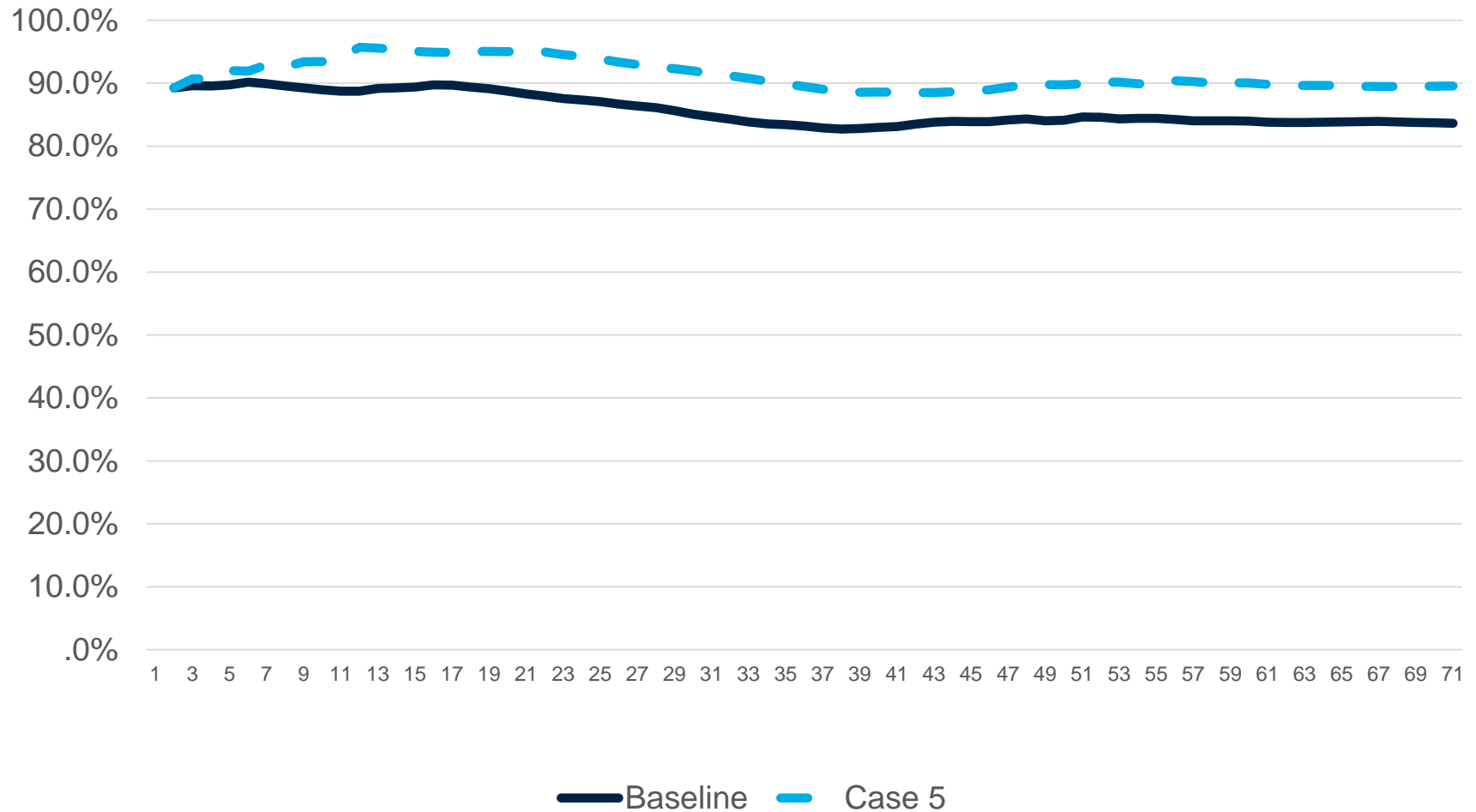
Reform 5: Retirement age impact on pension fund balance



