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**Private Compulsory Long-Term  
Care Insurance in Germany: A  
Comprehensive Overview**

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# Private Compulsory Long-Term Care Insurance in Germany: A Comprehensive Overview

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## Abstract

In 1995, Germany established a two-tier compulsory long-term care insurance scheme. While the public branch, with its pay-as-you-go character, lacks sustainable financing due to demographic circumstances, the capital-funded private branch is supposed to be sustainably financed through its special financial architecture. However, specific legal regulations restrict the calculation of premiums, as is the case in a free competitive insurance market with capital funding, and make the inclusion of transfer elements necessary. We present a synopsis of actuarial expertise on German private compulsory long-term care insurance. Therefore, we make the existing German-speaking literature available to an international audience. In doing so, we provide a comprehensive overview of how private compulsory long-term care insurance in Germany works. Considering recent debates on reforming long-term care insurance financing, understanding the functioning and sustainability of the private branch is of increasing interest. As the financial strain on the public sector intensifies, questions arise about the potential future role of capital-funded private long-term care insurance.

**Keywords:** Private long-term care insurance, equivalence principle, capital funding, premiums, ageing provisions, Germany

**JEL Classification:** G22, I11, I13

## 1 Introduction

The demographic shift toward ageing populations has transformed long-term care (LTC) from a peripheral concern into one of the most pressing socio-economic challenges of the 21st century. Being among the fastest ageing economies, Germany was early to implement a compulsory LTC insurance (LTCI) scheme to secure the (financial) risk of needing LTC already in 1995. Current projections suggest that

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the demand for LTC will substantially increase over the coming decades (Haß et al., 2024; Vanella et al., 2020, 2024), creating pressure on LTC financing and care infrastructure.

Prior to 1995, Germany lacked a publicly funded, population-wide scheme to cover the risk of needing LTC. People had to rely on private assets or family support before becoming eligible for means-tested social assistance. Yet, relevant players recognized the necessary revision of coverage against the need for LTC as early as the 1970s, as municipalities – the providers of means-tested social assistance – repeatedly complained about the rising costs of LTC. Between 1963 and 1993, the number of social assistance recipients in LTC increased fourfold from 165,000 to 660,000, while gross expenditures increased from about 0.25 billion euros to 8.43 billion euros (Destatis, 2015). Consequently, political decision makers reached out for the financial relief of municipalities by organizing coverage for needy individuals outside social assistance.

Although a voluntary model was initially preferred, the discussion later turned to compulsory solutions that seemed more purposeful.<sup>1</sup> Ultimately, compulsory LTCI was devised in analogy to the existing two-tier health insurance scheme, i.e. consisting of a statutory and private pillar. According to the guiding principle "LTC insurance follows health insurance", the population covered by statutory health insurance were also to be covered by the social, i.e. public, LTCI scheme whereas policy holders of private health insurance were referred to the private scheme. Currently, this dual structure covers the entire German population, with social LTCI encompassing around 89 % (74.56 million people by the end of 2024) and private LTCI covering 11 % (9.15 million) (German Federal Ministry of Health, 2025). Unlike many other European countries that rely primarily on tax-funded systems or have limited coverage schemes, Germany's two-tier approach represents a distinctive model in international comparison, with specific legal requirements regarding who qualifies for private insurance.

While extensive literature exists on the institutional setting of social LTCI (e.g. Cuellar & Wiener, 2000; Evers, 1998; Geraedts et al., 2000; Geyer et al., 2025; Nadash et al., 2018; Rothgang, 2010), English-language scientific literature on German private LTCI is remarkably scarce. To the best of our knowledge, Riedel (2003) provides the only general overview.<sup>2</sup> Yet, after 23 years, various political reforms have taken place. As social LTCI with its pay-as-you-go character faces sustainability challenges due to demographic circumstances (Bahnsen et al., 2020; Bahnsen & Wimmesberger, 2023), private LTCI is calculated using a funding principle. Insurees build up funding capital to offset higher expected expenditures in the future maintaining a stable premium (Hofmann & Browne, 2013).<sup>3</sup> Therefore, private LTCI may provide an alternative way of financing LTC needs, in particular in societies passing through

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<sup>1</sup>See Götting et al. (1994) for an in-depth discussion regarding the arguments, timeline and different players involved in the process.

<sup>2</sup>Weber (2023) gives also a brief description but focuses on actuarial aspects.

<sup>3</sup>The component of precautionary savings used to balance premiums over time is referred to as *ageing provisions*.

demographic ageing. This article presents the German private compulsory LTCI scheme, outlines the experience gained from the two-tier approach combining private and statutory insurance and considers the key lessons from Germany's case. Many countries struggle to provide comprehensive coverage of LTC needs while long-established social insurance schemes are exposed to the two-fold strain of an increasing number of beneficiaries and a shrinking workforce. Therefore, private insurance approaches to LTC are discussed as an alternative way of financing (Comas-Herrera et al., 2025). They appear promising both as a supplement to existing schemes or as fundamental protection (Boj del Val et al., 2020; Riedel, 2003). In order to address the fact that LTC risk increases sharply in elevated ages, LTCI requires a life-long coverage, as short-term contracts would be cheap but of little use for the younger ones and prohibitively expensive later in life. Therefore, private LTCI is based on specific actuarial concepts. As the financial viability of social LTCI continues to be questioned, a detailed understanding of the private scheme is not only of academic interest but also of high practical relevance for current and future policy debates.

Generally, private health insurers employ actuarial principles in their health insurance contracts. However, regarding LTCI contracts, they are subject to some fundamental regulatory limitations. In turn, a specific approach has been developed to bring these regulatory demands in line with basic actuarial principles (Rudolph, 1995). This approach therefore implements redistributive elements in the funded scheme to offset deficits caused by the regulatory limitations (Rudolph & Sachs, 2001). Despite that, private insurers successfully deal with these restrictions and calculate premiums that allow for a functioning insurance market.<sup>4</sup> Consequently, this paper addresses three specific research questions that guide our analysis of Germany's private compulsory LTCI scheme:

1. How does private LTCI reconcile actuarial principles with imposed social policy objectives?
2. What mechanism enables the coexistence of capital funding and redistributive elements within a single insurance framework, and how effective is it in ensuring system sustainability?
3. To what extent does the accumulation of ageing provisions in private LTCI provide a viable solution for demographic challenges compared to the pay-as-you-go financing in social LTCI?

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<sup>4</sup>In the sense of Rothschild and Stiglitz (1976), a functioning insurance market is characterized by voluntary participation, efficient risk pooling, and equilibrium contracts that prevent adverse selection and ensure welfare gains for all market participants. The market for private compulsory LTCI in Germany only partially meets these conditions. While it achieves stable risk pooling and actuarially fair pricing through compulsory participation and risk-based premiums, these outcomes result from regulatory design rather than market equilibrium. Private LTCI operates under uniform benefit standards, limited contract and price competition, and strict solvency regulation, which together prevent classic market failures but limit competitive efficiency. Thus, German private compulsory LTCI represents a functioning insurance market in an institutional sense, but not in the Rothschild-Stiglitz sense.

By examining these questions from actuarial, economic, and political perspectives, we aim to provide insights that are relevant beyond the national discussion. Methodologically, this paper employs a comprehensive analytical approach combining:

1. The systematic review of German-language actuarial literature;
2. the detailed examination of legislative texts and general insurance conditions governing private LTCI; and
3. the mathematical modelling of premium calculation mechanisms to illustrate the practical implementation of theoretical insurance principles within regulatory constraints.

This multi-faceted methodology allows us to bridge the gap between technical actuarial expertise and broader (economic) policy discussions with respect to financing LTC needs.

The remainder of the paper is structured as follows: Section 2 outlines the institutional framework of private compulsory LTCI, including the composition of the collective of insurees, the scope of benefit entitlements, as well as the financing mechanism. Section 3 focuses on the actuarial aspects, covering legal requirements, premium calculation, and the mechanism for risk equalization. Section 4 provides an overview of private supplemental LTCI as a complement to compulsory coverage. Finally, Section 5 offers concluding remarks and an outlook on future developments.

