TECHNICAL ASSISTANCE REPORT

COSTA RICA
Universal Basic Pension: Objectives and Constraints

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Prepared By

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Authoring Departments

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Acronyms

ACOR	Asociación Costarricense de Operadores de Pensiones
CCSS	Caja Costarricense de Seguro Social
CGR	Contraloría General de la República
CONASSIF	Consejo Nacional de Supervisión del Sistema Financiero
CRC	Costa Rican Colones
FODESAF	Fondo de Desarrollo Social y Asignaciones Familiares
FPJ	Fondo de Jubilaciones y Pensiones del Poder Judicial
GDP	Gross Domestic Product
IMAS	Instituto Mixto de Ayuda Social
INEC	Instituto Nacional de Estadísticas y Censos de Costa Rica
IVM	Invalidez, Vejez y Muerte
JUPEMA	Junta de Pensiones del Magisterio Nacional
MOF	Ministry of Finance
MOLSS	Ministry of Labor and Social Security
PBU	Pensión Básica Universal
RCC	Régimen de Capitalización Colectiva
RTR	Régimen Transitorio de Reparto
SINIRUBE	Sistema de Integración de Base de Datos
SUPEN	Superintendecia de Pensiones

Preface

At the request of the Ministry of Finance, a mission from the International Monetary Fund comprising Csaba Feher (FAD, mission head), Julieth Pico Mejia (FAD), and Christoph Freudenberg (expert) visited San Jose between May 17 and 31, 2023. Ivania Garcia Cascante (WHD) joined the team from the IMF's local office. The purpose of the mission was to assess the recent proposal to a universal basic pension and to estimate its fiscal and welfare impact on the budget, on pension scheme, and on old age income poverty. In the course of the mission, the team met with the following officials:

Ministry of Finance: Norman Pérez Castro, Porfirio Rojas Fajardo, Evelyn Gabriela Robles Guzmán, Antonieta Salas Araya,

Ministry of Labor and Social Security: Hazel Fallas Murcia, Mauricio Corrales Alvarado, Luis Alberto Avalos Rodríguez, Héctor Acosta Jirón

Caja Costarricense de Seguro Social: Claudio Arturo Arce Ramírez, Ubaldo Carrillo Cubill, Luis Diego Calderón Villalobos, Carolina González Gaitán, Evelyn Rocío Guzmán Solano, Jaime Barrantes Espinoza, Olger Mauricio Pérez, Pérez, Ubaldo Carrillo Cubillo, Allan Josué Quesada Soto,

Fondo de Jubilaciones y Pensiones del Poder Judicial: Oscar Cortes Naranjo, Oslean Mora Valdez, José Andrés Lizano Vargas

Junta de Pensiones del Magisterio Nacional: Seidy Álvarez Bolaños, Errol Pereira Torres, José Antonio Segura Meoño, Carlos Arias, Gilberth Díaz, Sonia Hernández Sánchez, Gilda Montero Sánchez, Harold Chavaría Vásquez

Superintendencia de Pensiones: Rocío Aguilar Montoya, Adrián Pacheco Umaña, Guillermo Matamoros Carvajal, Nelly Vargas Hernández, Mauricio Soto Rodríguez, Rafael Chavarría Delvó,

Instituto Mixto de Ayuda Social: Jafeth Soto Sánchez, Lucía Astorga Gomez, Paola Guiselle Barquero Araya,

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Sistema de Integración de Bases de Datos: Oscar Weathley Williamson, Natalia Rojas Canales, Marlon Cruz Villalobos

Asociación Costarricense de Operadores de Pensiones: Danilo Ugalde Vargas

Instituto Nacional de Estadísticas y Censos de Costa Rica: Olga Martha Araya Umaña, Eddy Madrigal Méndez, Braulio Villegas González

Banco Popular: Bernal Loría Arce, Reinaldo Soto Arias

Vida Plena: Porfirio Rojas Fajardo, Alejandro Solórzano Mena

Universidad de Costa Rica: Edgar Robles Cordero

Executive Summary

Costa Rica is entering a demographic transition which will see the old age dependency ratios significantly worsen in the coming 20 years. Public pension spending and other government spending determined by demographics – including health care – will exert growing pressure on public finances. The working age population – contracting both as share of the total population and in terms of its number – will only be able to keep the economy growing if labor productivity compensates for demographic changes.

The basic indicators of the labor market and pension system are favorable in regional comparison. The labor force participation rate and employment formality are relatively high at 60 and 72 percent, respectively. Public pension schemes operate with reserves and both the pension system's structure and its operating parameters are largely in line with best practice.

While pension eligibility is far from universal, elderly poverty is low. Among the elderly, 27 percent fall below the poverty line, with 47 percent of them not receiving any form of pension (whether social or contributory), while this percentage rises to 71 percent among the non-poor elderly. the pension coverage gap and old age poverty are different problems, demanding different solutions.

The long-term financial sustainability of the general social security pension scheme (IVM) is a concern. As a result of various reforms over the past three decades IVM's financial sustainability has tangibly improved. However, despite these efforts, the scheme's reserves will be exhausted by the mid-2030s. Beyond this point, the scheme will become fully pay-as-you-go financed, requiring continuous budget subsidies or parametric changes.

The proposal intends to address the above problems (financial sustainability, adequate coverage, distributional equity) through the introduction of a universal basic pension (Pensión Básica Universal – PBU). PBU would be a fully funded (pre-funded) flat benefit conditioned on age and residence. The proposal's very gradual introduction is driven by the government's intention to make PBU fully funded and to build up sufficient reserves before the program's full roll-out.

The proposed PBU, in its current form, is unlikely to fully meet its stated objectives. The proposal will worsen social security pension scheme's (Invalidez, Vejez y Muerte – IVM) financial sustainability and create additional financing needs. This will translate into an accelerated exhaustion of IVM reserves and, after the reserves are depleted, require significant adjustments to IVM parameters or higher government transfers. The latter will imply public expenditure cuts in areas other than pensions, higher taxes or additional public debt. Furthermore, the proposal will only address old age poverty and, due to PBU's universality, at the cost of transfers to upper income deciles which will be even higher than today.

Old age income security may be more effectively addressed, with less pronounced fiscal side-effects, through improving coverage and compliance in IVM and expanding the reach of the social pension scheme. The pension coverage gap is, to a large extent, driven by eligibility rules, the insufficient financing of the social pension, and ineffective revenue administration practices. Options to

close the coverage gap include improving revenue administration by leveraging the excellent information technology and public administration infrastructure, revising to social pension eligibility rules, and properly adjusting social transfer programs' budget allocations to social policy objectives, so that eligible applicants (including elderly people without a contributory pension) do not end up on waiting lists.

Recommendations

Summary of the Mission's Main Recommendations

The mission recommends addressing coverage and old age income poverty. The primary instruments of achieving these goals are: (a) amending the rules undermining compliance with registration and wage reporting regulations in the contributory schemes, (b) improving coordination and enforcement efforts between the tax authority and the Caja, (c) amending the regulations governing eligibility for noncontributory social pensions and (d) ensuring the noncontributory social pension is adequately financed.

To close the coverage gap, instead of a universal basic pension, consider measures aiming to expand coverage in the existing schemes: IVM, the social pension scheme (Régimen de Pensiones No Contributivas – RNC), and second pillar schemes:

1. **Expand RNC coverage:**

   - Amend RNC rules so that more than one elderly may be eligible for a non-contributory social pension per household.
   - Commit to increasing resource allocations to RNC in order to eliminate the waiting list among people whose eligibility has already been established.

2. **Increase coverage in contributory schemes:**

   - Improve information exchange between the tax department and the Caja Costarricense de Seguro Social (CCSS). Consider collecting wage and income tax returns from all employees and self-employed persons, irrespective of income levels and introduce regular reconciliation of tax and contribution records.
   - Make 2nd pillar participation mandatory for the self-employed or, at a minimum, consider auto-enrollment.
   - Reduce further the retroactive payment of self-employed people registering with the CCSS later than with the tax department.

3. **Improve the pension system's equity:**

   - Revise the minimum contribution history (vesting period) in IVM but keep it as a condition for eligibility for a contributory minimum pension. The current system acts against compliance among workers with precarious employment prospects and introduces perverse redistribution both within the pension system and between taxpayers inside vs outside the system.
   - Consider gradually eliminating state contributions to first pillar schemes and replacing them with a subsidy equal to the actual annual cost of the minimum contributory pension top-up. Relying more

strongly on employer and employee contributions will reduce the redistribution of income from individuals not benefiting from the pension system to those who do.

4. I**n case the government wishes to go ahead with the PBU proposal, consider:**

- Increasing the eligibility age relative to the normal retirement age for people without a contributory benefit, in exchange for introducing the new scheme faster or at a lower cost. In order to sufficiently differentiate between people with contributory pensions based on low earning, and people with short or no contribution histories, make the PBU eligibility age, e.g., 5 years higher than the applicable IVM retirement age.
- Operating PBU as a tax-financed scheme without pre-funding. Pre-funding future PBU liabilities delays PBU's universal applicability while the reserves is unlikely to create additional resources, compared to tax financing, for financing future obligations.

5. **Clarify the status of the significant contribution arrears owed to CCSS.** The government's commitment to financing PBU (or expanding RNC coverage) is questionable in light of its long-standing arrears to IVM. The arrears also worsen IVM's financial position and accelerate the exhaustion of its reserves.

6. **Consider reallocating policymaking and regulatory powers from CCSS to the Ministry of Labor and Social Security.** The current division of regulatory powers limits government's capacity to pursue its policy objectives and can potentially create controversial legal-constitutional issues.