Reform 5: Retirement age impact on benefit levels of existing pensioners



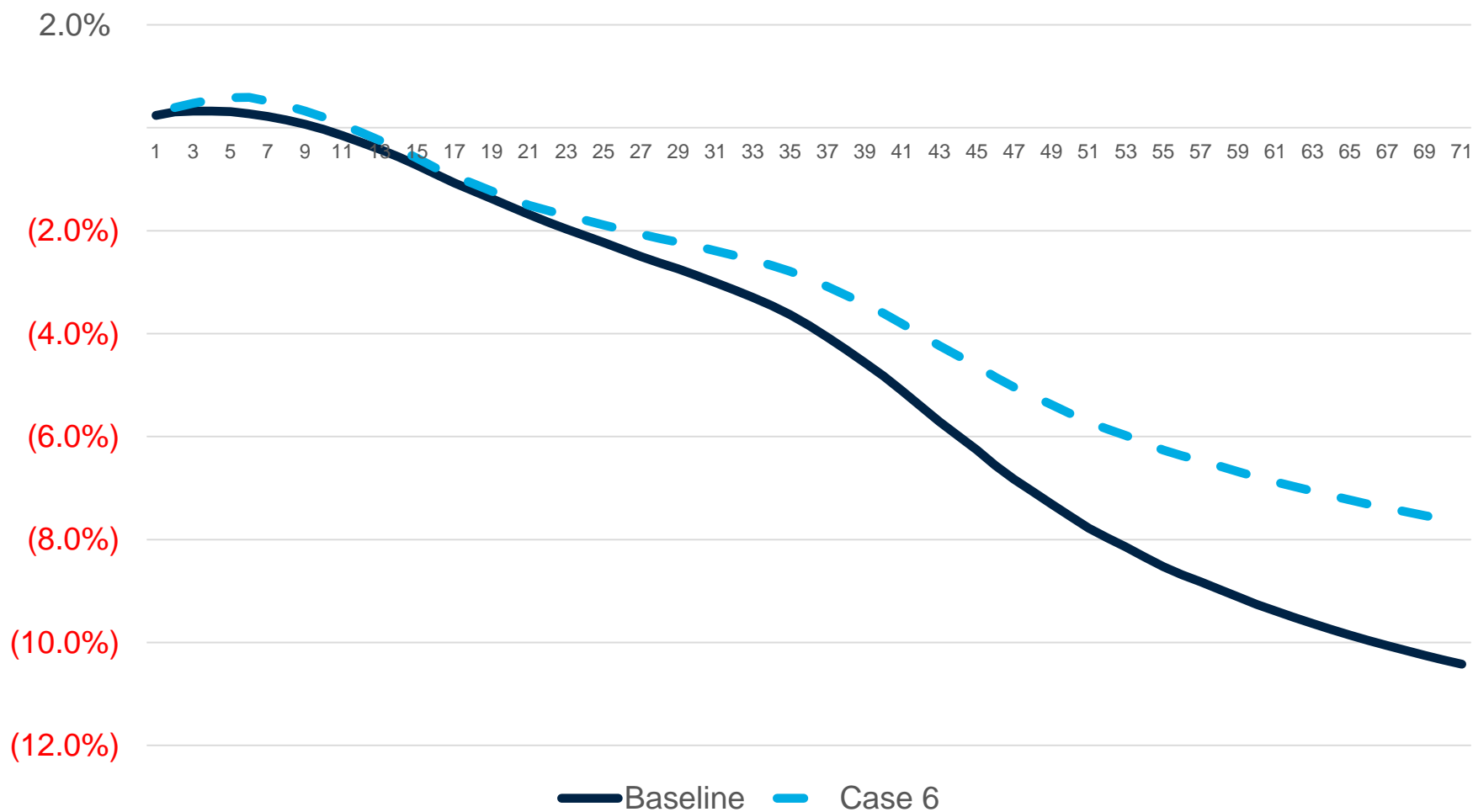
Reform 5: Retirement age impact on new pensioners