## **2 Institutional setting of private compulsory long-term care insurance**

### **2.1 Collective of insurees**

In 1995, the system of social protection in Germany was expanded through the introduction of compulsory LTCI. The objective was to ensure that the entire population would be protected against the risk of needing LTC.<sup>5</sup> However, rather than establishing a single universal scheme, compulsory LTCI was established along the lines of the existing dual health insurance system. As a result, coverage is provided through two parallel branches: social (public) LTCI financed on a pay-as-you-go basis, and private LTCI operating on actuarial bases using a funding principle. In practice, social LTCI serves as the default option. Access to private insurance is limited to individuals who meet specific eligibility criteria reflecting the segmentation that already exists in private health insurance. These criteria define three ways to qualify for private LTCI:

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<sup>5</sup>In 1995, Germany did not yet have a universal mandate for health insurance – and hence also for LTCI. Instead, a set of regulations imposed compulsory coverage on the vast majority of the population. The remaining gaps were closed in 2009, when a formal and comprehensive mandate was introduced, applying to all residents.

1. High-income employees whose annual labour income exceeds the legally defined threshold (73,800 euros in 2025, adjusted annually);
2. civil servants who benefit from a tax-financed subsidy – the *Beihilfe* – which partially covers health care as well as LTC costs and;<sup>6</sup>
3. self-employed individuals who can choose between social and private LTCI.

This eligibility structure creates a risk pool that differs significantly from the general population with respect to its risk characteristics. While insurees are free to switch between various private insurers, restrictions apply when opting out of the private system. Employees may only (re)enter statutory health insurance if their wage drops below the threshold as long as they have not turned 55.

In general, insurees in private health insurance are also covered by private LTCI.<sup>7</sup> Upon its introduction, all existing insurees in private health insurance were automatically included in private LTCI. For this group, risk loadings were prohibited, and individuals already needing LTC were granted immediate entitlement to benefits. These regulations, however, did not extend to new entrants joining thereafter.

About 11 % of the German population have private compulsory LTCI, which amounts to 9.15 million individuals in 2024 ([German Federal Ministry of Health, 2025](#)). Of these, 4.03 million were insurees without *Beihilfe* (high income employees and self-employed individuals) and 5.12 million were entitled to receive *Beihilfe* subsidies (civil servants) ([Association of German Private Health Insurers, 2025c](#)).<sup>8</sup> Figure 1a displays the age structure of insurees in private compulsory LTCI by sex and insurance type (*Beihilfe* and non-*Beihilfe*). On average, insurees are 48.0 years old (men: 49.4; women: 46.2). Broken down by insurance type, *Beihilfe* insurees are 47.9 years old on average (men: 48.3; women: 47.5), while non-*Beihilfe* insurees are 48.3 years old (men: 50.4; women: 43.5).

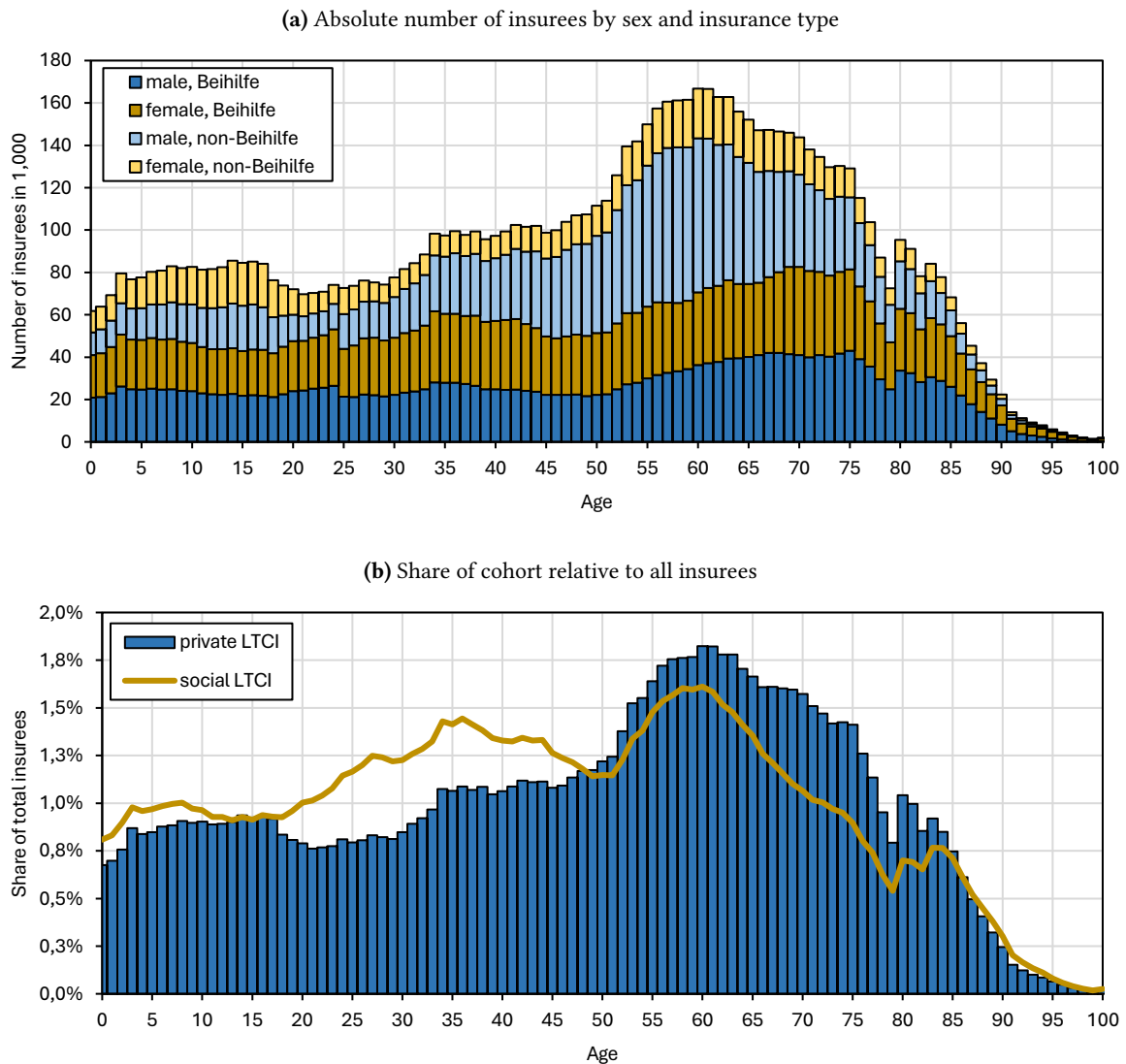
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<sup>6</sup>The *Beihilfe* system functions as a partial coverage scheme where the government directly reimburses a percentage of healthcare and LTC costs: typically, 50 % for civil servants themselves, 70 % for spouses, and 80 % for children. Civil servants must obtain private insurance only for the remaining percentage not covered by the *Beihilfe*. This creates a unique risk-sharing arrangement between the government and private insurers for this specific population segment.

<sup>7</sup>An exception applies to the members of the Post Office clerks' health insurance (*Postbeamtenkrankenkasse*) and the Federal Railway clerks' health insurance (*Krankenversorgung der Bundesbahnbeamten*), who formed an increasingly aged but shrinking collective without any new entrants. These were, although not privately insured, referred to private LTCI.

<sup>8</sup>The data used in this study – provided by the Association of German Private Health Insurers – are subject to access restrictions. They are not publicly available due to confidentiality requirements. Both authors are not permitted to share the data. However, for competition reasons, data on German private compulsory LTC insurance is published by the [Federal Financial Supervisory Authority \(2025\)](#).

**Figure 1:** Age structure of insurees in private compulsory long-term care insurance, 2024



**Note:** Insurees aged 100 and over are grouped together under age 100.

**Source:** Own depiction based on [Federal Office for Social Security \(2026\)](#) and [Association of German Private Health Insurers \(2025c\)](#).