Long-term Welfare Projections: Baseline, Pbu and IMF Proposals

	Replacement Rates Average Wage Earner - Average Career						Povery headcount (change in p.p.)
Year	2022	2030	2040	2050	2060	2070	2030
BASELINE	*52%*	46%	46%	46%	46%	46%	-
PBU Reform	52%	45%	45%	44%	44%	44%	-4.6
Expanded RNC Coverage	52%	46%	46%	46%	46%	46%	-6.5

Long-term Fiscal Projections: Baseline, PBU and IMF Proposals

Baseline: Current Rules and Policies (percent of GDP)							
	2022	2030	2040	2050	2060	2070	2022-2070
Pension expenditures	**6.0%**	**6.3%**	**6.6%**	**7.3%**	**8.5%**	**9.6%**	**261%**
of which							
IVM	3.3%	3.8%	4.2%	5.0%	6.2%	7.3%	173%
RNC	0.4%	0.4%	0.4%	0.5%	0.5%	0.5%	16%
Pension revenues *	**5.7%**	**5.8%**	**5.3%**	**4.9%**	**4.4%**	**4.2%**	**120%**
of which							
IVM employer and employee contributions	2.4%	2.6%	2.6%	2.6%	2.6%	2.6%	95%
Government Financing	2.6%	2.5%	2.1%	1.6%	1.2%	1.0%	70%
of which							
State contributions	*0.5%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*21%*
RNC	*0.4%*	*0.4%*	*0.4%*	*0.4%*	*0.4%*	*0.4%*	*13%*
Treasury pensions	*1.7%*	*1.5%*	*1.1%*	*0.6%*	*0.2%*	*0.0%*	*35%*

Memorandum items
IVM reserves depleted: 2034

PBU Proposal (change relative to the baseline, in percent of GDP)							
	2022	2030	2040	2050	2060	2070	2022-2070
Pension expenditures	**0.0%**	**0.0%**	**0.2%**	**0.4%**	**0.6%**	**0.6%**	**18%**
of which							
PBU	0.0%	0.4%	0.6%	0.8%	1.3%	1.6%	35%
IVM	0.0%	-0.1%	-0.1%	-0.1%	-0.3%	-0.6%	-5%
RNC	0.0%	-0.3%	-0.3%	-0.3%	-0.4%	-0.4%	-11%
Pension revenues *	**0.0%**	**0.2%**	**0.1%**	**0.1%**	**0.1%**	**0.1%**	**5%**
of which							
IVM employer and employee contributions	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0%
Government Financing	0.0%	0.2%	0.1%	0.1%	0.1%	0.1%	5.0%
of which							
PBU	*0.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*30%*
State contributions	*0.0%*	*-0.5%*	*-0.5%*	*-0.6%*	*-0.6%*	*-0.6%*	*-19%*
RNC	*0.0%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*	*-8%*
Treasury pensions	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0%*

Memorandum items
PBU reserves   *0.0%   5.0%   11.3%   17.1%   21.2%   21.1%*
IVM reserves depleted: 2030

IMF Proposal: Expanded RNC Coverage (change relative to the baseline, in percent of GDP)							
	2022	2030	2040	2050	2060	2070	2022-2070
Pension expenditures	**0.0%**	**0.1%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**5%**
of which							
IVM	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0%
RNC	0.0%	0.1%	0.2%	0.2%	0.2%	0.2%	5%
Pension revenues *	**0.0%**	**0.1%**	**0.2%**	**0.2%**	**0.2%**	**0.2%**	**5%**
of which							
IVM employer and employee contributions	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0%
Government Financing	0.0%	0.1%	0.2%	0.2%	0.2%	0.2%	5%
of which							
State contributions	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0%*
RNC	*0.0%*	*0.1%*	*0.2%*	*0.2%*	*0.2%*	*0.2%*	*5%*
Treasury pensions	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0%*

Memorandum items
IVM reserves depleted: 2034

* Pension revenues exclude capital income from reserves. IVM contributions include employer contributions paid by the state for public employees - which added up to 0.1% of GDP in 2022.

I. Introduction

A. Macroeconomic and Fiscal Landscape

1.   After a strong post-pandemic rebound in 2021, Costa Rica's growth has moderated amid global headwinds. Real GDP is expected to grow above 3 percent in 2023 (from 4.3 percent in 2022 and 7.8 in 2021) and 2024. Restrictive monetary stance, the exchange rate appreciation and the moderation of commodity prices have helped to reduce the inflation faster than expected.

2.   The 2018 Law to Strengthen Public Finance (LSPF) has been a major landmark towards debt sustainability. From 2009 to 2021, the Central Government accumulated primary deficits over 2 percent of GDP, as well as a debt increase of more than 40 percent of GDP (Figure 1). In 2018, Costa Rica introduced a fiscal rule limiting central government spending growth, which has played a pivotal role to anchor debt sustainability and keep the fiscal discipline. Since public pension schemes are outside central government, the fiscal rule does not apply to these scheme's financial performance – however, central government transfers to the pension system do.

Figure 1. Selected Fiscal Indicators of Costa Rica
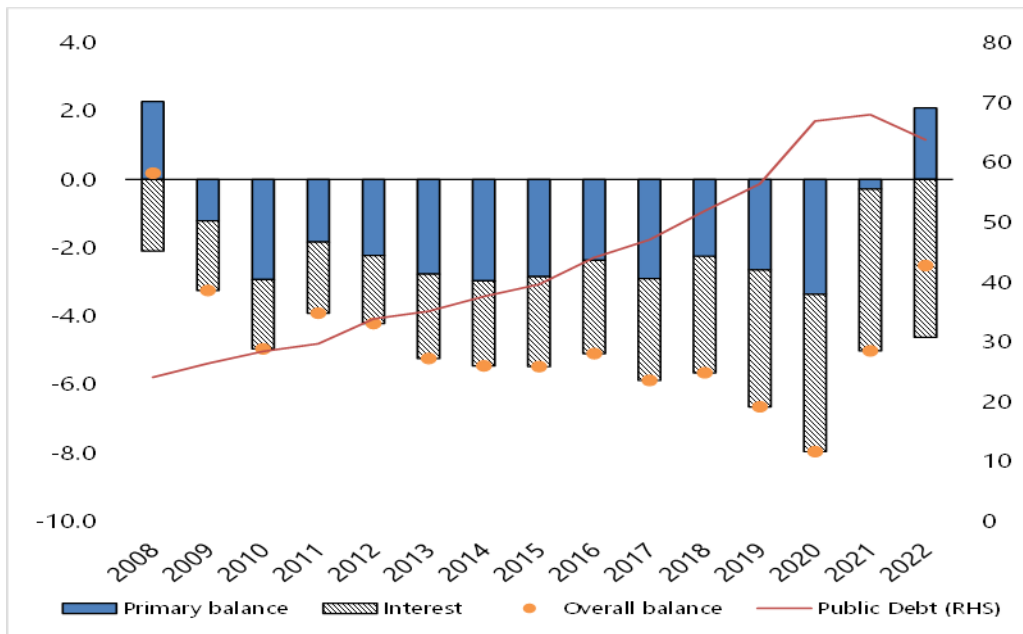
Source: Ministry of Finance.

B.   Demographic Background

3.   Costa Rican society, while still relatively young, is amidst a demographic transition. Whereas the median age of the country was about 32 in 2018, almost 9 years lower than in its OECD peers, the difference is projected to narrow to less than 2 years by 2050. Aging is already making itself felt. The country´s population is expected to plateau in the early 2050s, but the size of the working age population (15-59) will start declining in the mid-2030s– while it is already beyond its peak, reached in

2016, as a share of total population (figure 2). Total fertility rates declining from 3.6 in 1980 to around 1.6 in the early 2020s implies a dynamically contracting young population. The aging of earlier birth cohorts combined with improvements in old age specific life expectancies results in the fast growth of the share of the elderly population (defined as 60 years and older). The latest census (2021), although its data is not yet fully processed, indicates a greater decline in both fertility and mortality indicators, implying that aging is likely to be faster than implied by the latest publicly available data[1].

Figure 2. Costa Rica's demographic structure, 1980-2100
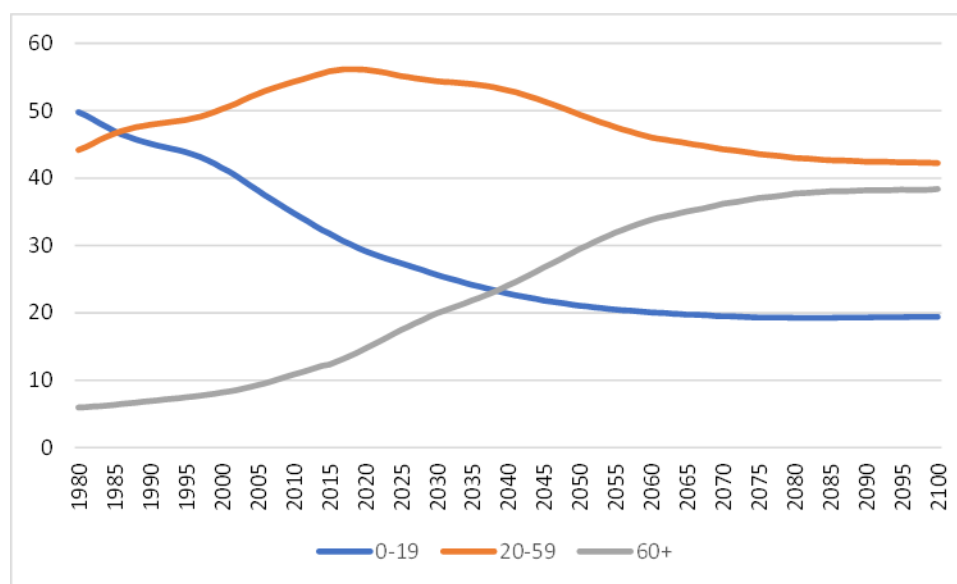
Source: UN Population Prospects, 2022.

4.   The share of elderly will continue growing, with the fastest growth rates expected between the mid-2020s and mid-2050s – the same period when the proportion of the working age population also declines. As a result, the support ratio – the number of working age people per elderly – will drop sharply until the 2060s when it slowly assumes its long-term asymptotic value of around 1.1 (Figure 3). The fastest decline in the support ratio is expected in the roughly 20 years between 2010 and 2030. These demographic developments have a profound fiscal and welfare impact for the contributory pension schemes, the social assistance system (including noncontributory income security for the elderly) and their ultimate underwriter: the state.