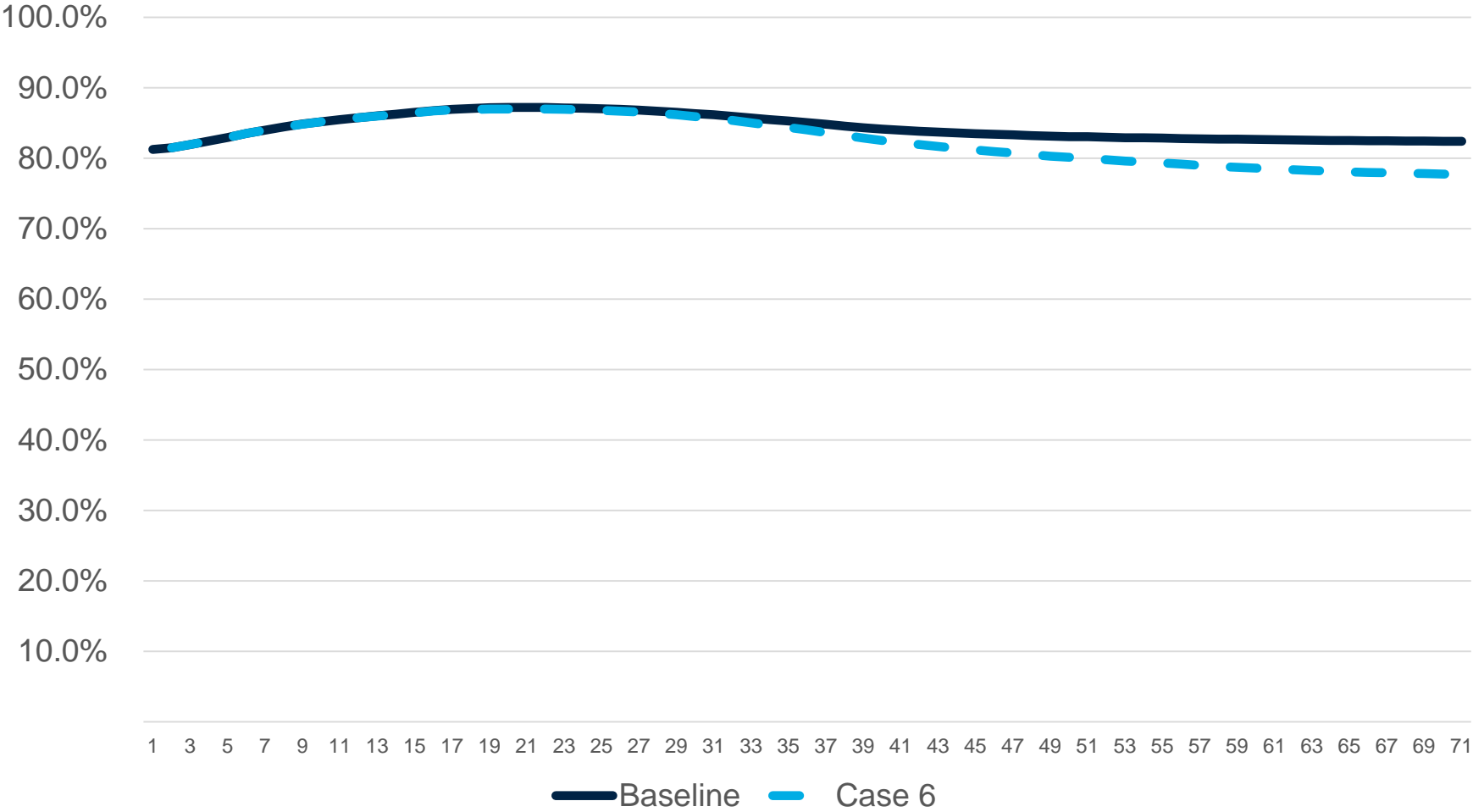
Reform 6: Multipillar option

- Increase contribution rates for all those above 40 as in Reform 1
- Put additional contribution rates for those below 40 into a funded Defined Contribution system
- Reduce benefits to those joining the second pillar in proportion to their contributions to that pillar compared to non-switchers