The age structure in private LTCI differs markedly from that in social LTCI. While the latter covers roughly 89 % of the population and consequently includes a far larger risk pool, private LTCI exhibits a more selective and demographically skewed structure. As shown in Figure 1b, birth cohorts from 1942 to 1977 were disproportionately likely to opt for private coverage ([Neusius, 2021](#)). The majority of these cohorts are not yet exposed to the relevant LTC risk but will eventually reach the critical age in the coming years.<sup>9</sup> Furthermore, men are more likely than women to have private insurance – a pattern primarily observed among non-*Beihilfe* insurees. By contrast, the sex ratio among *Beihilfe* insurees is

<sup>9</sup>Comparing the age structure of social and private LTCI collectives, these age groups account for 41.9 % of the total collective in social LTCI, but 51.9 % in private LTCI.

far more balanced. Overall, the age structure indicates a maturing insured collective with a growing share of older individuals. This development implies increasing benefit utilization in the decades ahead, particularly in subgroups without *Beihilfe* support.

## 2.2 Entitlement, benefits and beneficiaries

In social LTCI entitlements and benefits are legally defined in the Social Security Code (*Sozialgesetzbuch*, SGB) Volume XI. The same legislation stipulates that private insurance contracts must offer benefits equivalent in type and scope to those provided under social LTCI.<sup>10</sup> In addition, private insurers are legally required to apply identical criteria as social LTCI when assessing LTC needs and assigning care grades. Consequently, distinctions between social and private LTCI primarily relate to their financing structures and the type of benefit provision.

*Entitlement.* According to § 14 SGB XI, individuals with health-related impairments that limit their independence or functional abilities and therefore require assistance from others are eligible for LTCI benefits. The extent of LTC dependency is determined using an assessment tool, which assigns individuals to one of five care grades based on the severity of their impairments.<sup>11</sup> Such a need is considered to exist when physical, cognitive, or mental impairments cannot be independently compensated for or managed. The need must be permanent, probably for at least six months.

To determine eligibility for LTC benefits, each applicant must undergo a standardized assessment procedure. An assessor – either a nursing professional or physician – appointed by a specialized agency evaluates six domains of daily functioning: mobility, cognitive and communication abilities, behaviour and mental health, self-care, management of health-related requirements, and the structuring of daily life and social interactions. Each domain is assigned a score reflecting the level of independence. These scores are subsequently weighted and aggregated to yield an overall care grade, ranging from minor impairments (care grade 1) to most severe impairments requiring comprehensive nursing care (care grade 5) ([Association of German Private Health Insurers, 2025a](#)).

*Benefits.* Benefits granted depend on the care grade assigned during the assessment and on whether care is delivered in an inpatient setting, such as a nursing home, or an outpatient setting, where indi-

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<sup>10</sup>SGB XI comprehensively regulates compulsory LTCI and establishes key elements of the regulatory framework governing private LTCI, particularly §§ 23, 27, 61, 110, 110a, and 111.

<sup>11</sup>The definition of LTC dependency and the corresponding assessment procedure were comprehensively revised in 2017 through the Second LTC Strengthening Act (*Pflegestärkungsgesetz II*). This reform introduced the concept of care grades (*Pflegegrade*), replacing the previous three care levels (*Pflegestufen*), and placed greater emphasis on cognitive and psychological impairments, particularly in persons with dementia.

viduals remain at home or with family.

As benefits are uniformly defined by law, in this regard social and private LTCI only differ in the way they grant these benefits. Social LTCI operates under a benefit-in-kind approach, in which the insurer directly settles payments with care service providers. In contrast, private LTCI follows a cost-reimbursement approach. Insurees initially cover the expenses for received care services and subsequently submit the corresponding invoices to their insurer for reimbursement. Table 1 presents the amounts for the main types of benefits according to care grade and the place of care service provision.

**Table 1:** Monthly benefit entitlements in euros, 2025

	Care grade 1	Care grade 2	Care grade 3	Care grade 4	Care grade 5
<i>Outpatient care</i>					
Cash benefits	-	347	599	800	990
In-kind benefits	-	796	1,497	1,859	2,299
<i>Inpatient care</i>					
In-kind benefits	131	805	1,319	1,855	2,096

**Note:** In outpatient care, cash benefits and in-kind benefits may be combined, i.e. if only X % of the claim is received as cash benefits, the remaining 100 % - X % can be realized as in-kind benefits. Economically speaking, both types are cash benefits fixed in euros. However, it would be more precise to speak of payments directly to insurees (cash benefits) and payments to care providers (in-kind benefits).

**Source:** [Association of German Private Health Insurers \(2025a\)](#).

In addition to the main benefits, several supplemental measures are available to support relatives providing care. These include a short-term relief allowance of 131 euros per month, intended to reduce caregiver burden and enhance the autonomy of the beneficiary; stand-in care for up to six weeks per year; and day or night care, which allows the beneficiary to spend part of the day in a care facility. Although individuals assigned to care grade 1 are not eligible for monthly outpatient care benefits, they can access various ancillary services, including the short-term relief allowance, assistive devices, social security contributions and income replacement for caregiving relatives, care counselling, and home adaptations. These supplemental benefits are likewise accessible to individuals in care grades 2 through 5 ([German Federal Ministry of Health, 2025](#)).

Since benefits are nominally fixed, their real purchasing power declines in the presence of inflation. This issue was most recently addressed through the LTC Support and Relief Act (*Pflegeunterstützungs- und -entlastungsgesetz*), which increased all benefits by 4.5 % effective January 1, 2025. A further adjustment is scheduled for January 1, 2028, based on the cumulative core inflation over the preceding three years; however, the increase is capped at the growth rate of gross wages.

Overall, benefits provide only partial cost coverage, necessitating additional co-payments by the insurees. Regarding inpatient care, these co-payments comprise expenditures for board and lodging,

investment costs of the nursing facility, and a uniform facility-specific co-payment applicable to care grades 2 to 5. These payments impose a significant financial burden on many beneficiaries; in 2024, the average monthly co-payment in inpatient care amounted to 1,869 euros. In addition, costs for board and lodging as well as investments amount to 1,500 euros ([Association of German Private Health Insurers, 2025b](#)).

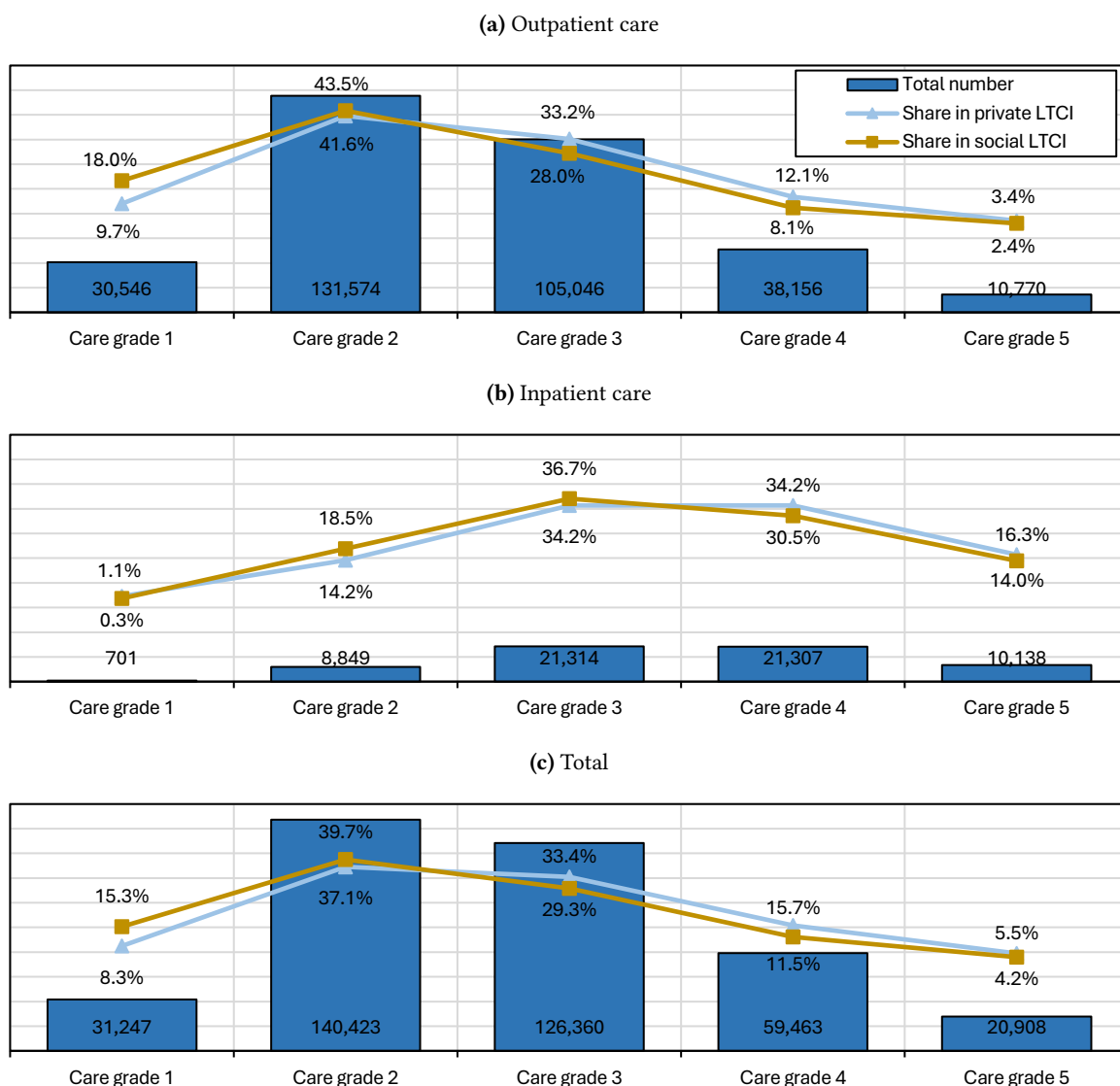
To alleviate the financial burden of the facility-specific co-payment, benefits were enhanced by a supplemental benefit. Depending on the length of stay in inpatient care, a certain share of the co-payment is reimbursed. In the first 12 months, the supplement amounts to 15 % of the facility-specific co-payment, after 12 months to 30 %, after 24 months to 50 % and after 36 months to 75 %.<sup>12</sup> Other co-payments remain the responsibility of the insuree. No official statistics are available for co-payments in outpatient care; given the diversity of individual care arrangements, these payments are likely to vary considerably.

