# Financing Pressure, Demographic Change, and the Public–Private Mix in Five Health Systems Across Continents: A Comparative Secondary Policy Analysis

## Structured Abstract

Background: Health systems may expand in nominal expenditure while still remaining under structural pressure when financing arrangements, demographic change, and the balance between public and private provision do not evolve at the same pace.

Objective: To compare how five health systems across five continents—Canada, Brazil, Japan, Germany, and South Africa—express financing pressure through expenditure trends, financing composition, demographic intensity, and capacity-related strain.

Methods: This study used a comparative secondary policy-analysis design based on official country profiles, national policy documents, and international datasets from the OECD, PAHO, World Bank Data, and South African government sources. The analysis examined expenditure level, spending as a share of GDP, the public–private financing mix, demographic pressure, and evidence of service-capacity strain. Because the latest official indicators are not synchronised to a single year across all countries, the article uses the most recent comparable official data available for each case and states this limitation explicitly (OECD, 2025; Pan American Health Organization, 2024; World Bank, 2026a, 2026b, 2026c, 2026d, 2026e).

Results: The five cases show that financing pressure is not a single phenomenon. In Canada, high spending coexists with access bottlenecks; in Brazil, universal entitlement coexists with a comparatively constrained public core and a meaningful household-payment burden; in Japan, a strong public financing model faces exceptional ageing pressure; in Germany, the central issue is long-term sustainability within a generous insurance system; and in South Africa, the most important structural challenge is a deeply segmented public–private mix.

Conclusion: Across continents, rising expenditure or formal coverage alone does not settle the question of adequacy. The comparative finding of this article is that health systems face different combinations of financing pressure, demographic change, and organisational strain, and that these combinations must be analysed in relation to each system's institutional design rather than through a single universal metric.

**Keywords:** health financing; public–private mix; universal coverage; demographic ageing; health system capacity; comparative policy analysis

## 1. Introduction

Comparative writing on health systems often falls into one of two traps. The first is to celebrate formal coverage arrangements without examining whether these arrangements remain adequately financed over time. The second is to treat expenditure growth itself as evidence of policy success, even when that growth is largely absorbed by inflation, demography, technology, or persistent structural inefficiencies. A more demanding comparative question asks whether health systems are able to convert expenditure into durable public capacity, equitable access, and sustainable organisational performance.

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The present article takes that second path. It adapts the analytical logic of a financing-focused manuscript originally developed for Israel and applies it to five country cases distributed across continents: Canada, Brazil, Japan, Germany, and South Africa. These cases were chosen not because they share a single institutional model, but because each provides a distinct expression of the same policy problem. All have formal national health policy frameworks that aim at broad population coverage or universal health coverage. Yet the relationship between public financing, private contribution, demographic pressure, and service capacity differs markedly across them.

The central argument is that financing pressure should be understood as a family of structural tensions rather than as a single measurable condition. In one system, pressure may appear as long waits and unmet needs despite high spending. In another, it may appear as persistent household payment, underfunded public provision, or a public–private divide that reproduces unequal access. Elsewhere, the dominant pressure may come from ageing and workforce demand rather than from exclusion per se. A five-country cross-continental comparison makes those distinctions visible.

The article therefore asks a focused question: what do the most recent official indicators suggest about financing pressure, demographic change, and the public–private mix in five selected health systems, and what comparative lessons follow from these patterns?

## 2. Analytical Framework and Methods

This study used a descriptive and interpretive secondary policy-analysis design. It did not attempt econometric causal identification and did not use patient-level or administrative microdata. Its aim was narrower and more policy-oriented: to test whether the latest official evidence from each selected country is consistent with a financing-pressure interpretation, and to show how the form of that pressure differs across systems.

