Pension Reform Proposal

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1 Short pitch

Imagine a pension system that gives you both security and control over your retirement savings. This system would track your contributions in a personal nonfinancial account that grows along with the economy (GDP-indexation).

When you retire, you can choose how to use your savings through three options:

- A mandatory and capped, but generous basic insurance
- A payout plan that returns your contributions as benefits (GDP-indexed)
- Additional insurance coverage if you expect a long life

You can also choose to invest part of your savings at the financial market using the capitalization option, giving you the opportunity for higher returns.
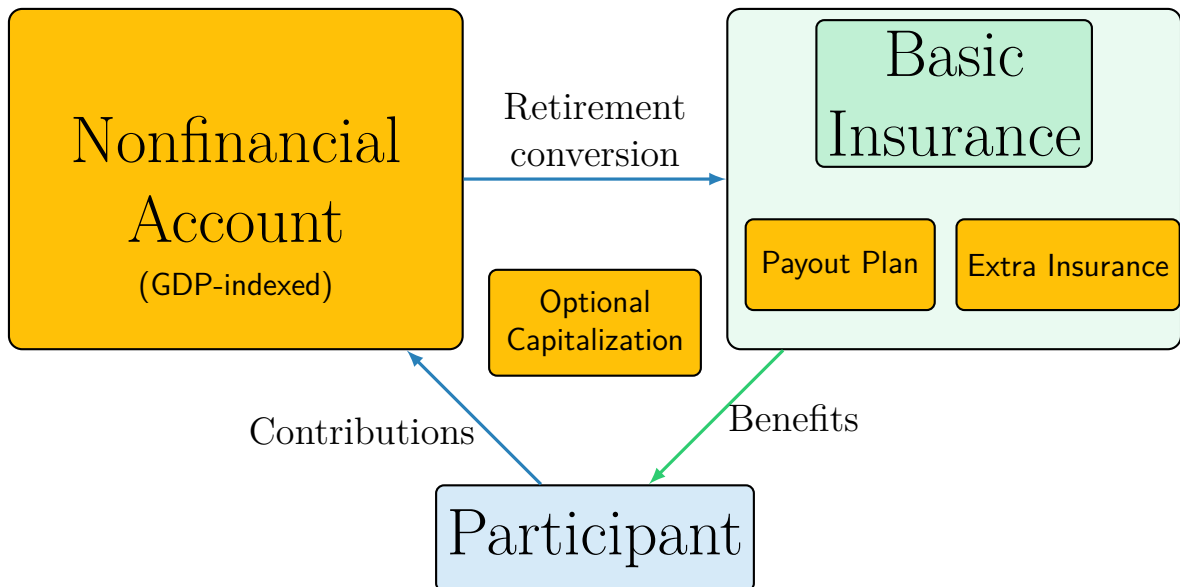

Figure 1: Basic structure of the proposed pension system

2 Overview of proposal

This article presents a comprehensive pension reform proposal designed to address current challenges while providing greater flexibility and security for participants. The reform proposal is targeted towards the German pension system, but is quite general and thus could also be applied to other countries.

After the initial pitch, this section provides more details about the proposal's structure and components. Section 3 will then present arguments for the specific design choices made in the proposal.

The proposal includes several parameters that can be adjusted based on reality and political preferences. While these parameters could be kept abstract, concrete numbers are used here to make the proposal easier to understand. The chosen parameters are based on an expected retirement duration of roughly 20 years.

The proposal consists of three main components: Nonfinancial Accounts, Insurance Options, and Optional Capitalization. Each component is explained below.

2.1 Nonfinancial Accounts with GDP Indexation

Every participant has a nonfinancial account. When they make contributions (whether mandatory or voluntary), these are recorded on their individual accounts. These contributions are not invested in financial market instruments but are used to fund benefits for other participants—hence the term "nonfinancial".

This core framework is similar to Nonfinancial Defined Contribution (NDC) schemes as implemented in countries like Sweden and Poland (Palmer 2005; Holzmann 2017). There is a rich literature on NDC systems, for example the books by the World Bank (Holzmann and Palmer 2006; Holzmann, Palmer, and Robalino 2012; Holzmann, Palmer, and Robalino 2013; Holzmann, Palmer, and Sacchi 2020a; Holzmann, Palmer, and Sacchi 2020b), much of which is also applicable to this proposal. The key differences in this proposal are:

- The indexation method is based on GDP growth (instead of being related to the contribution base)
- The contribution rules are more flexible

The rationale for these choices will be presented in Section 3.1 and is based on Drees (2024).