*Beneficiaries.* Since the introduction of compulsory LTCI, the number of beneficiaries has risen substantially. In 2024, 378,401 insurees received benefits from private LTCI, representing 4.1 % of all insurees (compared to 89,100 beneficiaries, or 1.1 %, in 1996) ([Association of German Private Health Insurers, 1997, 2025c](#)). This growth is largely attributable to demographic ageing and broadened eligibility criteria. Of these beneficiaries, 84 % received outpatient care, while 16 % received inpatient care. Analysis by care setting and care grade highlights significant differences in the distribution of benefits (see [Figure 2](#)).

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<sup>12</sup>These values reflect the regulation effective January 1, 2024. Previously, since 2022, reimbursement rates were 5 %, 25 %, 45 % and 70 %, respectively.

**Figure 2: Beneficiaries in private compulsory long-term care insurance, 2024**



**Source:** Own depiction based on [Association of German Private Health Insurers \(2025c\)](#) and [German Federal Ministry of Health \(2025\)](#).

Beneficiaries in care grade 1 were almost entirely (97.8 %) cared for at home, whereas in care grade 5, the distribution between outpatient and inpatient care was approximately equal. Among beneficiaries in outpatient care, three-quarters were in care grades 2 (41.6 %) and 3 (33.2 %), while higher care grades 4 (12.1 %) and 5 (3.4 %) represented a smaller share. In inpatient care, the distribution shifts toward higher care grades, with 34.2 % of beneficiaries in care grade 4 and 16.3 % in care grade 5. Compared to social LTCI, private LTCI has a slightly higher proportion of care grades 3, 4 and 5. Continued demographic ageing is projected to substantially increase the number of beneficiaries in the coming decades, particularly in the higher care grades, creating significant challenges for both the financing and provision of LTC services ([Haß et al., 2024](#); [Vanella et al., 2020, 2024](#)).

## 2.3 Financing

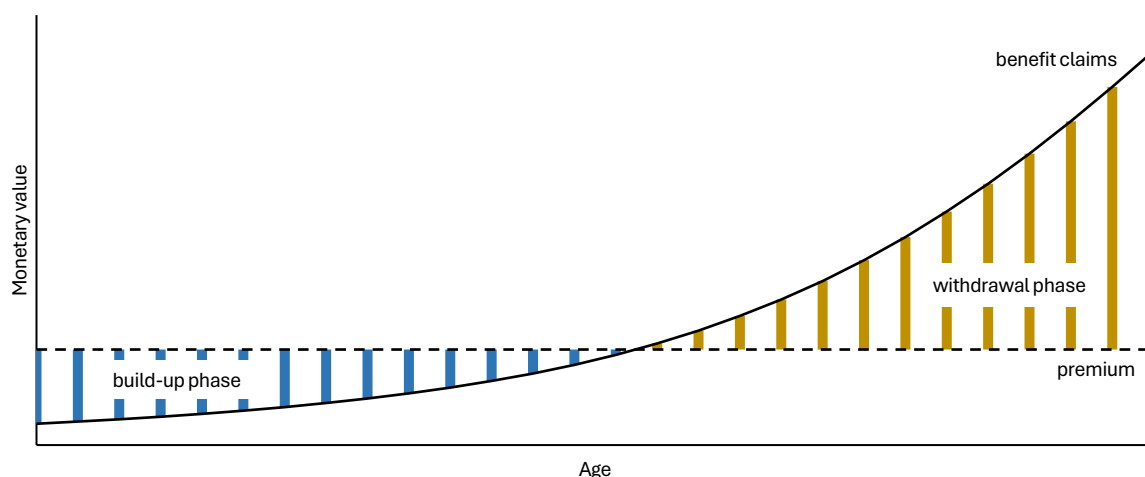
Pricing in private compulsory LTCI follows actuarial principles originating from life insurance mathematics. Premiums are thus calculated such that benefits and premiums correspond to each other over the entire contract duration (*equivalence principle*), accounting for life expectancy and potential contract lapses. Indirectly, medical underwriting in private health insurance also influences access to private LTCI, implying that selection effects may carry over and justify the application of risk loadings (Neusius, 2021). Since LTCI benefits predominantly accrue at advanced ages, the actuarial approach results in considerable premium front-loading (Atal et al., 2019). Figure 3 illustrates this schematically. In the initial years of the contract, premiums exceed the expected per-capita claims, whereas in later years they fall short of covering these claims. To address this imbalance, insurers establish ageing provisions. The surplus premiums collected during the build-up phase are accumulated and, together with the interest earned on these provisions, serve to offset the shortfall between premiums and claims once the latter surpass the former in the withdrawal phase.

Premium setting in private LTCI is legally constrained, as the law establishes a maximum allowable premium. According to § 110 SGB XI, the maximum absolute contribution to social LTCI serves as an upper limit for private LTCI premiums (see Section 3.2 for details). To compensate for this cap, actuarial pricing redistributes the portion of claims not covered by the capped premium across all insurees. Similar to life insurance, this actuarial framework requires active management of contracts over their entire life cycle and the administration of substantial capital on behalf of the insurees. As of 2024, ageing provisions in private compulsory LTCI amounted to 55.3 billion euros, while premium income totalled 6.2 billion euros and benefit payments reached 2.7 billion euros (Association of German Private Health Insurers, 2025d).<sup>13</sup>

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<sup>13</sup>The high discrepancy indicates that, on the one hand, in the premium income additions to the ageing reserve are included and, on the other hand, the benefit claims do not include the expenses from the *Beihilfe* scheme.

**Figure 3:** Schematic illustration of a capital funded system



**Source:** Own depiction adapted from [Milbrodt and Röhrs \(2016\)](#).

The actuarial approach relies on long-term assumptions regarding claims, mortality, and lapse rates. In practice, actual developments often deviate from these assumptions. Under certain conditions, the law allows for updating these assumptions and recalculating premiums accordingly, with specific provisions applying whenever benefits are adjusted due to changes in legislation.

In contrast to social LTCI, which is mainly financed on a pay-as-you-go basis and emphasizes solidarity and income-related contributions, private LTCI is designed to prioritize individual responsibility and actuarial fairness.<sup>14</sup> Nevertheless, legal restrictions and social policy objectives require private LTCI to deviate substantially from the strict equivalence principle. This convergence creates hybrid structures that incorporate elements of both financing approaches and necessitates redistribution within an otherwise competitive private insurance market.