Five analytical dimensions were used. First, expenditure level or expenditure growth, because nominal spending remains an important but insufficient signal of system effort. Second, health expenditure as a share of gross domestic product, because this places spending within a macroeconomic frame. Third, the public–private financing mix, including either mandatory prepayment coverage, government expenditure share, or household out-of-pocket burden, depending on the structure of the source data. Fourth, demographic pressure, captured primarily through recent age-structure indicators. Fifth, capital and service-capacity strain, interpreted through official evidence on unmet needs, waiting times, public-sector load, or other capacity markers reported by authoritative sources.

The five cases were selected purposively. Canada represents a high-income universal system with comparatively high spending but visible access bottlenecks. Brazil represents a constitutional universal system in a middle-income setting where the public core coexists with substantial private and household financing. Japan represents a strong universal social-insurance system under intense ageing pressure. Germany represents a mature high-spending social health insurance system where sustainability questions arise within broad coverage. South Africa represents a deeply segmented system in transition toward National Health Insurance, making it a critical African case for analysing the relationship between public dependency, private coverage, and uneven service capacity.

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80 The empirical base was drawn from official sources rather than secondary commentary
81 wherever possible. OECD Health at a Glance 2025 country notes were used for Canada, Japan, and
82 Germany. PAHO's Health in the Americas country profile was used for Brazil. World Bank Data
83 indicator pages drawing on internationally harmonised health-expenditure and demographic series
84 were used to supplement Brazil and to structure the South Africa case. South African government
85 sources were used to capture the policy logic of National Health Insurance and the persistence of a
86 dual-system structure. Because the latest comparable official indicators are not aligned to a single
87 year across countries, the article uses the latest available official values and states this limitation
88 explicitly rather than imposing false precision (OECD, 2025; Pan American Health Organization,
89 2024; Republic of South Africa, Department of Health, 2023, 2024; The Presidency, Republic of
90 South Africa, 2024; World Bank, 2026a, 2026b, 2026c, 2026d, 2026e).

91 No human participants were recruited and no identifiable personal data were used. Ethical
92 approval was therefore not required.

93 To strengthen the article's empirical presentation, the comparative overview now includes three descriptive
94 figures and two supplementary tables. These exhibits harmonise the core indicators used in the manuscript—
95 health expenditure as a share of GDP, older-population scale, and country-specific financing signals—while
96 explicitly noting that the reference years are the latest or latest available official values rather than a single
97 synchronised panel year.

## 98 3. Comparative Overview

| Country | Continent | Architecture | Spending | Financing signal | Demography | Core tension |
|---|---|---|---|---|---|---|
| Canada | North America | Universal core coverage | 11.3% GDP | 70% mandatory prepayment | 8.17M aged 65+ (2024) | Access bottlenecks despite high spending |
| Brazil | South America | SUS universal system + private coexistence | 4.5% public-health GDP (2021); 9.73% CHE/GDP (2023) | OOP 22.65% of total health spending (2021) | 23.42M aged 65+ (2024) | Universalism with a constrained public core |
| Japan | Asia | Universal social insurance | 10.6% GDP | 85% mandatory prepayment | 36.92M aged 65+; ~30% of population | Strong protection under extreme ageing pressure |
| Germany | Europe | Universal insurance with strong social-insurance core | 12.3% GDP | 86% mandatory prepayment | 19.37M aged 65+; ~23% of population | Sustainability and cost-containment pressure |
| South Africa | Africa | Dual public–private system; NHI transition | 8.91% GDP (2023) | Govt share 61.61%; OOP 6.69%; ~84% use public facilities | 4.28M aged 65+; ~7% of population | Parallel systems and uneven capacity |

99 ***Table 1. Harmonised comparative indicators used in the five-case comparison.***

100 Table 1 presents the harmonised comparative snapshot used throughout the country cases. Figures 1–3 then
101 visualise the two most comparable quantitative dimensions in the article: health expenditure as a share of GDP
102 and the demographic scale of the population aged 65 years and older. Because the underlying official series are
103 not fully synchronised across countries, the exhibits are descriptive rather than econometric and should be read as
104 structured comparative evidence.