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[1] Throughout the report, UN Population projections (2022 vintage) are used which, in turn, are based on 2011 census data and technical projections.

Figure 3. Old-age support ratio and the share of elderly population, 1980-2100
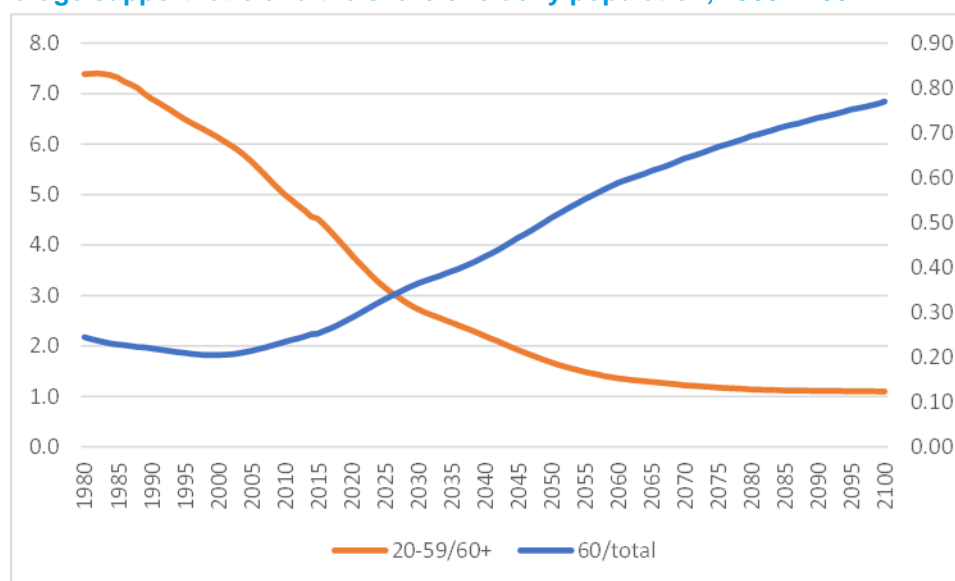
Source: UN Population Prospects, 2022.

5.   The country is a destination for regional migration: close to 7 percent of the population are migrants from the region. While the age distribution of migrants has a dampening impact on population aging, over time it may become a social policy issue, depending on how well working age migrants are integrated into the labor market and whether they comply with contributory social insurance. Costa Rica, similarly to other Central American countries, is highly urbanized society with over 80 percent of the population living in urbanized areas

C.   Labor Market Conditions

6.   Costa Rica is one of the countries in the region with the lowest informality rates, defined as the percentage of the employed population (15-64 years) that does not contribute to social security (Figure 4.a). In 2021, only 27.6 percent of workers could be categorized as informal, which is significantly lower than the regional average of approximately 56 percent observed across LAC countries[2]. Informality rates are higher among younger individuals (aged 15-24) and the elderly (aged 55-65), reaching levels as high as 30 percent. As wages increase, informality tends to decrease: roughly one-third of poor workers can be considered formal, while the ratio goes to four out of five among the workers in the top 60 percent of the income distribution. The level of formality among the self-employed is around half the level among employees (Figure 4.b.). Although formality has been on the rise among employees in recent years, a downward trend has been observed among the self-employed. Despite this difference in formality trends between employees and self-employed, informality levels in the country have remained at similar levels.

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[2] LAC Equity Lab tabulations of SEDLAC (CEDLAS and the World Bank).

Figure 4. Informality in Costa Rica

a. Informality rates in LAC countries (2021, share of employment)

b. Trends in formality by employment status (share of employment)
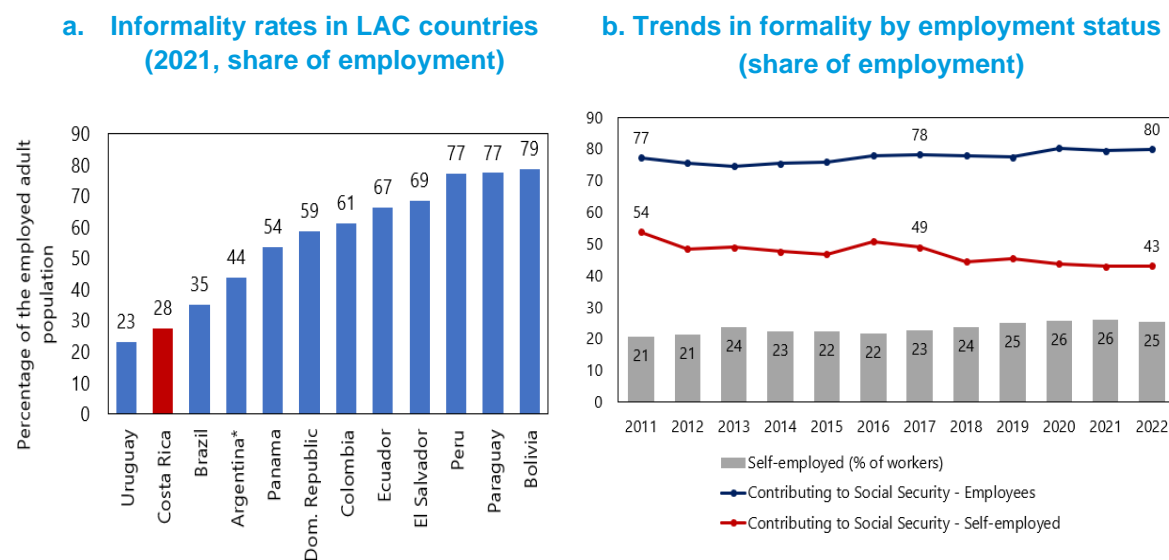
Source: LAC Equity Lab tabulations of SEDLAC (CEDLAS and the World Bank).

Source: IMF staff calculation based on the Encuesta Continua de Empleo (ECE) 2011-2022.

7.   Around one-fifth of the population aged 60 and above are part of the Costa Rican labor force, and approximately 42 percent of this age group benefit from pensions stemming from their previous work engagements. Unemployment rates among individuals aged 60 and above are less than half of the national unemployment rate.[3] The average gross labor income for this age group is similar to the national average. Considering the high coverage of the non-contributory pension (social pension), around 27 percent of the population aged 60 and above lacks any source of income. According to ECLAC, in 2021 one out of every two adults over the age of 65, who are part of the poorest 20 percent of the population, either lacks access to a pension or receives a pension that falls below the poverty line.[4]

8.   Pension coverage in Costa Rica is similar to the LAC region average and double that of Central American countries. Among the population aged 65 and over, 51 percent receive a contributory pension, slightly below the regional average of 52 percent but significantly higher than the average among Central American countries, which stands at 24 percent[5]. Less than 30 percent of adults over 65 who receive a pension benefit from the contributory regimes are poor (Figure 5.a), and their benefits represent only 7.9 percent of the total (Figure 5.b). Pensions play a more significant role in the income of the wealthiest households, representing 14 percent of their household income, compared to 8 percent in the poorest households. Most of the elderly without a pension – around 70 percent – are not poor (Figure 5.a).

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[3] The Household Survey monitors labor supply within the elderly population, it is therefore possible to estimate not only employment but also unemployment among the elderly.

[4] ECLAC. CEPALSTAT, Base de datos y publicaciones estadísticas.

[5] Casalí, P. et al. (2021). Serie Panorama Laboral en América Latina y el Caribe 2021. Panorama de la protección Social en América Latina y el Caribe, OIT, Lima.

Figure 5. Contributory and non-contributory pensions distribution (Population aged 65 and older)

a. Beneficiaries distribution

b. Distribution of benefits
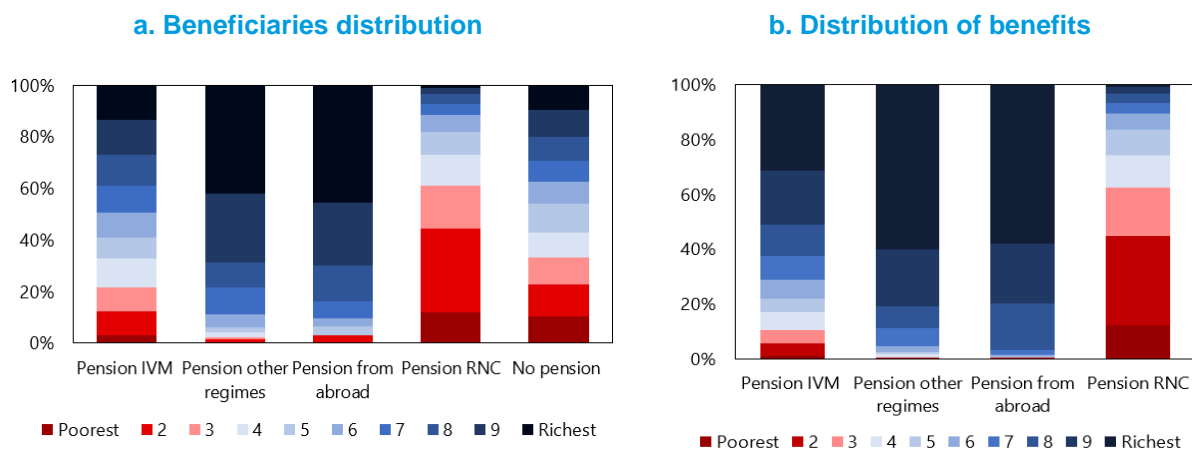
Source: IMF staff calculation based on Encuesta Nacional de Hogares (ENAHO 2022)

D.   Poverty and Social Protection

9.   Households where poor elderly live are smaller than other poor households. Furthermore, only one-third of the household members are employed in household with elderly members, putting additional financial pressure on income sources other than labor income. Old adults living in poverty account for around 3.7 percent of the total population in Costa Rica, while non-poor old adults represent 9.9 percent (see Table 1). Household composition differs between households with at least one older adult and those without. In households with older adults, the average number of individuals in the 15-64 age range is 1.3, whereas, in households without, this number increases to 2.5. Moreover, households with older adults have on average, fewer children, and young individuals among their members. Female-headed households are more prevalent among poor households, regardless of the presence of older adults. Regarding income sources, households with elderly members rely more on non-labor income sources, as only 30 percent of household members are employed, compared to 44 percent in households without older adults. While poor households with elderly members may have a lower prominence than their counterparts, their incomes are significantly lower, resulting in similar per capita income levels between the two groups. Finally, as expected, people aged 65 and over represent the majority of the beneficiaries of non-contributory pensions, whereas the prevalence of other types of social programs benefits among this population is extremely low.