### 3 Calculation in private compulsory long-term care insurance

#### 3.1 Political objectives

When compulsory LTCI was introduced in 1995, the legislator decided against a universal scheme for the entire population. Instead, the new LTCI system mirrored the existing dual structure of compulsory health insurance. In other words, insurees under private health insurance were assigned to private

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<sup>14</sup>In addition to the pay-as-you-go financing, a funded element was introduced with the First LTC Strengthening Act (*Pflegestärkungsgesetz I*) in 2015. Receiving 0.1 % of contributory income, the fund will be accessible starting in 2035, with up to 1/20 of its assets available each year to partly finance occurring deficits. Furthermore, since 2022, the federal government has been providing an annual tax subsidy of 1 billion euros to social LTCI. However, payments for the years 2024 to 2027 have been suspended and will resume from 2028 onwards.

LTCI, while those covered by statutory health insurance were to receive LTCI coverage through the public sickness funds. Therefore, a scheme was required to implement compulsory LTCI in a competitive market of private insurers. In particular, a market design had to rely on fair, i.e. actuarial, premiums unless compensatory mechanisms were introduced to offset potential regulatory constraints. Actuarially fair premiums, however, are typically linked to medical underwriting. Since the new system was meant to cover the entire population, special provisions had to be made for existing insureds. Moreover, adequate LTCI coverage necessarily requires a life-long contract, as the need for LTC usually arises at advanced ages. Therefore, products similar to life insurance were considered the most appropriate design for private LTCI.

### 3.2 Regulatory framework

As the requirements outlined above coincide to some extent with the regulatory objectives for private health insurance, it was straightforward to design private LTCI analogously to the existing private health insurance.<sup>15</sup> Accordingly, contracts regularly extend over the whole lifetime, maximum duration or annulation by the insurer is not permitted. Medical underwriting is permitted only when new customers apply for contract. Premiums are calculated as being constant over the whole lifetime and are required to be sufficiently high to finance all expected future benefits at the moment of calculation. However, assumptions over future developments may turn out to be inappropriate in hindsight, in particular as inflation effects are not included to the assumptions. Therefore, the insurer is entitled to adjust premiums if the deviation between observed benefits or observed mortality probabilities and assumptions concerning these two parameters in the premium calculation exceed a legally defined threshold value. Once the condition is fulfilled, all assumptions relevant for premium calculation are subject to revision, not just the assumption whose deviation triggered the premium adjustment in the first place.

In order to address the specific requirements for the new LTCI scheme, some additional regulations were imposed. The most striking difference between private health insurance and private LTCI is that for the latter the benefits are uniquely defined by law, as they are bound to equal those of social LTCI. Further regulations are:

1. Contracting obligation, i.e. insurers have to offer coverage to every applicant.
2. All contracts have to offer the same coverage and benefits, i.e. an exclusion of specific benefits is not permitted.
3. Uniform premiums for women and men.<sup>16</sup>

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<sup>15</sup>For a more extensive discussion of German private health insurance, see [Hofmann and Browne \(2013\)](#).

<sup>16</sup>In 1995, this was not common practice in the insurance industry. However, since December 21, 2012, European Union

4. Insurees holding private health insurance at the time of the introduction of compulsory LTCI in 1995 were automatically included in the newly established LTCI. For these individuals, medical underwriting and risk loadings were not permitted. In contrast, individuals who applied for private health insurance after 1995 could be subject to risk classification, and their premiums could include a risk loading.
5. Children are covered, but no premium is charged for them. A surcharge is included in the premium of other policyholders that provides the means to finance the children's benefits.
6. There is an upper bound for the premium. Private LTC premiums are capped at the maximum absolute contribution applicable to social LTCI. Contributions in social LTCI are calculated as a percentage of the monthly wage. However, there is a maximum wage that is subject to contributions, referred to as the relevant contribution limit (*Beitragsbemessungsgrenze*). Multiplication of this limit with social LTCI's contribution rate defines the maximum absolute contribution.
7. If the actuarial fair premium in private LTCI exceeds the maximum absolute contribution, it is capped at this value. As for children, the missing part of the premiums is redistributed among insurees with a specific surcharge.

### 3.3 Premium calculation

In the following, we provide a simplified presentation of the premium calculation framework in private compulsory LTCI, largely following the formal representations of [Weber \(2010, 2023\)](#).<sup>17</sup> The actuarial approach is based on the equivalence between the benefits provided by the insurer under the contract and the premiums paid by the insuree. As both benefit payments and contract duration are uncertain – since health status and lifespan are *a priori* unknown – this equivalence is established in terms of expected present values, taking into account probabilities for all relevant developments (equivalence principle).

Benefits under LTCI depend on the assigned care grade and the care setting, i.e. outpatient or inpatient care (see [Table 1](#)). While expected future benefits could in principle be derived from explicit

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regulations have required insurers to charge identical prices to women and men for the same insurance products, prohibiting any distinction based on sex.

<sup>17</sup>We focus on the core elements of the actuarial framework. The underlying mathematics of German private compulsory health insurance – which largely also applies to private LTCI – is described in detail by [Becker \(2017\)](#) as well as [Milbrodt and Röhrs \(2016\)](#). For LTCI-specific features, see [Rudolph \(1995\)](#), [Rudolph and Sachs \(2001\)](#), or [Weber \(2010, 2023\)](#). To not divert attention from essential aspects, we intentionally omit less important aspects here, e.g. we do not deal with partial coverage in case of civil servants entitled to *Beihilfe* subsidies or special subpopulations like the Post Office clerks' and Federal Railway clerks' collectives. Premium calculation follows the regulatory framework for private health insurance, as laid down in the Health Insurance Supervision Ordinance (*Krankenversicherungsaufsichtsverordnung, KVAV*).

models of transitions between LTC states (Fuino & Wagner, 2018), private LTCI in Germany follows a different, empirically grounded approach. For each age  $x$ , the expected annual per-capita claims are estimated directly from observed data. To ensure actuarial prudence, these estimates include security loadings. No explicit modelling of morbidity states or mortality conditional on LTC dependency is undertaken.

Let  $K_{g,x}$  denote the expected annual per-capita claims for an insured individual of sex  $g \in \{m, f\}$  at age  $x$ . These values include all benefit components and can be interpreted as weighted averages across insurees in the various LTC grades. Mortality, lapse assumptions, and the claim profiles  $K_{g,x}$  are not determined separately by each insurer but are derived from industry-wide data for private LTCI. To evaluate future cash flows, expected present values (PVs) are calculated using the technical interest rate  $i$ , which is assumed to be constant over time.<sup>18</sup> It enters the calculations via the discount factor  $v = 1/(1 + i)$ .

Let  $p_{g,x+k}$  denote the probability that, at the time of premium calculation, an insuree aged  $x$  still holds the contract after  $k$  years, incorporating both mortality and lapse risks. Then the PV of expected future benefits is given by

$$A_{g,x} = \sum_{k=0} p_{g,x+k} \cdot v \cdot K_{g,x+k}. \quad (1)$$

Similarly, the PV of future premium payments for an annual premium of one currency unit is

$$a_{g,x} = \sum_{k=0} p_{g,x+k} \cdot v. \quad (2)$$

This quantity represents the actuarial PV of a life-contingent annuity with payments conditional on the continuation of the insurance contract.<sup>19</sup>

As in life insurance, the actuarial approach is based on the equivalence principle, which determines the premium  $P_{g,x}$  by equating the PV of benefits with that of premium payments, yielding the *equivalence equation*

$$A_{g,x} = P_{g,x} \cdot a_{g,x}. \quad (3)$$

The net premium in a sex-specific actuarial approach is determined accordingly. In practice, additional components have to account for all sorts of administrative expenditures.<sup>20</sup> It is noteworthy that Equation (3) is based on expected values. Although this appears as a strictly individual treatment, premiums of this sort are based on assumptions that are closely connected to the underlying ensem-

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<sup>18</sup>According to § 4 KVAV, the technical interest rate must not exceed 3.5 %.

<sup>19</sup>While  $A_{g,x}$  is expressed in monetary units and reflects the PV of expected benefit payments,  $a_{g,x}$  is dimensionless and indicates the PV of an annuity paying one currency unit per year over the remaining contract duration (Becker, 2017; Weber, 2010).

<sup>20</sup>Treatment of these components can be found in, e.g. Milbrodt and Röhrs (2016) or Becker (2017).

ble of risks. Therefore, the calculation is reasonable only when applied to a sufficiently large group of insurees.