105 ***Figure 1. Current health expenditure as a share of GDP in the five study countries.***

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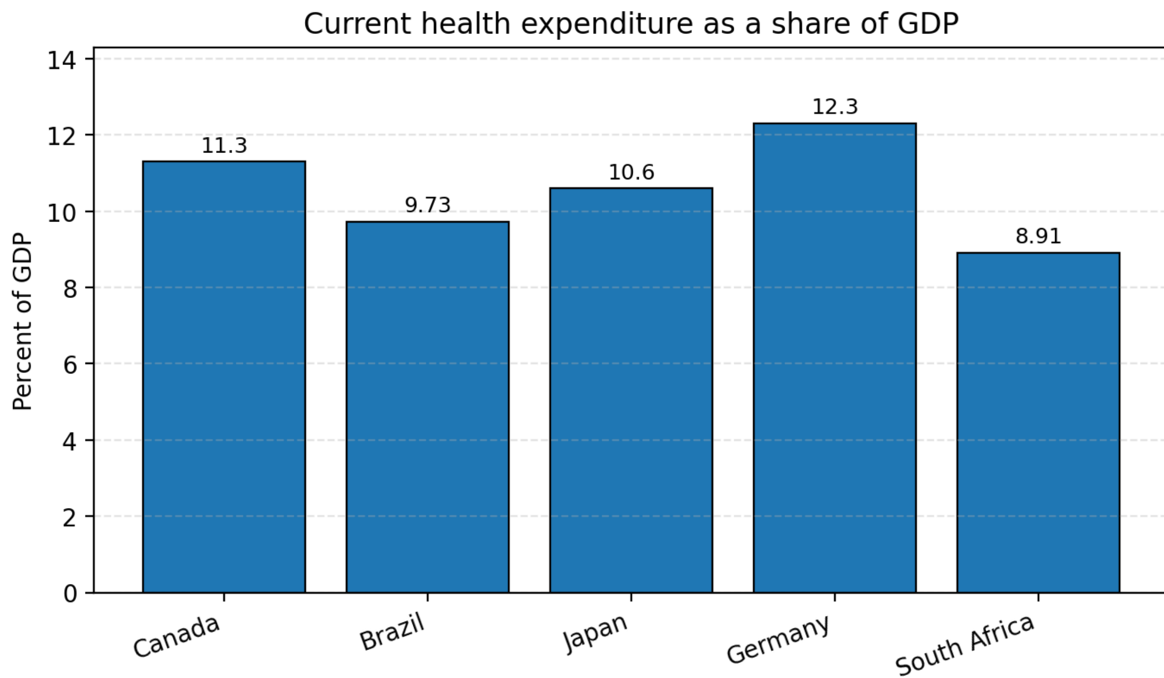
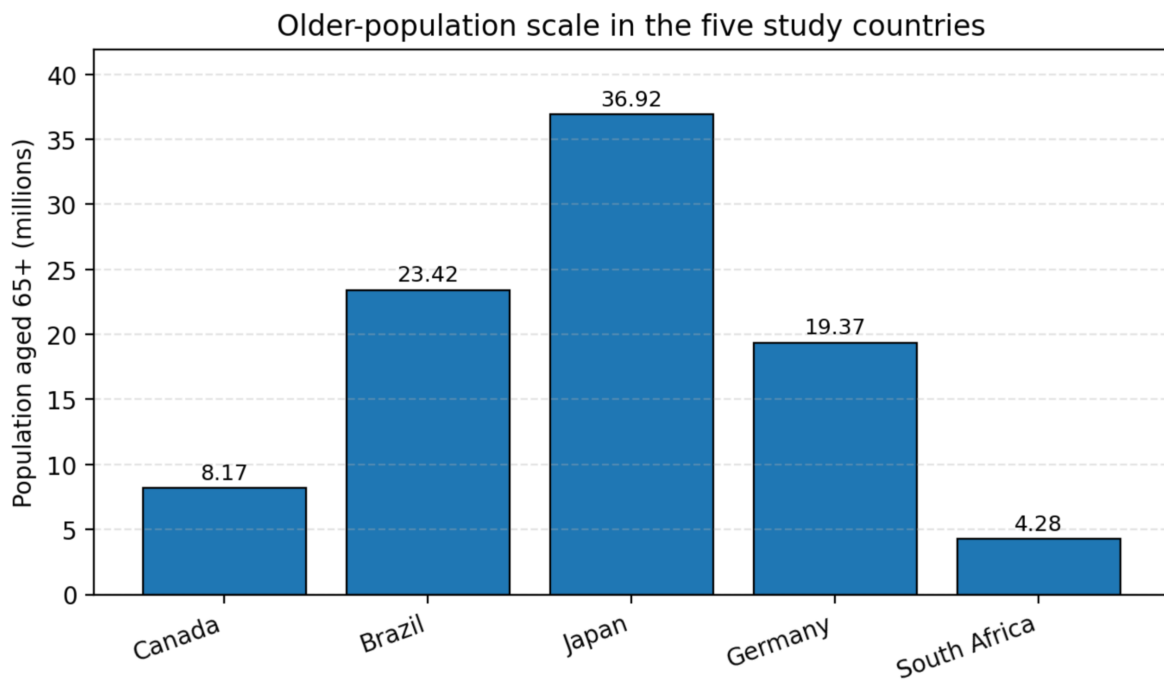