Table 1. Household and individual characteristics people aged 65 and over by poverty condition

Household and individual characteristics	Aged 65 and over			Under 65 years old		
	Total	Non-poor	Poor	Total	Non-poor	Poor
Panel A: Household characteristics						
Number of households	548,653	404,466	144,187	1,185,386	930,134	255,252
Household size	2.7	2.7	2.6	3.2	3.0	3.8
Female household head (percentage)	48.6	48.0	50.4	41.1	38.5	50.3
Urban (percentage)	76.2	79.0	68.6	70.8	72.4	65.0
Number of individuals 14 and younger	0.2	0.2	0.3	0.7	0.6	1.3
Number of individuals 15 to 64 years old	1.3	1.3	1.0	2.5	2.5	2.5
Number of individuals 65 and older	1.3	1.3	1.4	0.0	0.0	0.0
Number of workers	0.8	1.0	0.3	1.4	1.6	0.9
Average household income (Colones)	973,513	1,248,826	201,218	1,153,488	1,393,812	277,748
Average per-capita income (Colones)	374,522	479,742	79,413	404,991	496,594	71,355
Panel B: Individual characteristics						
Distribution of population	13.6	9.9	3.7	86.4	64.5	21.9
Distribution of households	26.2	19.0	7.2	73.8	58.0	15.8
Employed	11.48	13.66	5.57	45.01	52.67	22.38
Beneficiary Non-contributory regime (average)	18.43	11.82	36.35	0.88	0.62	1.64
Beneficiary other IMAS program (average)	1.31	0.97	2.25	8.29	4.64	10.08

Source: IMF staff calculation based on the Encuesta Nacional de Hogares (ENAHO) 2022.
Note: Household characteristics for the group aged 65 and over refer to the characteristics of households that have at least one resident in this age range. Individual characteristics pertain specifically to the people within the 65 and over age group.

10.   To effectively lift all individuals out of poverty, enhancing the targeting of social spending is essential, but it must be accompanied by increased spending. In 2018, approximately half of the government expenditure was allocated to universal education and health services. Government expenditure on Social Protection accounted for only 1.5 percent of GDP, from which two-thirds went to social pensions and unconditional cash transfer programs. Cash transfer programs, including the social pension, have contributed to a 4.4 percentage point reduction in extreme poverty and a 2.6 percentage point reduction in poverty[6]. The difference between the impacts on extreme poverty and overall poverty suggests the size of the transfers pushes people near the poverty line but falls short of helping people escape poverty. Undocumented migrants are excluded from social protection services.

11.   In 2022, targeted social programs in Costa Rica covered around 11 percent of the population, but with appropriate budget allocation, swift expansion of social protection programs – including within RNC – is achievable. The single registry system, SINIRUBE, is crucial in identifying individuals' poverty conditions and covers 80 percent of the population[7]. The system collects and consolidates administrative data from various public institutions, including the social security institute (Caja Costarricense de Seguro Social - CCSS) and the Ministry of Finance. In total, 18 institutions have information exchange agreements with SINIRUBE, providing data such as labor income, household composition, and socioeconomic information. Around 55 percent of the individuals in the SINIRUBE database have income information sourced from administrative data, while for the remaining 45 percent a machine learning algorithm developed in collaboration with MIT predicts their income based on household

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[6] Universidad de Costa Rica (2023). Análisis del Mercado Laboral, Pobreza y Desigualdad en Costa Rica.

[7] SINIRUBE classifies the population into five categories: extremely poor, poor, vulnerable, non-poor, and to be determined.

and individual characteristics. By law, all institutions responsible for granting social benefits must consult SINIRUBE to determine the eligibility status of prospective beneficiaries.

Box 1. SINIRUBE - A cornerstone of administering social protection effectively

SINIRUBE is a central data center servicing social protection schemes and their administrators. SINIRUBE collects information from scheme administrators and currently has extensive socioeconomic information concerning approximately 80 percent of household. SINIRUBE data is high quality, comprehensive, and can serve as the backbone of revising existing social protection schemes: based on its data, SINIRUBE can estimate benefit uptake, the fiscal and welfare impact under various reform scenarios.

In 2022, the government used SINIRUBE to select the 110,000 recipients of the Bono Proteger, a cash transfer program aimed at mitigating the effects of high inflation on poor households. Approximately 72 percent of the beneficiaries were successfully identified and received the transfer, demonstrating the effectiveness and relatively low administrative cost of using SINIRUBE for program targeting. The inclusion and exclusion error of SINIRUBE is estimated at 23 percent, which shows the system value in determining beneficiaries of social protection programs. SINIRUBE can play a pivotal role in identifying eligible individuals, enabling the coverage of various social programs to be significantly extended in the short term at a relatively low cost.

E. Capital Market Constraints

12.   The limited availability of securitized, liquid, and tradable domestic assets – other than public debt instruments - constrains the diversification and differentiation of pension reserves. The pension system includes funded schemes – both defined benefit and defined contribution -, and the public defined benefit social security scheme also operates with a reserve, and, according to the draft bill aiming to establish a universal basic pension that latter scheme would accrue reserves, too.

13.   The availability of securitized assets issued by the private sector is very limited while overseas investments may be difficult to reconcile with monetary and exchange rate policies. Private corporations finance themselves mostly from the banking system and corporate treasuries, creating little supply of equity and private sector fixed income instruments. Given the country's exposure to exchange rate volatility, pension scheme operators' interest in investing abroad may be difficult to reconcile with monetary and balance of payment objectives.

II.   The Pension System

A.   Introduction

14.   Costa Rica has a multi-pillar pension system, with each pillar of the system comprising various schemes. The first pillar of the system consists of mandatory, earnings-related defined benefit schemes, including a number of schemes that were closed to new entrants in or around 1993 (shortly after the 1992 reform). The largest of these schemes is the Invalidez, Vejez y Muerte (IVM) which covers all employees and the self-employed except those people who are members in occupational first pillar schemes or are eligible for budget-financed pensions. IVM is administered by the national social security agency (Caja Costarricence de Seguro Social – CCSS or Caja). Two additional (occupational) schemes operate for teachers (Regimen de Capitalización Colectiva – RCC) and members of the judiciary (Fondo del Poder Judicial – FPJ)[8]. In addition, there are a number of small schemes paying occupational and merit pensions (i.e., ex-presidents, war heroes).

15.   Since 2001, every dependent employee is mandated to contribute to mandatory, fully funded, defined contribution pension schemes. The second pillar schemes are managed by financial sector service providers. Participation is not open to the self-employed. Contributions are collected by a centralized contribution collection system under the CCSS. The funded pillar is still relatively young, with only a few cohorts having reached the eligibility criteria for a pension under first pillar rules – which also determines access to second pillar pensions.

16.   It is possible to register with the CCSS on a voluntary basis. This option is available to people who wish to continue contributing after withdrawing from the labor market, including for immediate family members out of work (such as spouses). Voluntary contribution is mostly sought by people interested in having access to health services and since health contribution status is independent of reported and contributory income levels, voluntary participants typically contribute at the lowest permissible contribution base. The pension system also includes a small voluntary, defined contribution funded pillar, administered by the same service providers as the second pillar, but with segregated reserves and different investment policies. The voluntary pillar remains insignificant and is unlikely to contribute in a noticeable way to old age income security in the future.

17.   Finally, a means-tested noncontributory social pension is available for people without other labor or pension income and living in poverty. The noncontributory social pension is available at the retirement age to people without a contributory or other first pillar pension living in households with per capita incomes below the poverty line.

18.   The Superintendencia de Pensiones (SUPEN), the Ministry of Labor and Social Security, and the CCSS are jointly responsible for pension policy and regulations. CCSS enjoys independence in a broad set of matters: it can set contribution rates, including the rates to be collected in

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[8] A number of small schemes (both contributory and noncontributory), most of which were closed to entrants 30 years ago, are also operational as part of the first pillar. These schemes are about to see their last contributors retire in the next 5 years but will continue representing a slowly declining fiscal obligation over the next three decades. Due to their small size, these schemes are not discussed by the report.

the form of state contributions, establish retirement ages and other eligibility rules, benefit calculation and indexation policies, etc.

B. Introduction

19.   All first pillar schemes accepting new members are financed by contributions paid by employers, employees, and the state. Employer and employee contribution rates differ across the three schemes but for historical reasons, they also receive a state contribution which is paid at the same rate to all schemes (at 1.57 percent)[9]. The state contribution, financed from general revenues, represent redistribution from people not covered by the social insurance schemes to those who are. As low-income households are underrepresented in first pillar pensions, they may, potentially, benefit less from government subsidies transferred to these contributory public pension schemes[10].

20.   Pension reserves of the three largest first pillar schemes – adding up to about 17 percent of GDP - are invested predominantly in public sector securities. Government bonds, central bank notes, fixed income end equity instruments issued by state-owned enterprises and public corporations represent 94.3, 86.6, and 74. 1 percent of IVM's, RCC's, and FPJ's portfolios, respectively. There is no mandatory minimum investment in domestic public debt instruments. However, given the low diversification of the Costa Rican market and the limit on oversea investment imply a relatively high share of reserves invested in government debt.