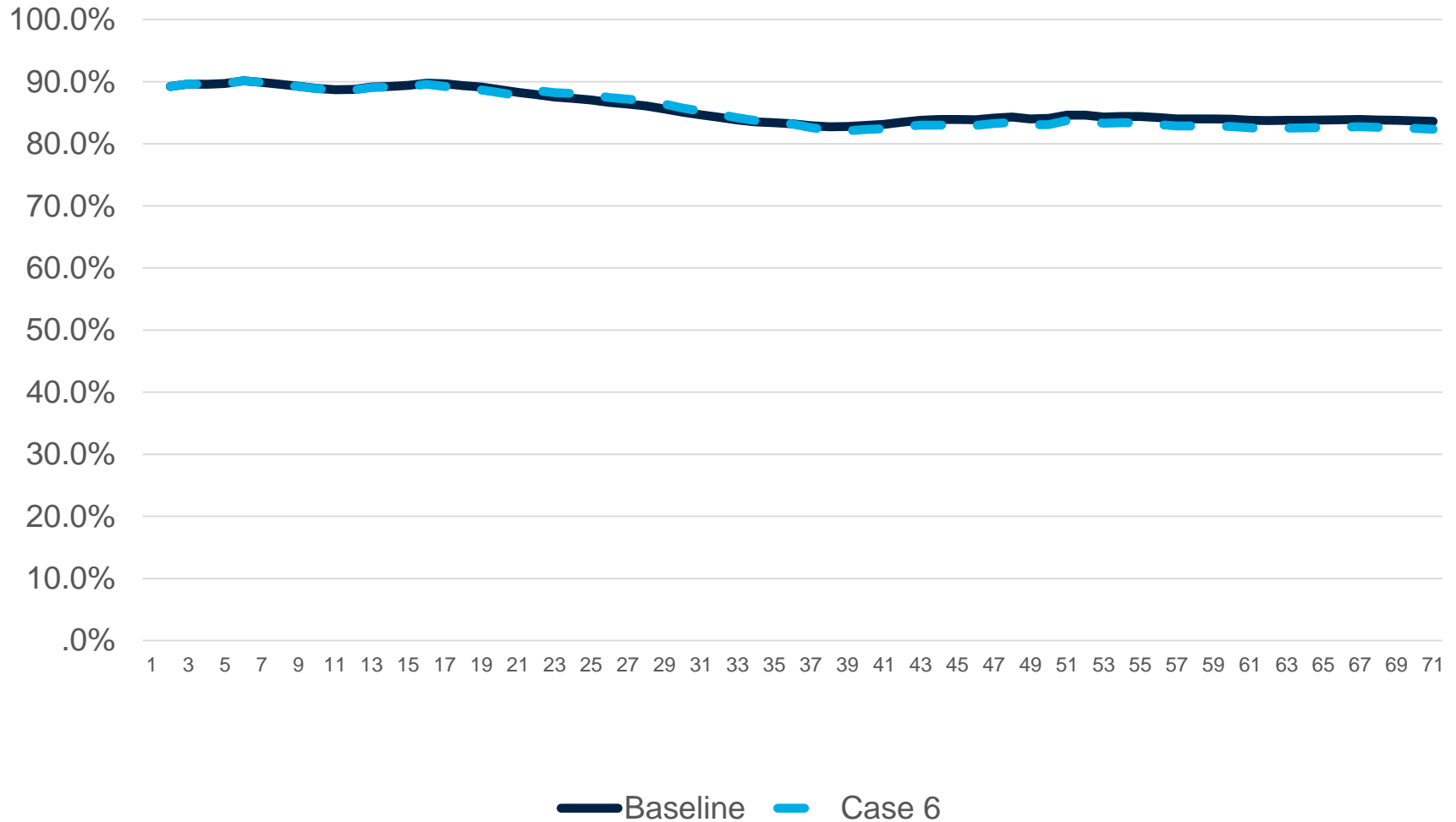
Reform 6: Multipillar impact on pension fund balance



Reform 6: Impact on benefit levels of existing pensioners



Reform 6: Impact on benefits for new pensioners





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