2.2 Insurance Options

The proposal offers three distinct insurance options:

2.2.1 Basic Insurance

The basic insurance provides a fixed-fraction annuity with the following characteristics:

- The converted account value is divided by a fixed number (proposed: 15)
- Participants receive this fraction as an annual pension benefit (paid monthly) until death
- The fraction remains GDP-indexed
- The divisor is chosen generously, but the maximum convertible account value is capped (proposed: sufficient to cover basic needs)
- Usage of the basic insurance is mandatory up to the cap

2.2.2 Payout Plan

The payout plan provides no longevity insurance:

- The account value is withdrawn over time without any insurance
- In case of death, the remaining value is inheritable

2.2.3 Extra Insurance (Boosted Withdrawal Fund)

The extra insurance operates as follows:

- The converted account value is doubled and an insurance depot is installed
- Participants can withdraw 2.5% of the account value annually
- At death, the insurance receives the insurance depot (financing the initial doubling)
- The initial factor (2) and withdrawal rate (2.5%) are adjustable parameters

2.3 Optional Capitalization

The optional capitalization component works through a "Pension Capital Foundation":

- The foundation maintains a nonfinancial account and has credit authority
- Participants can trade nonfinancial account value for capital with the foundation
- They can then open a depot and invest the capital at the financial market
- An annual capitalization fee on the depot value is paid to the foundation based on:
  - The interest rates the foundation must pay for credits
  - The demand for capitalization

Two capitalization options are proposed:

- **Standard Option:** Lower fee but volatile (one-year term, subject to change)

- **Insurance Option:** Higher fee but includes long-term insurance against fee changes

3 Arguments for Design Choices

This section provides the rationale for the specific design choices made in the proposal. Each component of the system has been carefully designed to address specific challenges in pension systems while maintaining flexibility and transparency.

3.1 Core framework

The core framework of the proposal is based on Nonfinancial Defined Return with GDP-indexation (NDR-GDP), a concept introduced in Drees (2024). This means nonfinancial accounts with a strong link between contribution and benefit ("Defined Return") and GDP indexation. The arguments for this design choice can be divided into two parts: first, why a system based on nonfinancial accounts is beneficial, and second, why NDR-GDP is preferred over traditional Nonfinancial Defined Contribution (NDC) schemes.

3.1.1 Arguments for nonfinancial accounts

The literature on nonfinancial accounts, particularly NDC schemes, provides strong arguments for their implementation. One of the early articles in that direction is (Góra and Palmer 2004), and (Góra 2013; Holzmann 2017) provide some lessons and arguments from practical implementations. Key advantages include:

- **Increased transparency:** Individual accounts make the link between contributions and benefits clear to participants, enhancing understanding and trust in the system.

- **Reduced labor market distortions:** By making the connection between work and retirement benefits more direct, nonfinancial accounts reduce incentives for early retirement and informal work.

- **Reduced political insecurities:** A transparent system with clear rules is less susceptible to arbitrary political changes, providing more stability for participants.

These benefits have been demonstrated in countries that have implemented NDC schemes, such as Sweden and Poland. The individual account structure creates a more direct relationship between contributions and benefits, aligning incentives for both workers and policymakers.

3.1.2 Why NDR-GDP instead of NDC

While NDC schemes offer significant advantages, the proposal here takes a different approach with NDR-GDP. The key differences between NDC and NDR-GDP are:

- The indexation method is based on GDP growth (instead of being related to the contribution base)

- The contribution rules are more flexible

One of the core selling points of NDC is its ability to run independently of political decisions. In traditional NDC systems, the contribution base is included in the balancing of the scheme, creating a self-stabilizing mechanism. However, this approach has several drawbacks:

- **Accounting inconsistency:** Including the contribution base in the balancing creates an accounting inconsistency that ultimately leads to reduced transparency. Future contributions are balanced on the asset side, although these contributions will also lead to liabilities. This issue is similar to the inconsistent accounting between pay-as-you-go (PAYG) pension systems and capital-funded ones with the same contributions and benefits (Drees 2025).

- **Lack of flexibility:** Fixing contribution rules, primarily contribution rates, limits the system's adaptability. The retirement duration fraction of life is not constant, and larger contributions might be reasonable to provide larger benefits. A system based on the contribution base creates unintended side-effects when voluntary contributions are enabled or when the contribution base is enlarged. For instance, if a separate pension system is integrated into the existing one, current pensions would be increased without any corresponding economic justification.