106

107 Sources: OECD Health at a Glance 2025 country notes for Canada, Japan and Germany; World Bank Global Health Expenditure
108 Database for Brazil and South Africa. Note: values refer to the latest or latest available year used in the manuscript.

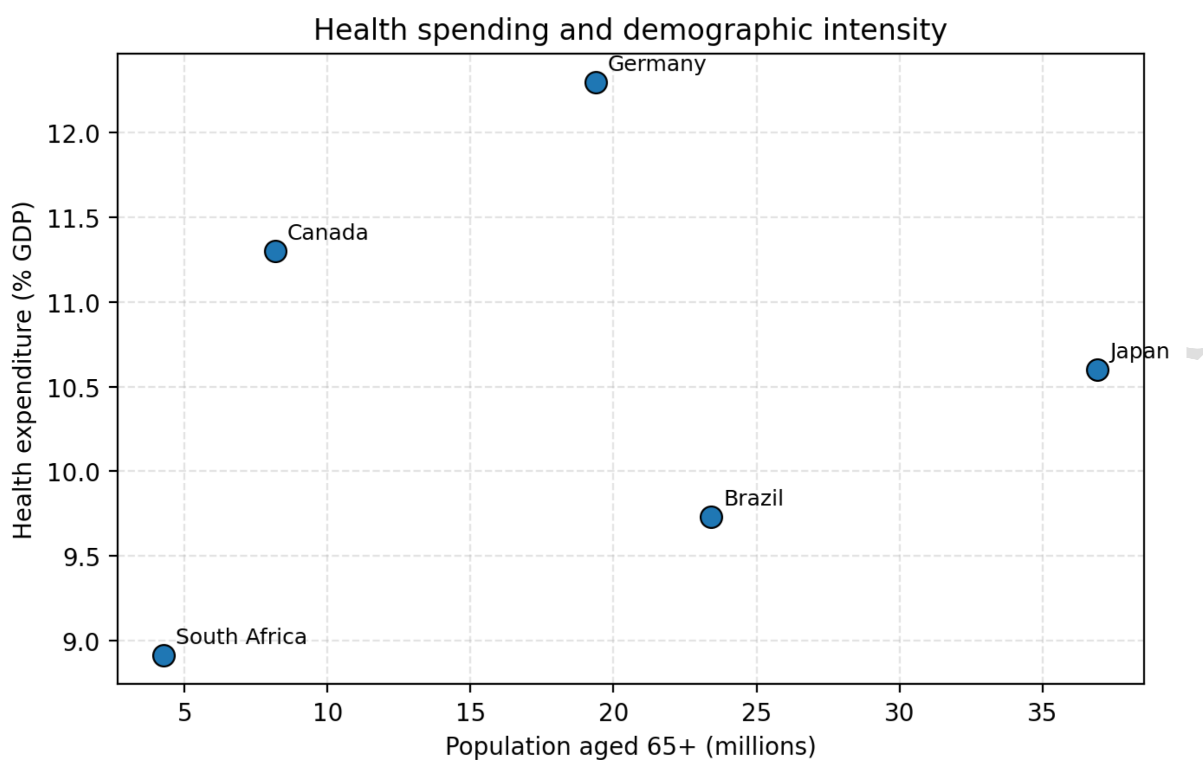
109 ***Figure 2. Population aged 65 years and older in the five study countries (millions).***