Premiums are thought of as being constant whereas the per-capita claims increase with age. Hence, the premium lays initially below the typical claims, i.e. on average claims among the  $x$ -aged insurees can be covered by the expected claims  $K_{g,x}$ , leaving the remaining part of the premiums momentarily available as a savings component for later. After a certain age, claims exceed the premium and the savings are consumed to cover the benefit payments (see Figure 3). In the meantime, savings can be invested earning capital returns. These returns were already anticipated by the technical rate  $i$ .

As insurees below age  $x = 19$  do not build up ageing provisions, their technical premium would be  $K_{g,x}$ , just the expected annual benefits. Hence, the actuarial appropriate premiums at entrance to private LTCI were

$$P_{g,x} = \begin{cases} K_{g,x} & \text{for } x \leq 18 \\ \frac{A_{g,x}}{a_{g,x}} & \text{for } x \geq 19 \end{cases}. \quad (4)$$

Premiums  $P_{g,x}$  described above, still differentiated by sex, require modification to comply with regulatory requirements. For insurees below 19, the real premium is set to zero. For adults, a unisex premium has to be charged, which is defined as

$$P_x = \frac{A_{m,x}}{a_x}, \quad (5)$$

where the PV factor for the premium payments is defined as  $a_x = a_{m,x}/c$ , with a suitable adjustment factor  $c > 1$ . This factor is selected such that the resulting premiums fall between the male-specific and the (higher) female-specific premiums (Weber, 2010).

The equivalence between premium payments and benefits on the level of PVs in Equation (3) is established at the beginning of the contract. But at later times, the ageing provisions that are built using the savings component in the premium, have to be taken into account. Accordingly, the equivalence equation is modified to

$$A_{m,x+k} = P_x \cdot a_{x+k} + V_{x+k}, \quad (6)$$

with  $V_{x+k}$  being the ageing provisions. This equation may be seen as the *generalized equivalence equation*. Accumulating ageing provisions ensures that the equivalence equation is maintained at all times, i.e. the PV of expected premium income plus existing ageing provisions equals the PV of expected LTC expenditures (Hofmann & Browne, 2013). As the ageing provisions represent an entitlement of the insurees against the insurer, it is part of the liabilities in a balance sheet. Therefore, the insurer provides assets that match up with the sum of all ageing provisions. The technical rate  $i$  represents a conservative assumption of future returns generated from these assets.

In case of premium adjustments, the position of the insuree has to be preserved. Hence, each insuree's ageing provision is kept constant, while the assumptions entering  $A_{x+k}$  and  $a_x$  are updated.

The new premium can be obtained by

$$P^{\text{new}} = \frac{A_{x+k}^{\text{new}} - V_{x+k}}{a_{x+k}^{\text{new}}}, \quad (7)$$

once more expressing the equivalence while ignoring surcharges.

Each time, a premium adjustment occurs, the premium is recalculated according to the principle expressed in Equation (7), thereby taking the individual effects into account. Hence, over time premiums take an individual path.

### 3.4 Redistribution mechanisms

Due to various regulative interventions to the actuarial approach, including redistribution components into the calculation is necessary (Rudolph, 1995; Rudolph & Sachs, 2001). Consequently, three main components have been established:<sup>21</sup>

1. Compensation for unisex premiums  $R^{\text{unisex}}$
2. Compensation for children's premium exemption  $R^{\text{child}}$
3. Compensation for premium capping  $R^{\text{cap}}$

The first component takes into account the fact that premiums may not be differentiated according to sex. Therefore, sex-specific net premiums are weighted against the respective collectives to determine sex-neutral net premiums. Consequently, this yields a redistribution amount of

$$R^{\text{unisex}} = \sum_{j \in A} (P_j^* - P_j), \quad (8)$$

where  $A$  refers to all adult insurees as well as  $P_j^*$  to the individual sex-specific premium and  $P_j$  to the individual sex-neutral premium for insuree  $j$ .

The legal requirement regarding premium-free co-insurance of children leads to revenue shortfalls, requiring redistribution for which the second component is obtained as

$$R^{\text{child}} = \sum_{j \in C} P_j^*, \quad (9)$$

with  $C$  referring to children exempt from premium payments. In principle, children are entitled until the age of 18. In addition, premium-free co-insurance may apply beyond the age of 18 if children are not gainfully employed, in school or vocational training, or doing some kind of civil service. Further, there is an entitlement without age limit in the event of physical or mental disability (Association of German Private Health Insurers, 2025a).

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<sup>21</sup>There is a fourth component to adjust for an additional capping that was provided for spouses at the introduction of LTCI in 1995. We do not mention this component due to its limited and further shrinking volume.

The third component takes into account the premium capping to the maximum absolute contribution in social LTCl, which results in a redistribution amount of

$$R^{\text{cap}} = \sum_{j \in AL} \max\left\{P_j - (12 \cdot (1 - \sigma) \cdot b^{\text{max}} - \Gamma^{\text{pool}}); 0\right\}, \quad (10)$$

with  $AL$  including all insurees subject to premium capping and  $\sigma$  being a safety loading which is at least 5 % of the gross premium.<sup>22</sup> Furthermore,  $b^{\text{max}}$  is the (monthly) capping limit and  $\Gamma^{\text{pool}}$  is the maximum fix cost surcharge.<sup>23</sup>

In total, the redistribution amount is obtained by the following sum

$$R^{\text{total}} = R^{\text{unisex}} + R^{\text{child}} + R^{\text{cap}} + R^{\text{misc}}, \quad (11)$$

with  $R^{\text{misc}}$  subsuming further redistribution necessary for the limitation of married couples, the adjustment for Post Office and Federal Railway clerks, and premium payments for students as well as prospective entitlements (Weber, 2023).

The amount is levied as a per-capita surcharge  $r$  among those insurees who are liable to pay premiums and whose premium is below the capping limit.<sup>24</sup> To ensure sufficient financing,  $r$  has to be chosen such that

$$\sum_{j \in A} \min\left\{r; \max\left\{12 \cdot (1 - \sigma) \cdot b^{\text{max}} - \Gamma^{\text{pool}} - P_j; 0\right\}\right\} \geq R^{\text{total}}. \quad (12)$$

Combining these results, the (monthly) gross premium can be obtained as a function of the individual (annual) net premium  $P_j$  as

$$b_j = \min\left\{\frac{P_j + r + \Gamma}{12 \cdot (1 - \sigma)}; b^{\text{max}}\right\}, \quad (13)$$

with  $\Gamma$  denoting the insurer-specific fix cost surcharge which may not exceed the maximum fix cost surcharge  $\Gamma^{\text{pool}}$ .

In addition to actuarial calculations, insurers must comply with strict regulatory frameworks that govern solvency and capital adequacy. In Germany, private insurers are subject to Solvency II regulations, which require the maintenance of risk-based capital buffers in addition to technical reserves. These regulatory requirements aim to ensure long-term solvency but can also affect product design and premium levels (Glenzer & Achou, 2019).

### 3.5 Risk equalization through pooling

In a competitive insurance market, the equivalence principle implies that an insurer's expected costs equal the premiums collected for each contract over its entire duration (van de Ven et al., 2023). In the

<sup>22</sup>According to § 7 KVAV, this safety loading is not assigned to any explicit use but is used to compensate for fluctuations or unforeseeable developments and to compensate for incorrect estimates (Milbrodt & Röhrs, 2016).

<sup>23</sup>In practice, the capping limit depends on the individual insurees, as it varies for *Beihilfe* and non-*Beihilfe* insurees.

<sup>24</sup>In practice,  $r$  is determined separately for *Beihilfe* and non-*Beihilfe* insurees (Rudolph & Sachs, 2001).

absence of regulation, this would ideally lead to risk-adjusted premiums that reflect the insurees' individual risk profiles (van de Ven & Ellis, 2000). To achieve actuarial equivalence, insurers can essentially manage their business on three different levels: premium differentiation, product differentiation, and risk selection. All three aspects may cause trouble to universal access to insurance coverage, as the insurance may be unaffordable to some, it may lack indispensable parts of coverage, or it may exclude certain preexisting conditions, respectively. Therefore, the legislator may feel the need to intervene on behalf of the excluded, and by banning or restricting premium differentiation, mandating a standardized benefit package, and imposing a contracting obligation (van de Ven et al., 2023; van de Ven & Schut, 2011). In case of German private compulsory LTCI, all three regulatory measures – along with others (see Section 3.2) – were implemented to establish a social protection framework comparable to that of social LTCI.

