

The German Statutory Pension Insurance (Gesetzliche Rentenversicherung)

Mechanism Design, Demographic "Greying," and the
Rentenpaket II Paradigm Shift

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Agenda

1. **Introduction:** The Economic Trilemma & Theoretical Foundation
2. **System Design:** Institutional Structure, Points System, and Pension Formula
3. **Supplementary Pillars:** Occupational and Private Pensions
4. **Demographic Challenges:** Aging Population and Labor Market Responses
5. **Current Reforms:** Rentenpaket II and the *Generationenkapital*
6. **Outlook:** Remaining Problems and Conclusion

The Economic Trilemma & Mackenroth's Theorem

The Fundamental Constraint: The "Pension Trilemma."

- ▶ **Contribution Rate** (*Beitragssatz*): How much workers pay.
Politically capped (20-22%)
- ▶ **Replacement Rate** (*Rentenniveau*): How much pensioners get.
Politically protected (floor at 48%)
- ▶ **Retirement Age**: How long you work. Also politically sensitive

You can only fix two; the third must adjust. Germany is trying to fix all three.

Theoretical Basis: Mackenroth's Theorem (1952):

"All social expenditure must always be paid out of the current national product."

(Goods for retirees are made by current workers, regardless of funding type)

Institutional Design: A System Reliant on One Pillar

Structure:

- ▶ **Pillar 1 (GRV):** Mandatory Pay-As-You-Go (PAYG)
 - ▶ Covers ~90% of the workforce, providing ~75% of old-age income, but notably EXCLUDES civil servants (*Beamte*), who have a separate, state-financed pension system
 - ▶ **Result:** A "mono-pillar" system, highly exposed to demographic shifts
- ▶ **Pillar 2 (bAV) & 3 (Private):** Voluntary and have seen limited uptake

Financing:

- ▶ Contributions (Employer/Employee split 50/50)
- ▶ **Federal Subsidy (Bundeszuschuss):** ~20% of the budget comes from general taxes, not contributions

Pillar 1: The "Points System" (*Entgeltpunkte*)

The Logic: Your pension reflects your lifetime relative income, it's not a "final salary" system.

- ▶ **Accumulation Mechanism:**

$$EP_t = \frac{\text{Individual Gross Income}_t}{\text{Average Gross Income}_t}$$

Example (2024): The provisional average income is ~€45,400.

Earning this amount gets you 1.0 point. Earning €68,100 gets you 1.5 points

- ▶ **Contribution Assessment Ceiling** Maximum income subject to contributions. Currently €96,600/year (2025). Income above this ceiling does not generate pension points

- ▶ **Incentive Structure (The Equivalence Principle):**

- ▶ Strict linearity (*Contribution \propto Benefit*)

- ▶ **Economic Goal:** Makes contributions feel like "deferred wages," not a tax, to minimize labor supply distortions

The Pension Formula: Turning Points into Euros

The Equation:

$$\text{Pension}_{\text{Monthly}} = \sum EP \times ZF \times RAF \times AR$$

Variables:

- ▶ $\sum EP$: Your total lifetime earnings points
- ▶ ZF (Access Factor): An early retirement penalty. 0.3% permanent cut for every month you retire before the statutory age
- ▶ RAF : Pension Type (1.0 for standard old age)
- ▶ AR (Current Pension Value): The "exchange rate" for one pension point. As of July 2024, its value is **€39.32**

Pillar 2: Occupational Pensions (*Betriebliche Altersversorgung - bAV*)

Scope:

- ▶ Company-sponsored pension schemes, typically covering only employees of larger firms
- ▶ Voluntary system with tax incentives for both employers and employees

Relevance: Despite tax incentives, coverage remains limited:

- ▶ Only ~50% of employees have access to occupational pensions
- ▶ Coverage is concentrated in large companies and public sector
- ▶ Small and medium enterprises (SMEs) rarely offer bAV
- ▶ **Result:** Provides only ~5-10% of total old-age income, far below the intended complement to Pillar 1

Pillar 3: Private Pensions (*Riesterrente*)

The Concept: State-subsidized private pension savings
(introduced 2001)

Why Low Uptake?