Invalidez, Vejez, Muerte

21.   IVM is the largest contributory, defined benefit scheme covering public and private sector employees. Currently, 1.47 million workers[11] – equal to 62.6 percent of the labor force and 70 percent of people in employment – contribute, with some regularity, to IVM. Workers are expected to contribute at least on the basis of the minimum contribution base (equal to the minimum wage, except for certain groups of the self-employed for whom presumptive contribution bases are established).

22.   Despite numerous parametric measures in recent years, IVM is set to exhaust its reserves in the mid2030s. Over the past two decades, numerous parametric changes have been introduced to improve IVM's sustainability: contribution rates were increased several times and the pace of the latest increase has also been accelerated by a 2019 amendment, so that the current contribution rates of 5.42, 4.17, and 1.57 for the employer, employee and the state will reach 5.75, 4.50, and 1.91, respectively, by 2029. The normal retirement age is 65 years for both men and women. Early retirement eligibility has been tightened: for men, early retirement is no longer available from 2023, while women can only retire 2 years earlier (as opposed to the current rules permitting retirement 5 years earlier with sufficiently long contribution histories).

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[9] The state contribution is to be differentiated from the employer contributions paid by public entities. From 2029, the state contribution to IVM is set to increase to 1.91 percent.

[10] The scope of redistribution depends additionally on the financing and use of government subsidies. If the subsidies are mainly used to finance minimum pension top-ups then lower income groups may benefit more than higher income groups. As shown in Figure 10, in particular, lower income groups (deciles 2 to 4) gain more strongly from these top-ups.

[11] The number of workers who contributed at least once in 2022 is higher, approximately 1.7 million.

23.   IVM's sustainability is impacted by the state contribution arrears close to 20 percent of IVM reserves and 1.4 percent of GDP. The government's total debt to the CCSS is 5.6 percent of GDP, with 76 percent of the debt owed to the health insurance fund and 24 percent due IVM. The treatment, in accounting terms, of the debt is ambiguous. The CCSS's monthly state contribution claims are verified and reflect the contribution base of employer and employee contributions paid. When the CCSS invoices the government for state contributions, the claims are registered in the CCSS's accounts. At the same time, the Ministry of Finance refuses to accept the invoices as valid partly because doing so would also imply an explicit financial obligation jeopardizing deficit and debt targets. The auditor general's office (Contraloría General de la República - Contraloría) has repeatedly called on the government to settle the issue of contribution arrears but without much effect.

Regimen de Capitalización Collectiva

24.   The second largest social security scheme is the teachers' occupational scheme, covering all education sector employees between kindergarten and university level, except private universities' staff. The teachers' scheme (RCC) is a contributory, defined benefit, fully funded one, which was established in 1992 to replace the previous scheme (Régimen Transitorio de Reparto – RTR) which became insolvent and was closed to new members. The favorable financial position of RCC is due partly to the parameters of the scheme and partly to the fact that the obligations of the predecessor scheme (RTR) were assumed by the budget[12].

25.   There are approximately 150 thousand members in the teachers' schemes, of whom 103 thousand contribute to RCC. RTR, the closed, predecessor scheme continues collecting contributions from members from approximately 47 thousand people who joined before 1993. Since teachers with long service histories (at least 33 years) can retire anytime, contributions to RTR are expected to disappear from the scheme by the mid-2030s – at the same time, benefit obligations will continue requiring slowly declining budget financing for another 35-40 years (including survivor benefits). Similarly, to other closed schemes, RTR is administered by the Dirección Nacional de Pensiones (DNP) under the MLSS. RTR is by far the largest scheme under DNP management, representing 75 percent of all scheme members receiving pensions through the department.

Fondo del Poder Judicial

26.   The third, smallest, occupational first pillar scheme serves the judiciary. Its parameters are reasonably well-designed and additional reforms can ensure the scheme's high funding ratio in the future. The scheme's membership comprises 13.9 thousand contributors and 2.9 thousand beneficiaries. Due to the scheme's occupational nature, it is less affected by population demographics than the general scheme (IVM): the main demographic process exerting an impact is the improving life expectancy at retirement. FPJ differs from the other schemes in terms of its high contribution rates and commensurately high gross benefit levels, too. It is worth noting that FPJ's financial position is reasonably stable, if assessed in isolation, however, its primary source of revenue is the budget, partly in the form of employer contributions and partly as state contributions.

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[12] Annual expenditures for the closed teachers` scheme added up to 650 bn. CRC in 2022.

27. The various levies and deductions are imposed on first pillar pension benefits. A health contribution of 14 percent is paid by all schemes to the health insurance fund under CCSS´s management[13]. In addition, a progressive, so-called "normal contribution" is levied on all pension which is, in effect a tax on pensions. This levy, with progressive rates ranging between 8.75 and 16 percent, was introduced to circumvent the zero-rate income tax bracket that would be applicable to most beneficiaries. Finally, a "solidarity contribution" is deducted from pensions above eight times the base wage of the lowest-paid position in the Public Administration. Since RCC and FPJ pensions are significantly higher than IVM pensions, RCC and FPJ pensions, on average, face larger deductions than the ones paid from IVM. Total deductions are limited at 50 percent of benefits.

Table 2. First Pillar Public Pension Schemes: Basic Indicators

Fund	IVM Invalidez, Vejez y Muerte	RCC Régimen de Capitalización Colectiva	FPJ Fondo del Poder Judicial	RTR Régimen Transitorio de Reparto
Expenditures 2022, in terms of GDP	3.3%	0.3%	0.2%	1.5%
Contributions 2022, in terms of GDP	2.9%	0.5%	0.2%	0.0%
Contributors	1,782,127	approx. 103,000	approx. 14,000	approx. 3,000
Retirees *	351,968	approx. 3000	approx. 4,000	approx. 45,000
of which are old age pensioners	195,832	approx. 1000	approx. 2500	approx. 38,000
System Dependency Ratio: Retirees per 100 Contributors	20	3	29	1,319
Average gross benefit - all retirees	approx. 0.3 million CRC	approx. 0.4 million CRC	approx. 1.8 million CRC	approx. 1.2 million CRC
Average replacement rate	62% **	-	-	-
Share of pensioners receiving the minimum pension	29%	-	-	-

* This may include double counting as some beneficaries receive both an old age and a survivor pension
** Of new retirees in 2021.

C. Mandatory and Voluntary, Defined Contribution Schemes

28. **The 2001 reform introduced mandatory, universal, contributory, fully funded, defined contributions ("second pillar") schemes, predominantly managed by private sector financial service providers.** The second pillar covers all private and public sector employees who contribute 4.25 percent of their gross wages in total. Of this, 3.25 and 1.0 percent are covered by employers and employees, respectively. Contributions, accruals, and pension benefits are income tax free. Until 2020, beneficiaries could withdraw retirement balances in a lumpsum (since many of the retirement balances – especially in case of workers who were relatively old in 2021 – were too small to support meaningful monthly payment). Since then, the only permissible withdrawal forms are life annuities (purchased from insurance companies) and phased withdrawals. Since life annuity products are not available due to the lack of an annuity market, second pillar pension cannot protect members against longevity risk.

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[13] In RCC and FPJ, the contribution is split between the pension scheme (8.75 percent) and the beneficiary (5 percent), and the state (0.25 percent). IVM is exceptional insofar as until now, the entire health insurance contribution was financed by the CCSS.

29.   Currently, there are 1.3 million active contributors in second pillar schemes, with total assets of 20 percent of GDP. The total number of accounts is far larger than that of active accounts (into which contributions are regularly paid). In 2022, of the total accounts of approximately 2.8 million 45.4 percent (1.27 million) received 12 monthly contributions. Pension fund assets are predominantly invested in domestic public debt (government bonds and central bank notes). Together with securities issued by state-owned enterprises, the sector's direct and indirect exposure to the public sector is over 63 percent. Foreign investments are limited at 50 percent of pension portfolios (to increase to 60 percent from 2024), however, the limit is not yet binding: the fund with the largest overseas portfolio has approximately 38 percent of its assets placed in foreign securities.

30.   Registering in and contribution collection for second pillar schemes are administered by the CCSS. Second pillar participation is not possible without registering with the CCSS and vice versa. Contributions are also collected by the CCSS and distributed across operators according to member affiliation. The private pension market is oligopolistic with 6 operators. 4 of these schemes are controlled by banks, while two – operating the CCSS's and the RCC's funded schemes – are controlled by public entities.

D. Noncontributory Scheme

31.   To address the needs of old adults who are not covered by a pension, Costa Rica has implemented a social pension program (RNC) targeting the impoverished elderly population. Eligibility is conditional on age (65 and older), having no labor income, not receiving a contributory or other pension, and living in poverty i.e., in households where the per capita equivalent income is below the poverty line. Under this program, beneficiaries receive a monthly transfer of CRC 82 thousand and a Christmas bonus of the same amount. The annual benefit corresponds to 69 percent of the per capita urban poverty line, and only one person per household can receive the benefit.

32.   RNC is relatively well-targeted, with 62.5 percent of the benefits reaching households in the first three deciles of the per capita disposable income[14]. Despite its effectiveness in targeting the intended beneficiaries, the program falls short of providing assistance to all senior adults living in poverty. In 2022, approximately 65 percent of poor old adults were not covered by any social program. In line with the government plan to fight against poverty, Costa Rica's National Development and Public Investment Plan for 2023-2026 aims to increase the coverage of the non-contributory regime by an additional 5,000 beneficiaries (4 percent of current recipients) per year over the next four years. RNC is administered by the Instituto Mixto de Ayuda Social (IMAS) and is financed through a special revolving fund – Fondo de Desarrollo Social y Asignaciones Familiares (FODESAF) – which is the direct financing source of various other social assistance programs, too.

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[14] World Bank. (2022). Opportunities for Reducing Poverty and Inequality in Costa Rica: World Bank Poverty and Inequality Assessment.