The unisex requirement, the premium exemption of children, and premium capping are restrictions imposed on a genuinely actuarial premium differentiation. In Section 3.4 it was laid out, how the effects of this intervention are compensated by a collective effort. Product differentiation itself is not necessarily required in an actuarial approach. However, the standardized benefit package avoids competition on the level of services, quality, and the extend of protection.

The banning of medical underwriting applies to existing insurees of private health insurance in 1995. For all later applicants, medical underwriting was in principle one option of pricing. Yet, an eventual risk loading may be limited as a consequence of the overall capping of premiums. As there is a contracting obligation, medical underwriting and actuarial pricing with risk-adjusted premiums is also restricted with respect to applicants who joined private LTCI after 1995. Insurers are therefore exposed to the risk of attracting insurees who are not a representative sample of the entire private LTCI. Because premium calculation rules are uniformly imposed on all private LTC insurers, the underlying assumptions may result in inadequate benefit financing for some insurers. Consequently, risk equalization among all insurers is necessary (Weber, 2010).

Generally speaking, a risk equalization scheme is a system of risk-adjusted payments to and from (as well as within) insurers that can be considered as subsidies from low-risk insurees to high-risk insurees (van de Ven et al., 2023). According to § 111 SGB XI, all private insurers that offer private compulsory LTCI coverage must participate in the risk equalization and create a system of compensation for this purpose. This system is expected to guarantee a permanent, effective equalization of the different burdens; it must not prevent new insurers from entering the market and must enable all insurers to participate in the equalization on equal terms. The basis for making this necessary risk equalization effective is the so-called *pooling agreement*. It regulates the cooperation, mutual rights, and obligations of all insurers involved.<sup>25</sup>

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<sup>25</sup>In addition to carrying out the net premium calculation and risk equalization, the pooling agreement has several further

Risk equalization in private LTCI is organized in a two-step procedure – a premium equalization and a risk equalization – and carried out retrospectively for each calendar year by the Association of German Private Health Insurers. In the first step, insurers equalize their insurees’ different age and sex composition which would otherwise cause an unequal benefit from premium income due to cases of premium-free co-insurance and the premiums’ capping. This is referred to as *D1* equalization. Therefore, each insurer  $u$  calculates the difference between the actual net premium income and the actuarial (technically required) net premium income necessary for the corresponding collective of insurees according to

$$D1_u = \sum_{j \in A_u} m_j \cdot \left[ \left( b_j - \frac{\Gamma}{12 \cdot (1 - \sigma)} \right) - \frac{P_j^*}{12 \cdot (1 - \sigma)} \right], \quad (14)$$

where  $m_j$  denotes the number of insured months in the year of equalization for insuree  $j$  and  $A_u$  the subcollective of regular insurees without any premium restrictions. This *D1* equalization component levels off financing distortions that follow from the correlation between age and sex on one side and pricing restrictions on the other side.<sup>26</sup>

In the second step, insurers equalize their insurees’ different risk composition. Because pricing assumptions rely on overall averages and allow only limited risk loadings, the risk composition across insurers can differ substantially. It then may cause systematic deviations from the premium income. Therefore, a second equalization, referred to as *D3*, is implemented.

First, insurer  $u$  calculates the technical sum of claims  $S_u^{\text{calc}}$ , i.e. the sum of claims that has been assumed in the premium calculation, as

$$S_u^{\text{calc}} = \sum_{j \in A_u} \frac{m_j}{12} \cdot K_{g_j, x_j} \cdot \frac{1}{1 - \sigma}. \quad (15)$$

Second, interest surplus  $Z_u$  is determined from

$$Z_u = V_u \cdot \max\{i_u - i; 0\}, \quad (16)$$

where  $i_u$  is the insurer’s net interest return from the ageing provisions,  $i$  the technical rate for pricing, and  $V_u$  the sum of the ageing provisions.

Now, the actual sum of claims  $S_u$  is compared to the expected sum of claims  $S_u^{\text{calc}}$ . As a result, insurers for which  $S_u - Z_u > S_u^{\text{calc}}$  holds, are entitled to receive a payment of

$$D3_u = S_u - Z_u - S_u^{\text{calc}}. \quad (17)$$

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tasks. These comprise the maintenance of community statistics as a basis for the premium calculation and the equalization, the review of risk assessment and claims settlement at the insurers involved, and sanctioning of non-contractual behaviour, the organization and provision of care counselling as well as the organization of securing the financing of the inpatient facility audit (Milbrodt & Röhrs, 2016).

<sup>26</sup>In completely fair actuarial pricing, every insurer is supposed to levy just the amount required to cover the expected expenditures of every insuree.

Those insurers whose actual claims fall short of the expected ones, i.e. insurers with  $S_u - Z_u < S_u^{\text{calc}}$  must finance the payments by their corresponding  $D3_u$  amount. It is important to note that insurers may also have to utilize parts of their interest income component  $Z$ .<sup>27</sup>

Risk equalization must be designed in such a way that it does not allow insurers to pass on the consequences of inefficient action to others (Weber, 2010). While competitive markets are generally considered efficient, risk equalization however reduces incentives for cost containment and prevention (van de Ven et al., 2023). While  $D1$  equalization does not create any undesirable incentives, as uneconomic actions with regard to benefits have no influence on the equalization payments,  $D3$  equalization creates an incentive to avoid becoming eligible for equalization, since insurers must first use their own interest surplus. Insofar, there is an incentive to avoid high actual spending. Once the difference between  $S_u$  and  $S_u^{\text{calc}}$  exceeds the interest surplus  $Z_u$ , there is no further incentive to actively limit the spending (Weber, 2010).

## 4 Private supplemental long-term care insurance

Compulsory LTCI in Germany is designed to provide only partial coverage. Benefits are fixed amounts depending on the grading scheme that are not supposed to be sufficiently high to finance all costs of care. Therefore, a significant share of the individual expenses is left to be financed by the beneficiaries. Insurees must therefore either pay the remaining amount out of pocket or, once income and assets are depleted, apply for means-tested social assistance. To mitigate this residual financial risk, insurees can purchase private supplemental LTCI policies that provide additional benefits on top of statutory entitlements.

Although there was no comprehensive system to cover the (financial) risk of needing LTC, private insurance solutions were available even before the introduction of compulsory LTCI in 1995. As early as 1984, private insurers published model conditions defining what constitutes the event of needing LTC (Leienbach & Besche, 2014). While the demand for supplemental policies was initially low, from 1995 to 2012, sales growth averaged 12 % annually, indicating that a relevant market had emerged (Nadash & Cuellar, 2017). The insurance industry attributed this increase to the debate about the benefit level as well as the costs to be borne by the insurees themselves and the general increase in public awareness of LTC due to the introduction of compulsory LTCI (Leienbach & Besche, 2014).

In subsequent years, market growth slowed significantly and remained modest relative to the size of the insured population (Association of German Private Health Insurers, 2025d). By 2024, approximately 4.35 million supplemental LTCI contracts were in force (see Table 2), corresponding to less than 6 % of all individuals covered by compulsory LTCI. Two principal types of supplemental LTCI products can

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<sup>27</sup>In the simplest case, the surpluses of the insurers obliged to pay are just sufficient to cover the claims.

be distinguished: daily benefit policies and cost reimbursement policies. Daily benefit policies provide a fixed, unearmarked cash payment once the insured person is classified as needing LTC under the definitions of SGB XI. The policyholder can freely use these benefits, e.g. to pay informal caregivers or to compensate for income losses.

**Table 2:** Number of private supplemental long-term care insurance policies, 2024

<b>Type of insurance</b>	<b>Number of policies (in 1,000)</b>
Principal supplemental LTCI	3,222.0
Daily benefit policies	3,021.3
Cost reimbursement policies	366.1
Subsidized supplemental LTCI	890.1
LTC pension insurance	240.0
<b>Total</b>	<b>4,352.1</b>

**Note:** Daily benefit policies and Cost reimbursement policies do not add up to the total number of supplemental policies as insurees may take out more than one policy.