- ▶ **Complexity:** Multiple product types, confusing eligibility rules, and bureaucratic application processes
- ▶ **Low Returns:** High fees and conservative investment strategies erode returns, making it unattractive compared to alternatives
- ▶ **Means-Testing Penalty:** For low-income savers, Riester benefits are offset by reductions in *Grundsicherung*, creating a 100% effective marginal tax rate
- ▶ **Trust Deficit:** Public skepticism about private financial products after financial crises

Reality: Only ~16 million contracts (out of 45 million eligible)

The Demographic Time Bomb is Ticking

- ▶ This rule-based static system now faces a massive exogenous shock: demography
- ▶ By 2035, the last of Germany's "Baby Boomer" generation will have retired
- ▶ The Old-Age Dependency Ratio (OADR) is projected to soar from 35 to over 50
 - ▶ **Today:** ~3 workers support 1 pensioner
 - ▶ **By 2050:** ~2 workers will have to support 1 pensioner
- ▶ **The Fiscal Squeeze:** Without reform, the contribution rate is forecast to rise from 18.6% to over 24% by 2040

The "Generational Contract" is under unprecedented stress.

The Sustainability Factor: Shifting Risk by Dampening Growth

The Goal: Automatically adjust for demography

- ▶ Given the demographic pressure, the formula has a built-in endogenous adjustment mechanism
- ▶ **The Dampener: The Sustainability Factor (enacted 2004)**
 - ▶ If the dependency ratio (pensioners/workers) worsens, pension increases are "dampened" and do not fully follow wage growth
 - ▶ **Crucial Distinction:** This factor does **not** cut nominal pensions. It reduces the annual *rate of increase* of the pension value (AR), making it lag behind national wage growth

$$AR_t \approx AR_{t-1} \times \text{WageGrowth}_t \times (1 - \alpha \cdot \Delta R_t)$$

where R_t is the pensioner-to-contributor ratio

- ▶ In 2018 the factor was suspended till 2025 (2031 if the current bill passes)

Reforms were taken

- ▶ **Policy Response: "Rente mit 67" (2007 Reform)**
 - ▶ Gradually increases the Statutory Retirement Age (SRA) to 67 by 2031 to keep people working longer
 - ▶ **Savings:** Crucial for sustainability; dampens contribution rate rise by ~1-2 pp
- ▶ **The Policy Anomaly: "Rente mit 63" (2014)**
 - ▶ Allowed long-term contributors to retire early without penalty
 - ▶ **Cost:** ~€40 bn/year; huge "deadweight loss" by subsidizing exit of skilled labor
- ▶ **Social Expansion: "Mütterrente" I & II (2014/2019)**
 - ▶ Expanded pension points for raising children born before 1992
 - ▶ **Cost:** ~€12 bn/year
- ▶ **Result:** The effective retirement age (64.7) remains below the statutory age

Who is paying for the reforms?

- ▶ **Replacement Rate Trends (The Worry):**
 - ▶ The net replacement rate is currently held at ~48%
 - ▶ *Forecast:* The Sustainability Factor would have caused it to drop to 45% by 2040
- ▶ **Contribution Rate Trends (The Other Worry):**
 - ▶ Currently ~18.6%
 - ▶ *Forecast:* Would break the politically sensitive 20% barrier at some point
 - ▶ Not Automatically adjusted
- ▶ **The pension system gets tax subsidies**
 - ▶ The federal government will have to subsidize the pension system more and more in the future (currently 92 billion EUR/year)

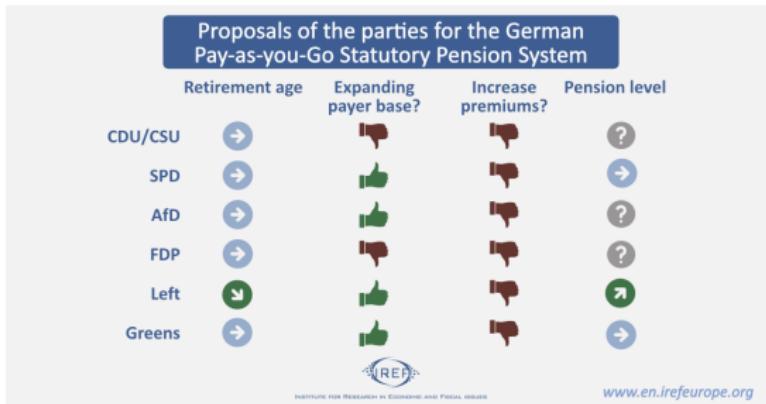
Why a lower replacement rate is a problem