E. Issues and Considerations

33.   In terms of coverage and compliance, the lack of coordination between the tax department and the CCSS is a critically important problem. Wage reporting is incomplete and returns are not reconciled between the tax office and the Caja. Employees with earnings falling within the zero-income tax bracket are not reported by employers, implying that there are no tax records to cross-check CCSS contributions against. While this may not impact social security coverage of employees, it makes it easier to report low earnings to the CCSS. In this regard, it is important to realize that whereas the tax department's objective should be the maximization of income tax revenues (and monitoring reporting compliance), under-reporting wages is less crucial for CCSS's financial position as long as future benefits reflect past contribution performance., and CCSS can offload to the budget the cost of topping up benefits to the minimum contributory pensions.

34.   The participation of the self-employed is negatively impacted by a special provision which seeks to address the consequences of insufficient cooperation between the tax department and the CCSS. It is technically possible to register with the tax department as self-employed and also to file tax returns – without registering with the CCSS. If a self-employed person wishes to register with the CCSS later (often many years later) than with the tax department, the CCSS demands retroactive contribution payment. The retroactive contribution period was, until recently, limited at 15 years which has been reduced to 4 years. This provision – which would be unnecessary if the tax department and the CCSS made any effort to regularly and automatically reconcile records – implies that initiating compliance with social security records with a delay can be prohibitively costly for the self-employed. Given the growing weight of the self-employed within the workforce, this issue will gain further importance in the future.

35.   The minimum contribution period raises equity issues and may act as a disincentive for coverage among workers with uncertain labor market prospects. Pension eligibility is conditioned on accruing 180 contribution periods (months) and contributions paid on at least the minimum contribution base (currently, CRC 306.4 thousand per months). People with less than 180 months of contribution history, e.g., with 11 years of contribution, receive no pension at all and their past contributions are absorbed into IVM's current expenditures and reserves. Workers on the boundary of shifting from informal to formal employment or whose labor market affiliation is precarious may be discouraged to participate in the pension scheme due to the risk of losing their contributions in case of falling short of the 180-month criteria.

36.   In IVM, certain regulatory parameters do not reflect best practice in terms of reference wages valorization, benefit indexation, early retirement penalties and rewarding deferred retirement. Past wages included in the reference wage used for calculating pensions are valorized with prices. This implies that the current value of past earnings does not reflect economywide productivity increases and subsequent wage dynamics. Price valorization also acts against consumption smoothing, an important objective of earnings-related pensions. Benefit indexation is not automatic, leaving room for substantial discretion in terms of maintaining benefits' value. While past indexation decisions followed consumer prices by-and-large, future pressures on IVM's financing argue for nondiscretionary, rule-based, predictable benefit indexation. Early retirement - only available for women - does not imply penalties and deferred (delayed) retirement insufficiently rewarded by marginal replacement rates, weakening incentives to stay in employment.

37.   Portability across first pillar schemes is based on unnecessarily complex rules. The pension benefit is payable by the last scheme where the retiree accumulated enough contribution periods to warrant eligibility. Reimbursing the scheme paying pensions for contributions made to other schemes in the past is, ultimately, the responsibility of the individual scheme member. If the present value of additional benefits is greater than that of past contributions transferred from other schemes, at the request of the prospective retiree, the difference is to be covered by the individual. Half of the difference is due at the time of retirement, while the other half is paid in the form of deductions from the pension. Given the different benefit and contribution rules, the difference can be substantial. A simpler and more transparent method would be applying rules similar to those of international social security agreements: all schemes would consider the total, combined service time when establishing eligibility, but pension payments would be made separately, according to the rules of the schemes concerned, in proportion to the contribution histories accrued in these schemes[15].

38.   The constitution grants independence to CCSS extending regulatory and policy issues which are typically within the government's remit. Pension policy is an integral part of social, labor market, and tax policies. The pension system's basic features and its parameters need to be enshrined in law, so that any change may be introduced through parliamentary decisions and taking into account other government policies. While the constitution grants CCSS's operational independence, the CCSS's obligations are ultimately underwritten by the central government. The CCSS regulations also impact social policy as a whole (RNC benefit eligibility, for instance, generally, relates to the IVM retirement age). The other side of the same issue is that there might be a temptation from the central governments to perceive CCSS's extensive independence as diminishing the government responsibility as the ultimate underwriter of social security obligations. In the mission's view this perception is unrealistic, irrespective of whether the CCSS enjoys an explicit government liquidity guarantee or not.

39.   In the absence of full life annuities in the insurance market, the second pillar is unable to insure against longevity risk. Since the likelihood of an efficiently functioning, reasonably priced life annuity market is slim, this situation – whereby longevity risk is not pooled either at the scheme or the industry level - is unlikely to change and may lead to a drop in old age income in case of people outliving their cohort's life expectancy, For the foreseeable future, only first pillar schemes are able to accommodate longevity risks. For this reason, policymakers may wish to explore the option of consecutive (as opposed to parallel) first and second pillar withdrawals. In practice, this would mean first drawing down second pillar balances in an accelerated fashion, as the sole source of old age income during the drawdown phase, to be followed by a deferred first pillar benefit which, due the belated commencement of benefit payments, would pay a higher pension than if the pension was paid from the retirement age – and could also cover longevity risk.

40.   The non-contributory scheme's coverage is incomplete, partly because its eligibility criteria exclude many without other sources of income, and partly because of insufficient financing. Eligibility is established at the household level. If a household member already receives a social pension, that will prevent other elderly members' (for example, elderly spouses) eligibility. There are 127 thousand elderly who meet the eligibility conditions, have already applied but only 82 percent

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[15] This approach would reflect the techniques used by bilateral social security agreements, although without the cross-border payment and currency complications. If this solution is considered, the rules should determine which contributory minimum pension would be applicable (of different across schemes).

receive the RNC benefit. The program is financed by dedicated employer contributions and FODESAF which, in turn, relies on a wage tax (70 percent of its revenues) and direct budget transfers financing the remainder. FODESAF is responsible for financing various welfare schemes, the largest of which is RNC, utilizing 26 percent of FODESAF resources. Since FODESAF's resources are insufficient to adequately finance all programs within its portfolio, cash rationing is applied, resulting in waiting lists at RNC. Once eligibility is established, it may take many years to start receiving a benefit.

F. Baseline Projection: Approach

41.   The projections cover all main public pension schemes, representing a no-policy-change scenario. Current contribution and benefit regulations are assumed unchanged over the entire projection horizon in the baseline scenario. In case that explicit rules are missing (e.g., in terms of setting the minimum wage), the actual practices observed over the past years were projected into the future. The projections' base year is 2022, the latest year for which aggregate and micro data has been provided.

42.   The pension projection is based on a dynamic cohort simulation model which is described in further detail in Annex I[16]. For the analysis of future reforms and their potential distributional impact micro simulations have been carried. The data and assumptions of the model were derived from official sources. For the evaluation of reform scenarios micro data has been provided, covering earnings histories and pension variables of a representative share of retired and non-retired IVM affiliates. The reliability of the projections is limited by data availability, especially in terms of the pension scheme for judiciaries and younger teachers[17].

G. Baseline Projection: Fiscal Results

43.   In the base year 2022, the two largest public pension schemes show a significant mismatch of expenditures and revenues. In the IVM scheme already in 2022, expenditures could not be financed by contribution revenues. As a result, interest income of reserves had to be used to finance benefits. In the closed pension schemes charged to the State Budget (Treasury Pensions), only about 10 percent of gross expenditures have been covered by pensioner contributions with the remaining share (1.7 percent of GDP) to be financed by the state budget.

44.   The two smaller pension schemes for educational and judiciary employees are currently running financial surpluses. The RCC pension scheme, applicable to teachers entering the educational sector after 1993, still pays out very limited pensions, as most scheme members have not yet reached retirement age. Given this young age structure, with 103 thousand active affiliates vs. 3 thousand retired scheme members, the scheme is able to build up significant reserves which amounted to 9 percent of GDP at the end of 2022. Also, in the judiciary pension scheme (FPJ) contributions are higher than

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[16] It uses age- and gender-specific profiles which reflect benefit and contribution levels per capita, scheme participation rates, contribution densities as well as retirement behavior over time. To project future expenditure and revenue flows, the model weighs these time-, gender- and age-specific profiles with the expected demographic development.

[17] The mission had only limited access to age- and gender-specific data of these pension schemes. Thus, future pension benefit levels could only be projected based on average data for larger groups of these regimes. Additionally, the impact of coverage changes on future pension eligibility in the IVM scheme could only be reflected rudimentary due to data limitations.

expenditures, to a large extent explained by high contribution rates applied to Judiciary employees (29 percent). As a result, its reserves stand at 1.6 percent of GDP in 2022.

45.   **Expenditures for the non-contributory pension scheme in the base year are small compared to first pillar regimes.** In 2022 about 0.4 percent of GDP have been spent for RNC pensions which are financed by transfers of FODESAF, a public institution directing finances to various social programs. The low spending level reflects the program's tight targeting criteria (only one elderly person per household can be eligible) but also that the program is underfunded, resulting in years' of waiting time between qualifying and receiving the first benefit payments,

46.   **The state contributed 0.5 percent of GDP to public pension schemes in 2022, in addition to standard employee and employer contributions, and this contribution will increase in the medium term.** The largest share of state contributions is transferred to the IVM (0.4 percent of GDP), used inter alia to top-up benefits to the minimum pension level. This IVM state contribution will grow by about 35 percent until 2029 in line with the legislated state contribution rate increases. The smaller FPJ and RCC scheme receive state contributions of about 0.05 percent of GDP in total (in addition to employer contributions also financed by the government)

47.   **The projections show that IVM pension expenditures are expected to rise from 3.3 percent of GDP in 2022 to 4.2 percent of GDP by 2040, with deficits rising further thereafter** (see Table 3). The growth of expenditures is driven mainly by demographics, as the number of the elderly population (65 and older) is doubling in the period 2022-2042. Expenditure growth is cushioned by the recent IVM benefit rule changes enacted in 2022. Additionally, the tightening of early retirement options from 2023 onwards has a large impact on mid-term expenditure growth lowering expenditures in 2030 by about 0.4 percent of GDP.