**Source:** [German Insurance Association \(2025a, 2025b\)](#).

Since 2013, daily benefit policies have been expanded with a publicly subsidized variant known as the *Pflege-Bahr*. These policies grant a monthly subsidy of 5 euros if the insuree pays a premium of at least 10 euros. Eligible individuals include all adults covered by social or private LTCI who have not yet received LTCI benefits. *Pflege-Bahr* policies are standardized, exempt from medical underwriting, and subject to a legal obligation to contract, ensuring accessibility for high-risk individuals.

In contrast, cost reimbursement policies reimburse verified care-related expenditures. There are two tariff options: top-up tariffs and residual cost tariffs. The former top up benefits from compulsory LTCI at a certain percentage. The latter reimburse all or part of the residual costs that are not covered by compulsory insurance.

A smaller niche segment consists of LTC pension insurance policies offered by life insurers. These policies combine LTC coverage with term life, endowment, or pension insurance contracts and provide a fixed monthly benefit once dependency occurs ([Link, 2015, 2019](#)). Market data indicate that this segment remains limited in scope compared to stand-alone supplemental LTCI. In the recent past, falling interest rates have had a negative impact on the product. In addition, the introduction of Solvency II has made it significantly more expensive to provide guarantees. LTC pension insurance policies therefore had to be calculated with high premiums, which made them less attractive in sales ([Surminski, 2023](#)).

Eligibility for benefits typically requires recognition of care need under SGB XI, though the benefit level and applicable care grades depend on the specific tariff. Contracts often include waiting periods – three years for standard policies and five years for subsidized *Pflege-Bahr* policies – though many insurers waive these under specific conditions, such as care resulting from accidents or for younger en-

trants. While most private supplemental LTCI contracts are medically underwritten, *Pflege-Bahr* policies are community-rated, potentially causing adverse selection (Nadash & Cuellar, 2017). In practice, non-subsidized tariffs are in many constellations substantially cheaper for applicants without relevant preexisting conditions and thereby offsetting the rather moderate subsidy of 5 euros per month.

Despite growing awareness of ageing-related risks, take-up of supplemental LTCI remains low. Empirical studies identify several barriers: limited financial literacy and understanding of LTC risks, underestimation of the probability of needing care, affordability constraints, and the perceived complexity of available products (Lambregts & Schut, 2020). From a behavioural economics perspective, myopia and optimism bias may further discourage individuals from insuring against distant and uncertain risks. Furthermore, information deficiencies can also significantly reduce demand for LTCI (Zhou-Richter et al., 2010). On the supply side, insurers face challenges in product design and pricing due to uncertainty about future morbidity, longevity, and care cost trends, which may result in conservative pricing and limited innovation. Furthermore, the sale of supplemental LTCI poses a particular challenge. Intermediaries are faced with the difficulty of selling a product that is not aimed at positive future expectations such as a secure retirement, but rather at financial provision for a phase of life associated with uncertainty and stress. While pension products are predominantly viewed positively by consumers, the issue of LTC risk is often emotionally charged, which may further dampen demand (Surminski, 2023).

Compared internationally, Germany's private supplemental LTCI market remains small (Geyer et al., 2025). In countries such as the United States or France, private LTCI plays a more prominent role, partly due to weaker public protection or the existence of tax incentives. Germany's institutional design – characterized by a comprehensive compulsory scheme and a strong political and cultural preference for social insurance solutions – leaves limited room for private market expansion (Nadash & Cuellar, 2017). Moreover, political uncertainties regarding future reforms of the LTCI system contribute to potential customers' hesitation to purchase private coverage, as individuals may perceive the risk of policy changes affecting the value or necessity of private insurance.

## 5 Concluding remarks and outlook

In this paper, we present a comprehensive overview of private compulsory LTCI in Germany. With the introduction of compulsory LTCI in 1995, the private insurance industry became a part of social policy on a large scale but had to comply with certain rules. We show how the industry deals with legal restrictions and manages to calculate premiums that allow for a functioning insurance business. Furthermore, we elaborate how transfer elements that are actually foreign to a capital-funded system are included. Finally, we explain how private LTCI prepares for the ongoing demographic transition

with ageing provisions.

Addressing our first research question, we find that private LTCI represents an institutionalised compromise between market-based calculation and social policy objectives. The legislator's main concern was to provide coverage to the entire population at an affordable premium. To this effect, regulatory requirements imposed various restrictions on premiums for private LTCI leading to deficits in the insurers' premium income. These deficits are offset by a redistribution amount included in the premium calculation, which is paid as an absolute surcharge by all insurees who are not subject to respective limitations. In this way, actuarial principles are not abandoned but adapted, ensuring that regulatory objectives can be implemented without undermining the financial viability of the system.

Building on this institutional design, our second research question examined how capital funding can coexist with redistributive elements within a competitive insurance market and how effective this approach is in ensuring the systems sustainability. A key finding is that redistribution must be organised collectively across insurers. A compensation system that only redistributes among the insurees of one insurer would lead to distortions of competition, as the need for redistribution varies depending on the respective insurer's risk structure. The implementation of a uniform surcharge combined with risk adjustment mechanisms ensures a level playing field while preserving risk-based calculation. From a theoretical perspective, the equivalence principle implies financial sustainability by construction. The challenge in implementing such an approach in practice lies in making accurate assumptions and keeping up with temporal changes. Consequently, insurers must regularly perform actuarial reviews and stress tests to ensure that calculations align with actual experience. If systematic deviations occur, premium adjustments or reserve reallocation may become necessary. As such, the equivalence principle and therefore sustainability has a static character which applies strictly only at the time of each (re)calculation.

Turning to our third research question, we assessed the extent to which ageing provisions provide a robust response to demographic change compared to pay-as-you-go financing. Prefunding future expenditure does not systematically involve redistribution along age groups. Therefore, it is robust with respect to demographic developments. In contrast, pay-as-you-go financing is based precisely on this type of redistribution. During phase two and three of the demographic transition, when birth rates were still clearly above mortality, pay-as-you-go systems benefitted from the growing population. Yet, they were put under stress through the ageing of populations, i.e. a growing number of pensioners and a declining share of the workforce. However, a more nuanced perspective suggests that capital-funded systems remain indirectly affected by demographic developments through macroeconomic channels, such as their impact on savings behaviour, investment returns, and wage growth. From a static perspective, ageing provisions offer a theoretically consistent solution under fixed assumptions. But in a

dynamic setting, they represent a moving target, as future liabilities depend on uncertain developments in longevity, morbidity, and cost dynamics. As a result, intertemporal risk persists even in fully funded systems, and reserves must be continuously reassessed and adjusted. Financial sustainability in this context depends on the adequacy of accumulated reserves relative to evolving liabilities and therefore requires ongoing recalibration rather than one-off optimisation.

During the past three decades, private compulsory LTCI has demonstrated that capital funding and redistribution can be successfully combined within a single institutional framework. At the same time, it has accumulated substantial reserves that contribute to mitigating the financial pressures associated with demographic ageing. This dual structure – linking intergenerational smoothing with intragenerational solidarity – has often been highlighted as a key institutional strength of the system. However, the institutional landscape remains a subject of political reform discussions. There have been recurring proposals to transform the existing two-tier system into a unified insurance scheme or to introduce some form of risk equalization between private and social LTCI. Proponents of integration argue that a more unified system could enhance equity and reduce segmentation between risk pools. Critics, in contrast, emphasize the potential loss of capital-funded reserves and the risk of shifting towards a predominantly pay-as-you-go system, thereby increasing the burden on future generations. Looking ahead, the sustainability of private compulsory LTCI will depend on its ability to adapt to evolving demographic and economic conditions. The rise of life expectancy, the increase in intensity of care, and persistent labour shortages in the care sector are likely to put upward pressure on expenditures. Ultimately, the German model illustrates that capital funding can enhance resilience to demographic change, but maintaining the balance between financial sustainability and adequate benefit provision remains a central challenge.

## **Declaration of competing interests**

**Lewe Bahnsen** is employed and paid by the Association of German Private Health Insurers. The WIP is a division of the Association without its own legal personality but operates independently. All views expressed in this article are those of the author and do not necessarily represent the positions of the Association of German Private Health Insurers.

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