- **Complex indexation:** The theoretical indexation method in a pure NDC system is quite complicated, making it difficult to explain to participants and policymakers.

NDR-GDP as the basic framework in this proposal takes a different approach. The system keeps contribution rules completely flexible and therefore cannot ensure that contributions cover benefits. Instead, the system has the core invariant that liabilities relative to GDP stay constant and does not include the accounting trick of balancing possible future contributions. Indexation is independent of changing the contribution base, making voluntary contributions trivial to include and reducing side-effects. Also, indexation is much easier to explain.

The differences and theoretical background are explained in more detail in Drees (2024).

For a practical implementation, one could consider choosing indexation based on a 5-year average of GDP instead of pure GDP to reduce fluctuations.

3.2 Insurance

The insurance component of the proposal addresses the longevity risk: the risk of having no income when living longer than expected. This section explains the design choices for the insurance mechanisms and their implications.

3.2.1 General remarks on pension insurance

A fundamental property of pension insurance is to redistribute from those who live shorter to those who live longer. The canonical choice for an expected retirement duration of 20 years would be to divide the account value by 20, which is effectively the approach used in point-based systems like the German pension system.

However, this approach has several important implications:

- **Income-life expectancy correlation:** There is a correlation between income and life expectancy (Chetty et al. 2016; Kinge et al. 2019). This means the redistribution from shorter lives to longer lives correlates with a redistribution from low income to high income.

- **Balanced insurance requires more than simple division:** It is not necessarily sufficient to divide by retirement duration expectancy for a balanced insurance (in expectation). Consider the following example: There are two equal-sized groups of people. Let a be the group size. The first group has a retirement duration of 15 years and a nonfinancial account value of one unit per person. The second group has a retirement duration of 25 years and an account value of two units per person. The expected retirement duration is $(15 + 25)/2 = 20$. However, dividing by 20 would yield $3a$ units of insurance premiums, but $(15/20 + 25 \cdot 2/20)a = 65a/20 > 3a$ of benefits. This occurs because deficits are larger for those who have contributed more.

- **Information insufficiency:** It is highly non-trivial to choose the divider in a principled way since information is insufficient.

3.2.2 A thought experiment on redistribution

To better understand the implications of different insurance designs, consider the following thought experiment:

Consider two persons A and B who have contributed to a pension system and would receive a pension of 500€ and 2,000€ respectively, because B has paid four times the contributions. Now, consider the scenario that the government would like to increase the pension of A to 600€. This gives rise to the question of how the pension of B should be adjusted:

- 2,400€: Keep it proportional

- 2,100€: View the increase from 500€ to 600€ as an absolute bonus
- 2,000€ - 2,100€: The bonus is dependent on social needs and decreases with larger claims
- Below 2,000€: Compensate the increase of A's pension within the pension system

In the end, this is a policy decision where multiple approaches can be justified based on different social objectives. This thought experiment, while illustrative, has limited context.

3.2.3 Basic insurance with generous divisor

The design of the basic insurance mechanism raises important considerations regarding income distribution and social equity. While one could argue that individuals with lower income and potentially shorter retirement durations should receive additional support, implementing this through a reduced divisor would benefit all participants proportionally. This approach, analogous to the 2,400€ option in our thought experiment, would not effectively target support to those most in need.

The implications of pension insurance design become particularly complex when implemented implicitly, as in the German pension system. In Germany, left-leaning political parties and organizations[1] advocate for proportional pension increases, effectively corresponding to the 2,400€ option. This approach fails to adequately address the specific needs of lower-income retirees.

The primary objective of the capped basic insurance is to prevent reliance on basic needs pensions by ensuring participants do not exhaust their retirement resources prematurely. This addresses a classic moral hazard problem: consider a scenario where basic needs pensions (without contributions) provide 1,000€, while someone's contributions would yield 1,200€ in pension benefits. Without proper safeguards, participants might be tempted to engage in a high-risk strategy, potentially doubling their benefits to 2,400€ in favorable circumstances while still receiving 1,000€ in the worst case.

The implementation of a generous divisor can be justified by three key factors:

- **Compensation for mandatory participation:** The generous divisor serves as compensation for requiring participants to use this insurance mechanism.

- **Targeted support:** It provides enhanced benefits to lower-income individuals whose pension benefits may not significantly exceed basic needs pensions.