110

111 Source: World Bank population series cited in the manuscript. Note: the figure is intended to show demographic scale rather than age
112 composition alone.

113 ***Figure 3. Health spending and demographic intensity: descriptive scatter of expenditure and older-population scale.***




114

115 Sources: same as Figures 1 and 2. Note: the visual is descriptive and does not imply causal inference; it is included to show the
116 markedly different combinations of spending effort and ageing burden across the five cases.

117 ***Table 2. Comparative pressure profile and management implications.***

| Country | Dominant financing pressure | Illustrative quantitative signal | Management implication |
|---|---|---|---|
| Canada | Capacity bottlenecks despite high spending | 11.3% of GDP spent on health; older population >8 million | Managerial priority is conversion of expenditure into timely access, workforce capacity and throughput. |
| Brazil | Universal entitlement with a constrained public core | Public health expenditure 4.5% of GDP (2021); OOP 22.65% of total expenditure | Priority is strengthening budget commitment and reducing household exposure within a universal system. |
| Japan | Strong protection under extreme ageing pressure | 10.6% of GDP spent on health; about 36.92 million aged 65+ | Priority is long-term care, workforce adaptation and service redesign for an exceptionally aged society. |
| Germany | Sustainability pressure within a generous insurance model | 12.3% of GDP spent on health; about 19.37 million aged 65+ | Priority is cost containment and productivity improvement without weakening a strong social-insurance core. |
| South Africa | Parallel-system inequality and uneven capacity | 8.91% of GDP spent on health; govt share 61.61%; OOP 6.69% | Priority is pooling reform, public-sector strengthening and reduction of structural dualism. |

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# 4. Country Cases

## 4.1 Canada: High spending, universal coverage, and persistent access bottlenecks

Canada is frequently treated as a paradigmatic tax-funded universal system, and in formal coverage terms that description remains broadly correct. OECD reports that the entire population is covered for a core set of services. Canada also spends heavily by international standards: health expenditure reached 11.3% of GDP, and spending per capita remained above the OECD average. These figures might suggest a comfortably financed system. Yet that is not the whole story (OECD, 2025).

The key financing signal in Canada is not only the level of spending but the way spending translates into access. OECD reports that 70% of spending is covered by mandatory prepayment, below the OECD average, and that 9.1% of people expressed unmet healthcare needs, compared with an OECD average of 3.4%. This gap matters analytically because it indicates that a high-spending universal system may still display operational strain. In other words, financing pressure in Canada is not best described as legal undercoverage. It is better understood as an access and capacity problem within a system that is publicly legitimate but organisationally stretched (OECD, 2025).

Demographic pressure intensifies that interpretation. According to the World Bank population series, more than 8.17 million Canadians were aged 65 years and older in 2024. This ageing trend increases demand for chronic disease management, long-term care, and workforce-intensive services. The Canadian case therefore demonstrates that high aggregate expenditure does not automatically eliminate bottlenecks. A system may spend a large share of GDP on health and still face persistent challenges in converting resources into timely access and broadly satisfactory service availability (World Bank, 2026e).