48.   **Under current rules the IVM reserves will be depleted in the mid-2030s.** Despite recent reforms the IVM will increasingly rely in the coming years on its reserves to finance annual expenditures. According to our projections reserves will be depleted by 2034 resulting in the need to adapt expenditures and/or revenues thereafter. This result is sensitive to the amount of government debt owed to the CCSS for outstanding past state contributions – which is still under discussion[18].

49.   **The two smaller pension schemes for judiciary and educational public employees will continue to run surpluses in the coming years, with reserves over the next three decades.** The RCC will only need to use income from its reserves in the mid-2030s, with an expected depletion of reserves only after 2070. Similarly, the FPJ is building up reserves over the next decade, with an exhaustion expected in the 2050s.

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[18] If we assume that the state debt according to the estimates of the CCSS is paid in 2023 to the IVM then the reserves would be depleted three years later than in our baseline.

Table 3. Baseline Projections

| Baseline: Current Rules and Policies (percent of GDP)							
	2022	2030	2040	2050	2060	2070	2022-2070
Pension expenditures	**6.0%**	**6.3%**	**6.6%**	**7.3%**	**8.5%**	**9.6%**	**261%**
of which							
IVM	3.3%	3.8%	4.2%	5.0%	6.2%	7.3%	173%
RNC	0.4%	0.4%	0.4%	0.5%	0.5%	0.5%	16%
Pension revenues *	**5.7%**	**5.8%**	**5.3%**	**4.9%**	**4.4%**	**4.2%**	**120%**
of which							
IVM employer and employee contributions	2.4%	2.6%	2.6%	2.6%	2.6%	2.6%	95%
Government Financing	2.6%	2.5%	2.1%	1.6%	1.2%	1.0%	70%
of which							
State contributions	*0.5%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*0.6%*	*21%*
RNC	*0.4%*	*0.4%*	*0.4%*	*0.4%*	*0.4%*	*0.4%*	*13%*
Treasury pensions	*1.7%*	*1.5%*	*1.1%*	*0.6%*	*0.2%*	*0.0%*	*35%*
Memorandum items							
IVM reserves depleted: 2034							

50.   Currently the government has large financing obligations in the area of pensions which will decline in the long-term due to the gradual phase out of treasury pension regimes. Under current rules the state is obliged to spend around 0.5 percent of GDP for state contributions to the different first pillar pension schemes. Additionally, around 1.7 percent of GDP needs to be spent to finance pensions charged to the state budget annually. As these schemes are mainly closed to new entrants, expenditures and state financing obligations for these schemes will gradually decline over the next decades to about 1 percent of GDP in 2040 and further decreasing thereafter. This might create fiscal space for the state budget in the very long-term and comes at the same time when the IVM finances are increasingly under pressure.

51.   State obligations of financing the RNC are less direct and leave room for discretion. The state transfers each year a transfer – linked to judiciary wages – to FODESAF. According to law, a minimum of 10.35 percent of overall FODESAF resources need to be transferred to the RNC scheme. (In 2022, it stood at approximately 25 percent.) In addition, RNC is receiving some income from selected tax revenues. As a result, the government financing of RNC is less direct and leaves some room for discretion. Due to limited revenues the RNC had a long waiting list of recipients which added up to around 23 thousand people in 2022, translating into unmet benefit obligations of around 0.1 percent of GDP in 2022.

H.   Baseline Projection: Welfare Results

52.   Pension replacement rates in the main contributory IVM pension scheme depend on the length of service and income level. For an average contributor the replacement rate, measuring the starting pension relative to final earnings, adds up to 52 percent. For this estimation we consider a typical career observed in the IVM scheme (see Figure 7). Moreover, it is taken into account that past earnings are indexed with inflation to the point of retirement. For scheme members with longer careers than the average worker replacement rates increase only little in line with the relatively flat accrual schedule. For each additional contribution year, the accrual rate rises by 1 percentage point, for those with more than 240 contribution months.

Figure 7. Accrual Schedule and its Changes

| a. Accrual schedule until 2024 | b. Accrual schedule changes |
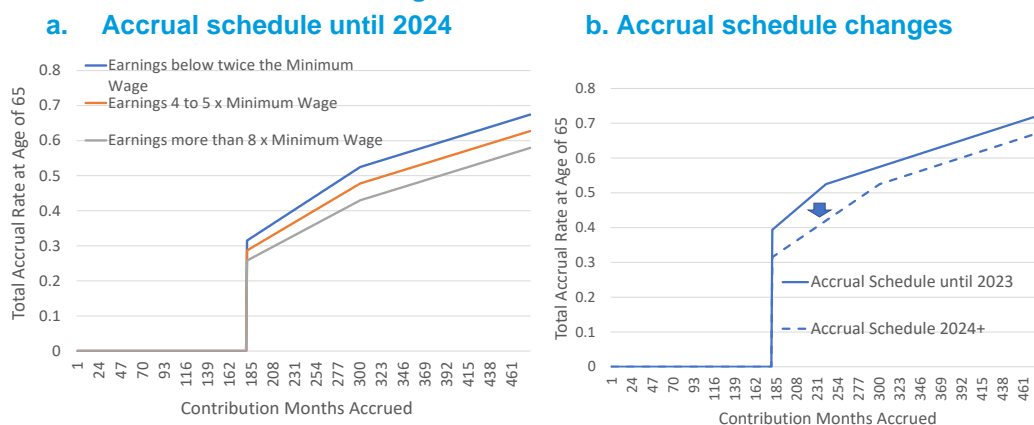
Source: IMF staff calculations.

53.   For future new IVM retirees, replacement rates will decline for a given contribution career from 2024 onwards. Currently for the first 20 years of contributions an accrual rate of 2.2 to 2.6 percent per year is granted (depending on earnings levels). From 2024 onwards this accrual rate will be lowered to 1.7 to 2.1 percent per year - applied to the first 25 contribution years (see Figure 6). This reform reduces replacement rates for an average contributor by around 11 percent (see Table 4). For low wage earners, on the contrary, the reform shows little impact on replacement rates as their benefit levels cannot fall below the minimum pension. For the total population of new retirees, the reform decreases replacement rates by about 7 percent. Poverty rates among elderly people are assumed to be constant in the baseline (due to data limitations).

Table 4. Theoretical Replacement Rates at Various Earning Levels

Year	2022	2030	2040	2050	2060	2070	Details
Average Contributor	52%	46%	46%	46%	46%	46%	Average Wage and 350 Contribution Months
Low wage Contributor & Short Career	45%	44%	44%	44%	44%	44%	Minimum Wage and 240 Contribution Months
High Wage Contributor & Long Career	56%	50%	50%	50%	50%	50%	2 x Average Wage and 450 Contribution Months

III. Universal Basic Pension Proposal

A. Motivation and Features

54.   PBU is envisioned as a universal benefit payable to every citizen above the retirement age with at least 40 years of residence in Costa Rica. The benefit is defined at 63 percent, excluding the Christmas bonus, of the poverty line (CRC 82 thousand vs CRC 132 thousand) and is to function as a fully funded defined benefit scheme paying a flat (uniform) pension. At least 1 percent of GDP is to be allocated to the PBU, split between paying current benefits and the build-up of a PBU reserve. The PBU resources of 1 percent of GDP shall be mainly financed by RNC resources to be transferred to the PBU scheme and by a state contribution to be paid for people who will receive a PBU benefit. Overall, the envisaged PBU resources add up to around 0.8 percent of GDP in 2022. As a result, revenues of roughly 0.2 percent of GDP still need to be identified (see Table 5 below).

55.   Implementation of the PBU is to be gradual: universality would only be achieved with respect to cohorts for which PBU contributions were made by the state[19]. For all other cohorts of contributors, the current benefit rules concerning contributory minimum pensions and social pensions will remain applicable. As a consequence, PBU will become universal only in the 2050s, at the earliest, and only with respect to the newly retiring cohorts.

56.   To tackle affordability, the PBU will gradually replace two current arrangements: the noncontributory social pension and the contributory minimum benefit of the first pillar schemes. The contributory minimum is a top-up to people with at least 180 months of contribution but with low calculated pensions to raise the pension to 22 percent of GDP per capita. The social pension (RNC) is a means-tested social transfer targeted for those without pensions with a uniform benefit level set at 12 percent of GDP per capita.

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[19] It is yet undecided which cohort would be first covered by the PBU: according to SUPEN, the cut-off age will be defined between 18 and 34 years of age.

Table 5. PBU Financing

	PBU FINANCING ESTIMATE	
ITEM	**REVENUE ITEM**	**AMOUNT in billion CRC** based on 2022 data
1	**3% of a monthly base** (= 2 x urban poverty line) paid for those who become eligible for the PBU	133
2	**Mandatory and solidarity contribution**	29
3	**15 % of the net profits of SOE's**	34
4	**RNC resources**	167
5	**50% of Art. 5 Banco Popular**	3
	Total	366
	in % GDP of 2022	0.8%

Box 2. Targeted vs Universal Social Pensions

Many countries worldwide have expanded non-contributory pension coverage over the last two decades (*World Bank and ILO, 2016*), in particular in Latin America (*Barcena et al., 2019*; *Rofman et al., 2015*). These new or expanded non-contributory benefits are often targeted to specific (vulnerable) groups of the elderly population. A universal basic pension paid to all elderly citizens can be found, on the contrary, only in a few countries. Most of them are either low-income countries with a low coverage in the contributory, first pillar pension scheme (*HelpAge Social Pension Database, 2018*) or countries which opted for limiting the government's involvement in old age income security to providing a basic pension and promoting well-regulated supplementary, private pension products. Countries with high contributory coverage - more similar to Costa Rica - usually, tried to bridge the pension coverage gap via easing the eligibility rules for first pillar pensions (e.g., Uruguay or Argentina) or by introducing a new scheme for specific (rural) workers (e.g., Brazil). These latter countries often base additionally on limited and targeted social pensions for those most in need (*Rofman et al., 2015*; *ISSA, 2021*).