- **Trust enhancement:** By ensuring the insurance mechanism does not function as an implicit tax, it increases system trust. This is particularly important as designing a truly "neutral" mechanism is practically impossible.

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[1]e.g., "Die LINKE" and the "Sozialverband VdK"

The inclusion of a cap for basic insurance effectively transforms the generosity in the design into an absolute pension bonus (similar to the 2,100€ option in our thought experiment). This assumes that the cap can be achieved under normal circumstances.

3.2.4 No insurance option

Since the basic insurance is capped, there is the need for further insurance possibilities. The option of not requiring further insurance increases simplicity in communication and trust, since it allows participants to recover their contributions without being forced into an unattractive insurance mechanism. A commission for a reform of the system for additional capital-funded private pensions[2] has proposed to make use of payout plans to increase simplicity. This proposal can also easily be applied to a public pension system that looks very similar to a capital-funded system with basic insurance already covered.

A standard option would be a payout plan over a fixed period of time. An alternative without an abrupt stop of payments would be a fund with a large withdrawal rate (e.g., 7%). The fund will never be completely depleted, and importantly, it remains inheritable.

3.2.5 Extra insurance (Boosted Withdrawal Fund)

The extra insurance provides an option to increase protection against longevity risk. Note that because of adverse selection (those with higher life expectancies profit more from the insurance and are thus more likely to choose that option), the insurance is necessarily less attractive if it is to remain at least neutral in balance.

The canonical option would be to have an extra insurance with a larger divisor, therefore, we will argue for the Boosted Withdrawal Fund instead. The core reasons are:

- Frontloading pension payments
- Enablement of capitalization

Before discussing these points, let's examine how the boosted withdrawal fund operates mathematically. For each unit of retirement conversion, the fund pays out benefits over time. The formula for the cumulative payout after x years is $2 \cdot (1 - (0.975)^x)$, where 0.975 represents the remaining value after each 2.5% withdrawal.

The break-even point—where the total payout equals the initial conversion—occurs at approximately 27.38 years. This calculation is derived from solving the equation $1 = 2 \cdot (1 - 0.975)^x$, which simplifies to $0.975^x = 1/2$, and then $x = \frac{-\ln(2)}{\ln(0.975)} \approx 27.38$.

In Figure 2, we compare the function $\frac{-\ln(2)}{\ln(0.975)} \cdot 2 \cdot (1 - 0.975)^x$ to the identity function. This comparison shows the cumulative payout of the boosted withdrawal fund in comparison

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[2]The "Fokusgruppe private Altersvorsorge"

to the fixed fraction annuity with the same break-even point, when converting $\frac{-\ln(2)}{\ln(0.975)}$ units.
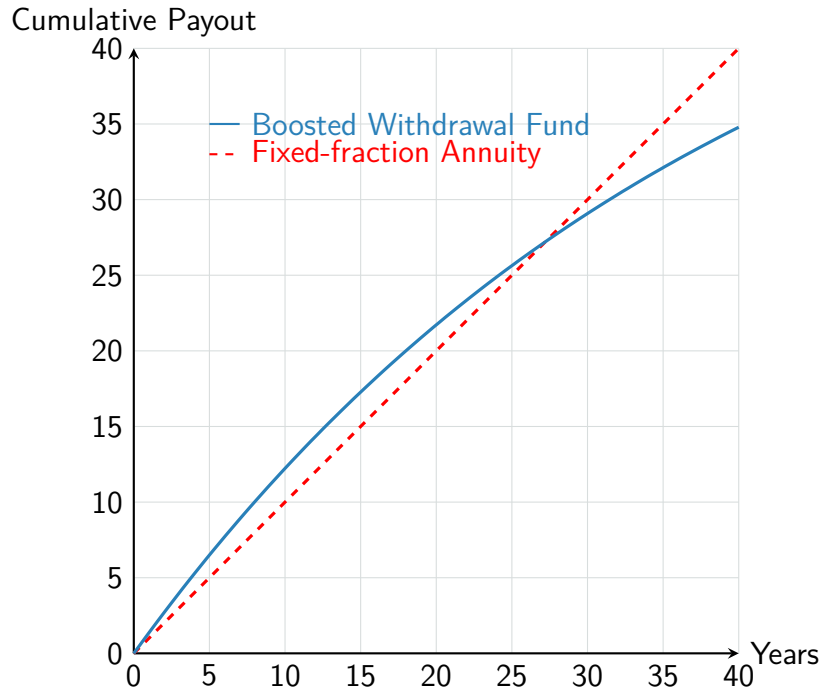

Figure 2: Comparison of cumulative payouts between boosted withdrawal fund and fixed-fraction annuity

As shown in the figure, the total payouts are larger for the boosted withdrawal fund than for the identity function before the break-even point and smaller afterwards. Therefore, the boosted withdrawal fund decreases the amount of redistribution in the pension system. Frontloading is implemented in the Swedish Pension System and has also been proposed for the German pension system (Richter and Werding 2020).