The comparative lesson from Canada is that financing adequacy cannot be judged by macro spending alone. It must also be evaluated by the system's ability to prevent queues, unmet need, and capacity mismatches in the face of demographic change.

## 4.2 Brazil: Universal entitlement with a constrained public core

Brazil's Unified Health System (Sistema Único de Saúde, SUS) is one of the most important constitutional universal-health arrangements in the Global South. It provides an especially valuable case for a financing-pressure analysis because it combines strong normative commitment with longstanding questions about the fiscal strength of the public core. PAHO reports that public expenditure on health in Brazil accounted for 4.5% of GDP in 2021, while out-of-pocket spending represented 22.65% of total health expenditure. World Bank expenditure data also place current health expenditure in Brazil at 9.73% of GDP in 2023, confirming that the country is not a low-spending case in aggregate terms (Pan American Health Organization, 2024; World Bank, 2026a, 2026c).

The important analytical point is that total expenditure does not settle the adequacy question. Brazil's financing profile suggests that a universal system can exist alongside a meaningful

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157 household burden and a constrained public core. In such a setting, financing pressure is expressed
158 less through the absence of entitlement than through the risk that formal rights outpace the fiscal
159 and organisational capacity needed to maintain them over time.

160 Demographic change adds a further layer. According to the World Bank population series,
161 Brazil had approximately 23.42 million people aged 65 years and older in 2024. That is a
162 substantial older population in a country already managing regional inequality, epidemiological
163 diversity, and the need for broad territorial provision. The Brazilian case therefore shows how
164 financing pressure can take the form of relative public insufficiency rather than formal exclusion. In
165 such settings, the most relevant policy question is not whether universalism exists in law, but
166 whether the public budget grows at a pace sufficient to maintain real service depth, territorial reach,
167 and financial protection (World Bank, 2026e).

168 Brazil contributes a particularly important comparative insight: universal systems in middle-
169 income settings may be undermined not by the absence of entitlement but by the cumulative
170 consequences of constrained public financing relative to ambition.

### 171 4.3 Japan: Strong public financing under extreme ageing pressure

172 Japan is often cited as a high-performing universal system, and the latest OECD profile
173 reinforces that view. OECD reports that all residents are covered for a core set of services and that
174 85% of spending is financed through mandatory prepayment, higher than the OECD average. Total
175 health expenditure reached 10.6% of GDP. On a narrow financing reading, Japan therefore appears
176 stronger than many other systems in this comparison (OECD, 2025).

177 Yet the Japanese case illustrates a different form of structural pressure. The dominant challenge
178 is not a weak financing architecture or a large household-payment burden. It is the extraordinary
179 demographic intensity with which a comparatively strong public financing model must now
180 contend. According to the World Bank population series, Japan had about 36.92 million people
181 aged 65 years and older in 2024, and roughly 30% of the population fell into that age group. In
182 comparative perspective, that is an extreme ageing profile. It has implications not only for
183 expenditure but also for workforce composition, long-term care demand, multimorbidity, and the
184 organisational balance between hospital and community care (OECD, 2025; World Bank, 2026d,
185 2026e).

186 This matters because ageing changes the meaning of adequacy. A system can remain broadly
187 universal, well financed, and publicly legitimate while still experiencing increasing pressure to
188 reallocate resources, redesign care pathways, and expand labour-intensive services. The Japanese
189 case therefore supports a comparative distinction between financing weakness and demographic
190 intensity: the former concerns the strength of the funding architecture, whereas the latter concerns
191 the scale of need pressing upon it.

192 Japan therefore shows that financing pressure does not always arise from privatisation or
193 undercoverage. It may instead emerge from the demographic transformation of a system that
194 remains strong in formal financial protection but must adapt rapidly to the age structure of the
195 society it serves.