The Reality for Low-Income Pensioners:

- ▶ **Problem:** A low(er) statutory pension level can lead to old-age poverty. The average monthly pension is 1.240 Euro per month (2024)
- ▶ **The Floor: Basic Income Support**
 - ▶ A means-tested social welfare benefit that acts as a floor if the state pension is insufficient to live on
 - ▶ At the end of 2023, ~**690,000 pensioners** relied on this benefit
- ▶ **The Economic Incentive Problem:**
 - ▶ For low-income workers, private savings (Pillar 3) can be offset by reductions in means-tested benefits, creating a 100% marginal tax rate on those savings and discouraging private provision

Politics Overrules Economics (again)

- ▶ **The "Double Stop Line" (Doppelte Haltelinie):**
 - ▶ A political promise: Keep the replacement rate $\geq 48\%$ AND the contribution rate $\leq 20\%$
- ▶ **The current bill (2025):**
 - ▶ This package is the subject of intense current political and economic debate
 - ▶ Permanently guarantees the 48% level until 2031
 - ▶ **The Cost:** Further deactivates the Sustainability Factor, removing the automatic brake on spending
 - ▶ **The Consequence:** The fiscal burden is shifted entirely to the federal budget via massive tax subsidies (*Bundeszuschuss*)



Paradigm Shift? The *Generationenkapital*

Concept: Create a Sovereign Wealth Fund to help subsidize the pension system

- ▶ **Mechanism: "Debt-Financed Arbitrage"**
 - ▶ The state borrows money at low interest rates (cost of government bonds)
 - ▶ It invests this money in a globally diversified portfolio of stocks (aiming for higher equity returns)
 - ▶ The goal is to profit from the spread: $r_{\text{equity}} > r_{\text{bond}}$
- ▶ **Target:** €200bn fund by the mid-2030s
- ▶ **Advanced Risk Analysis:**
 - ▶ **Too Small:** Experts argue it needs more than €1 Trillion to have a meaningful impact on contribution rates
 - ▶ **Governance Risks:** Can investment decisions remain free from political interference?
 - ▶ **Systematic Risk Exposure:** A market crash during a recession creates a pro-cyclical fiscal liability, as the fund and tax revenues fall simultaneously
 - ▶ **Governance & Time Inconsistency:** Can a government resist the political temptation to alter investment strategy for short-term goals, compromising long-term returns?

Problems remain

► **Fiscal Crowding Out:**

- Pension subsidies already consume ~20% of the entire German federal budget
- This severely limits fiscal space for infrastructure, defense, digitalization, and education

► **The "Boomer Voter" Effect:**

- The large voting bloc of the elderly creates strong political resistance to actuarially necessary cuts (Median Voter Theorem)

► **The Reform Challenge:**

- The German government now wants to create a *Rentenkommission* to find a compromise in the pension problem
- Supposedly no constraints on potential solutions
- **The Reality:** It is hard to reform pension systems in demographically changing countries due to political resistance, path dependency, and the long-term nature of pension commitments

Conclusion

Summary:

- ▶ Germany's PAYG system worked well under a favorable demographic and economic growth, but is now challenged by its own demographic decline
- ▶ Recent reforms (*Rentenpaket II*) have prioritized short-term benefit security for current pensioners over long-term fiscal sustainability, effectively passing the bill to future generations

The Outlook:

- ▶ The *Generationenkapital* is a historic step towards capital funding, but it is way too small to solve the structural problem
- ▶ The "Contract between Generations" is being rewritten, with the young bearing the demographic and fiscal risk

The final question remains: Who is paying for the pension system?

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