Frontloading also provides a mechanism to address nominal generous obligations in legacy pension systems. Consider the scenario from our thought experiment with the choice between 600€ and 2,400€. Directly reducing the 2,400€ benefit might not be legally permissible.

The boosted withdrawal fund can easily be combined with capitalization. Note that if the withdrawal rate is exceeded by the rate of return from indexation (or capitalization), the pensions will not decrease in nominal terms.

3.3 Capitalization

The optional capitalization component allows participants to convert part of their nonfinancial account value into capital that can be invested in financial markets. This section explains the rationale for including this option in the pension system.

There are three core reasons for including this possibility:

- **Risk-adjusted returns:** Participants who are willing to take more risks can increase their rate of return. Note that risk preferences can vary greatly between participants depending for example on age and income. The capitalization introduces a capital-funded component to the pension system, primarily benefiting those willing to accept higher risk.

- **Trust enhancement:** People with limited trust in the system can eliminate their reliance on that trust. The mere availability of this option can increase general trust in the system.

- **Foundation profitability:** The Pension Capital Foundation can generate significant profits without taking high risk. From the perspective of the Capital Foundation, it is trading capital taken from credits for nonfinancial account value which is growing with GDP. Additionally, the foundation receives capitalization fees. These profits benefit all participants in the system by enabling cross-financing of other components, such as making the basic insurance more attractive.

When considering participants and the foundation as one entity, they are essentially taking debt to invest in the financial market, which is similar to the proposal of the "Generationenkapital". However, in this proposal, there is no governance issue because the foundation does not make the investment. Since the risk to the foundation is significantly reduced, the scale of using this option can be significantly increased.

4 Conclusion

This proposal presents a novel pension reform framework built on three pillars: nonfinancial accounts with GDP-indexation, flexible insurance options, and optional capitalization. The framework combines mandatory basic protection with individual choice, creating a system that is both socially responsible and adaptable to personal preferences.

The design choices reflect a careful balance between competing objectives. The basic insurance component, with its generous divisor and deliberate cap, provides enhanced benefits to lower-income participants, addressing social equity concerns. Meanwhile, the capitalization option offers higher-income participants the opportunity to pursue market-based returns, acknowledging diverse risk preferences and financial capabilities. This dual approach enables the system to fulfill both its social protection mandate and accommodate individual investment choices.

While this proposal establishes a robust foundation for pension reform, several key aspects require further consideration for practical implementation:

- **Survivor's benefits:** While the payout plan's inheritable account values provide some protection for survivors, a comprehensive framework for survivor's pensions needs development.

- **Disability coverage:** The system requires additional mechanisms to address disability pensions, particularly focusing on reduced contribution periods and elevated benefit requirements.

- **Basic needs integration:** The relationship between the proposed system and existing basic needs pension programs requires precise definition, though the capped basic insurance is designed to minimize reliance on such programs.

- **System integration:** The framework must be coordinated with other social insurance programs, particularly healthcare, to maximize administrative efficiency and policy effectiveness.

- **Tax treatment:** A clear policy decision between pre-taxation of contributions and post-taxation of benefits is needed, considering both distributional impacts and administrative practicality.

These implementation considerations, while significant, are not unique to this proposal. Existing NDC systems have successfully addressed similar challenges through various mechanisms, providing valuable practical experience to draw upon. The framework's flexibility allows for adaptation to specific national contexts while maintaining its core principles of transparency, fairness, and individual choice.

AI Usage Declaration This article was developed with the assistance of AI language models, specifically Claude 3.7 Sonnet, for tasks including initial formulation, targeted reformulation, grammar and syntax refinement, formatting suggestions, and LaTeX editing. The underlying research, mathematical analysis, concepts, and arguments are the original contribution of the author. The author takes full responsibility for the content, accuracy, and conclusions presented in this article.

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