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## 4.4 Germany: A generous insurance model facing sustainability and cost-containment pressures

Germany represents the European case in this comparison because it combines universal core coverage, strong social-insurance traditions, and high overall spending. OECD reports that all residents are covered for a core set of services, that 86% of expenditure is financed through mandatory prepayment, and that health expenditure reached 12.3% of GDP. Compared with many health systems, Germany's financing profile points to a robust public or quasi-public core and comparatively strong financial protection (OECD, 2025).

For that reason, Germany is analytically important precisely because its main challenge is not obvious exclusion. The relevant pressure is sustainability within abundance: how to maintain a generous, high-resource system while controlling cost growth, preserving workforce capacity, and managing population ageing. World Bank demographic data indicate that around 19.37 million people in Germany were aged 65 years and older in 2024, and that older people accounted for about 23% of the total population. This places Germany firmly among Europe's aged societies (OECD, 2024, 2025; World Bank, 2026d, 2026e).

The German case therefore helps clarify a comparative distinction that can be lost in less precise discussions. Health systems do not all face the same kind of financing problem. In Germany, the question is less whether a public core exists than how it can remain fiscally and organisationally sustainable as costs, expectations, and age-related service demand continue to rise.

Germany's lesson is that a high-spending health system may still face financing pressure, but the pressure is expressed as sustainability, contribution burden, and cost control rather than as overt segmentation or large unmet need among the general population.

## 4.5 South Africa: Dualism, uneven capacity, and the politics of integration

South Africa is the most institutionally distinct case in this comparison and the most important African case for demonstrating how public–private segmentation can become the central expression of financing pressure. The country is formally moving toward National Health Insurance, and official government materials present NHI as the route to universal health coverage and stronger financial risk protection. Yet the current system remains sharply divided between a heavily used public sector and a relatively privileged medical-schemes sector.

Recent official South African sources describe this divide clearly. The Presidency stated in 2024 that about 84% of the population uses public health facilities while 16% are covered by medical schemes. A 2023 national guideline on patient waiting times likewise notes that demand for services in many establishments exceeds available capacity. At the same time, World Bank health-expenditure indicators show that current health expenditure in South Africa reached 8.91% of GDP in 2023, with domestic general government health expenditure accounting for 61.61% of current health expenditure and out-of-pocket spending accounting for 6.69% (Republic of South Africa, Department of Health, 2023; The Presidency, Republic of South Africa, 2024; World Bank, 2026a, 2026b, 2026c).

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This combination is revealing. South Africa is not primarily a case of high out-of-pocket spending in the conventional sense. Nor is it simply a low-spending case. Its core tension is that substantial aggregate spending coexists with a deeply unequal institutional distribution of access, personnel, and infrastructure between the public and private sectors. In policy terms, the challenge is not only to spend more, but to integrate financing and purchasing arrangements in ways that reduce structural dualism.

Demographically, South Africa is younger than the other cases, with about 4.28 million people aged 65 years and older in 2024 and only around 7% of the population in that age group. That younger age structure does not eliminate financing pressure; rather, it means that the country's central problem is segmentation and uneven capacity rather than advanced population ageing. The South African case therefore broadens the article's central claim: financing pressure may arise not only where resources are thin, but also where they are distributed through a highly unequal institutional architecture (Republic of South Africa, Department of Health, 2024; World Bank, 2026d, 2026e).

## 5. Cross-Case Discussion

Viewed together, the five cases support three comparative propositions. First, expenditure level alone does not determine adequacy. Canada and Germany both spend a large share of GDP on health, yet their main pressures differ: Canada's problem is access and capacity translation, whereas Germany's is long-term sustainability within a generous insurance model (OECD, 2024, 2025).

Second, the public–private mix matters even when formal entitlement is broad. Brazil demonstrates how universalism may remain exposed when household and private financing continue to play a strong role. South Africa demonstrates an even deeper version of the same problem: the coexistence of aggregate spending and marked inequality of access produced by institutional segmentation between public and private sectors (Pan American Health Organization, 2024; Republic of South Africa, Department of Health, 2023, 2024; The Presidency, Republic of South Africa, 2024; World Bank, 2026a, 2026b, 2026c).

Third, demographic pressure changes the meaning of financing adequacy. Japan and Germany show that ageing can become the dominant organising fact of health-system strategy. Canada illustrates a milder but still important version of that dynamic. In these cases, financing pressure is expressed not only through budget shares, but also through workforce requirements, care redesign, and the difficulty of maintaining service capacity as the need for long-term and chronic care intensifies (OECD, 2024, 2025; World Bank, 2026d, 2026e).

These patterns suggest that the phrase financing pressure should be used with greater analytical precision. In Canada it means difficulty translating spending into timely access. In Brazil it means a universal system with a relatively constrained public core. In Japan it means a strong financing model under exceptional ageing pressure. In Germany it means sustainability pressures within a high-resource system. In South Africa it means the coexistence of aggregate spending with structurally unequal institutional capacity.

From a policy perspective, reform tools must be matched to problem type. Systems with strong spending but weak access may need capacity expansion, workforce planning, and governance

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274 reform. Systems with universal entitlement but heavier private burdens may need stronger public
275 financing and better financial protection. Systems with pronounced demographic ageing may need
276 long-horizon workforce and care-delivery redesign. Systems with structural public–private dualism
277 may need purchasing reform, integration, and stronger public service capacity. These are not
278 interchangeable policy tasks, and comparative analysis is useful precisely because it keeps those
279 distinctions visible.

280 ## 6. Conclusion

281 This article has argued that financing pressure in health systems is best understood
282 comparatively and structurally. The five cases examined here do not converge on a single diagnosis.
283 Instead, they show that expenditure growth, public financing share, demographic change, and
284 organisational capacity interact in different ways across institutional settings.

285 The broader lesson is that health policy analysis should move beyond the binary distinction
286 between universal and non-universal systems. What matters just as much is whether the financing
287 architecture keeps pace with the care needs generated by population ageing, epidemiological
288 change, and rising service expectations, and whether resources are translated into accessible and
289 timely care.

290 The comparative contribution of this manuscript lies in showing that the same analytical
291 framework—expenditure, macro effort, financing mix, demographic pressure, and capacity strain—
292 can illuminate five very different systems without collapsing their differences into a single ranking.
293 For comparative health-policy scholarship, that is important because it shifts the question from who
294 spends more to how different forms of pressure emerge inside differently organised systems.

295 ## Appendix A. Operationalisation of the comparative indicators

296 The table below makes explicit how each country contributes to the comparative design. It is included to reinforce
297 methodological transparency and to show that the article's narrative claims are anchored in recurring observable
298 indicators rather than in free-standing policy description.

299 ***Table A1. Indicator architecture, reference years, and source families.***

| Country | Spending indicator | Financing indicator | Demography indicator | Primary source family |
|---|---|---|---|---|
| Canada | Current health expenditure % GDP (latest OECD year used in article) | Mandatory prepayment share of health spending | Population aged 65+ total (2024) | OECD; World Bank |
| Brazil | Current health expenditure % GDP (2023) plus public expenditure context (2021) | Out-of-pocket share of total health expenditure (2021) | Population aged 65+ total (2024) | PAHO; World Bank |
| Japan | Current health expenditure % GDP (latest OECD year used in article) | Mandatory prepayment share of health spending | Population aged 65+ total and share of population (2024) | OECD; World Bank |
| Germany | Current health expenditure % GDP | Mandatory prepayment share of health spending | Population aged 65+ total and share of | OECD; World Bank |

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| | (latest OECD year used in article) | | population (2024) | |
|---|---|---|---|---|
| South Africa | Current health expenditure % GDP (2023) | Government share and out-of-pocket share of health spending (2023) | Population aged 65+ total and share of population (2024) | World Bank; South African government sources |

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