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57. **Replacing these two instruments with a single one may lower the incentives to comply with contributory schemes.** It can be expected that, in particular, individuals with less than 180 months (15 years) of contributions have lower incentives to contribute than today as they can receive an old age benefit (the PBU benefit) irrespective of contribution length[20]. This is shown exemplary in the figure below (left panel) outlining replacement rates – i.e. retirement benefits relative to final earnings - for a minimum wage earner under current and PBU rules (assuming a PBU introduction in 2022). Apparent in this figure is also that replacement rates do not change for a minimum wage earner with 15 and more contribution years under the PBU reform. This is due to the fact, that with the PBU reform own pension entitlements (i.e., without minimum pension top-ups) plus the PBU benefit cannot be higher than under

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[20] This may also be illustrated by an example: Take a person with 150 contribution months. For this person the replacement rate increase expected from contributing 30 more months is lower under the PBU scenario compared to the baseline (see also Figure in the left panel).

current rules. Effectively, this leads to the same replacement rate schedule as under current rules (see Figure 8 in the right panel).

58.   It is expected that, under optimistic assumptions, it would take approximately 10 years for PBU to achieve full coverage of all the elderly poor, ineligible for a contributory pension. The first stage of implementation would simply replace the social pension with the PBU, but PBU would only continue paying to existing beneficiaries. At this stage, the PBU benefit would remain the same as the social pension, effectively re-labelling the current benefit. Social pension eligibility rules would remain applicable until full coverage, as per RNC rules, is achieved – after which time, new recipients would be added according the new PBU rules.

Figure 8. Replacement Rates, Minimum Wage Earner: Current vs. PBU Rules
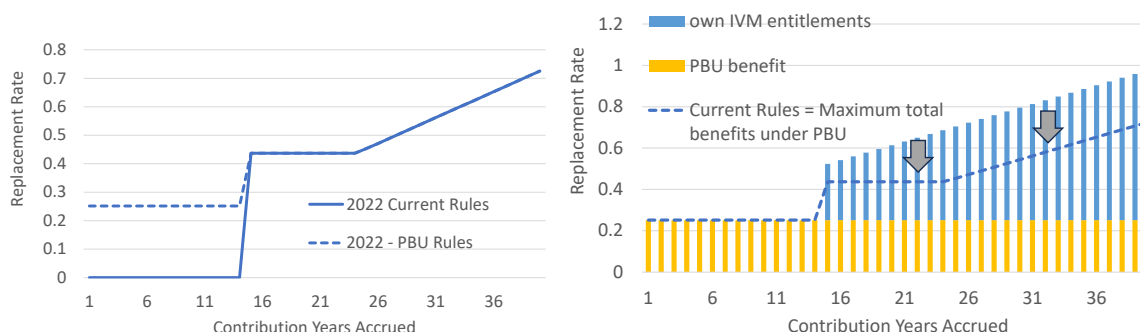
Source: IMF staff calculations.

59.   The financing of the PBU would rely on multiple sources, including reduced first pillar state contributions redirected to the PBU, former RNC revenues and other taxes. According to SUPEN, the current financing (1 percent of GDP) is based on actuarial estimates indicating the reserve requirements to make the PBU fully funded after its full roll-out in the mid-2050s. The financing will include 3 percent of twice the poverty line per person covered, 15 percent of state-owned-enterprises profits, current RNC revenues, among others. Approximately 20 percent of the allocated financing is yet undefined while some other items (such as SOE's profit taxes) imply significant uncertainties. In addition, a portion of the state contribution to first pillar schemes would be redirected to the PBU. Today's 1.57 percent of covered earnings state contribution would be replaced by a significantly lower contribution equal to 0.75 percent of twice the poverty line per contributor (the same base used for the direct PBU contribution accumulating the PBU reserves).

60.   The proposal reduces first pillar schemes' benefit expenditures, too – but whereas the expenditure cuts only take effect in the distant future, the revenues are reduced immediately. The proposal seeks to change the pension calculation base in IVM: the pension calculation base would be the contribution-rate-weighted average of the employer and employee contribution base, and twice the poverty line. Since the state contribution (and its base) are fixed amounts, the relative weight of the state contribution's base diminishes in income: higher earners' pension calculation base (and, consequently, benefits) will decline more, relative to current rules, than lower earners' benefits. The effect of the change in the calculation base will also depend on age as pensions will be calculated using different assessment bases for periods before and after launching PBU, with older workers impacted less.

61.   PBU will be administered by the CCSS as a separate, partially funded scheme, with reserves segregated from those of IVM. The proposal establishes a target funding ratio (assets to projected liabilities) for the CCSS set at 70 percent[21]. If the funding ratio declines below the target, measures (yet undefined) will need to be taken by the CCSS to revert to the target. The measures to reestablish the target funding ratio will imply either contribution increases, or downward adjustments to the present value of IVM benefits. The latter may be achieved, for instance, through higher retirement ages combined with lower accrual rates, partial indexation of benefits, lowering benefit maxima, or contribution rate increases.

B.   Assessment of the Proposal

62.   The proposal is incomplete in its details and may need a comprehensive evaluation of the pension system's current objectives, structure, and parameters. Important details are left open by the proposal: time and pace of introduction, as well as the first cohort impacted[22]. The proposal also lacks long-term fiscal and welfare analyses and doesn't discuss how the PBU would integrate with - or would impact the design of - other social welfare programs. The proposal is also silent about how the incentives to participate in contributory schemes may be affected by PBU. Furthermore, it is unclear – including in the draft PBU Bill and its explanatory note – whether the government's policy objective is to prevent old age income poverty or to ensure that every elderly person receives some form of a pension. These objectives are not synonymous and must be clarified before the concept (and the PBU bill) is finalized. These shortcomings should be addressed before the proposal is further processed legislatively.

63.   The PBU, in its current form, is unlikely to achieve any of its stated objectives in the short term. The PBU proposal would eliminate the RNC pension waiting lists and would expand coverage to all poor elderly over a period of approximately 10 years but would not extend coverage to people living with disabilities. Whereas shifting the policy focus from the elderly poor to all elderly people (as eventually would be implied by replacing the RNC with the PBU) is a legitimate policy objective, excluding the disabled from the PBU contradicts a basic objective of pension policy, e.g., preventing poverty among the elderly, the disabled and household who lost a breadwinner.

64.   A universal basic pension conditioned on citizenship and residence only, is very likely to undermine coverage and compliance in contributory schemes, irrespective of benefit levels. Universal basic schemes are typically operated by countries where publicly underwritten (public) pensions are limited to that scheme either as a matter of policy choice (e.g., New Zealand, The Netherlands), or because of fiscal constraints (e.g., Georgia). The few exceptions to this rule (e.g., Sweden) use complex tapering and eligibility rules to limit the disincentives to compliance with contributory schemes[23]. This approach implies that while eligibility is universal, the benefit actually functions as a diminishing top up. It is questionable whether such complicated solutions – especially in a country with weaker tax and

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[21] The method of measurement (accrued-to-date, closed group, open group, based on prospective benefit obligations or not, etc.) is not defined in the proposal.

[22] Some of the issues were clarified, verbally, during the mission, the proposal's text omits these important details.

[23] Sweden is also one the countries with the lowest tax avoidance.

contribution compliance than Sweden - would work in Costa Rica. The proposal is silent on how disincentives to compliance may be addressed.

65.   The proposed benefit level – at 62 percent of the poverty line – is insufficient as a basic income supposed to prevent poverty. This issue is driven by the intention to replace both the contributory minimum pension and the RNC with a single instrument. PBU, in combination with contributory pension benefits will provide an adequate benefit to most former contributors. This may not be the case for worker with short and low contribution histories for whom the PBU benefit may be lower than the top-up to the contributory minimum pension under current rules.

66.   The high residence criteria – 40 years – is strict and may necessitate other forms of old age income support targeting those elderly who fail to meet the residence requirement. One of the structural objectives of universal benefits (targeting any group) is to simplify the system of social protection schemes. The stricter the conditions of the PBU, the more likely it is that further – targeted – social transfers will remain necessary to address old age poverty.

67.   The suggestion to make the PBU fully funded limits the scheme's capacity to address poverty in the foreseeable future, creates fiscal problems by increasing overall financing needs and, potentially, reported public debt – without creating an additional source of financing. The PBU proposal's additional financing need is approximately 0.6 percent of GDP (the amount used for accumulating PBU reserves). The only reason why this impact will not show in the central government's fiscal reports, at least temporarily, is that the cost of building the PBU reserves will be borne by the first pillar schemes, in the form of depleting their reserves faster than in the baseline. In other words, if these schemes had no reserves and were operating pay-as-you-go, the proposal would immediately translate into permanent expenditure cuts, tax increases or annual additional debt of 0.6 percent of GDP.

C. Fiscal Impact Analysis

68.   Two scenarios are presented to measure the fiscal impact of the PBU reform proposal. This reflects the uncertainty regarding the exact implementation of reform. In the main "PBU proposal" scenario, also shown in the Executive Summary, we assume that the group of beneficiaries entitled to a PBU benefit will be extended only gradually over the next decade: the first group being entitled to a PBU pension are RNC retirees aged 65 and older in the PBU introduction year 2024. Thereafter, the PBU coverage is gradually extended to elderly people without a contributory or non-contributory pension benefit. This second beneficiary group represents about 30 percent of the elderly population which step by step will be covered in the period 2025-2054. Thereafter, the remaining share of the population – which is not receiving a pension charged to the national budget – is gradually covered by the PBU. This third group covers all cohorts aged below 35 in 2024 which will be eligible to the PBU benefit in the future. This implies that affiliates of the IVM and other pension schemes who turn 65 years after 2054 will receive a PBU benefit. As a result, the PBU benefit will become fully universal, covering the entire elderly population, not until around 2090. In an alternative scenario ("immediate PBU scenario"): we assume that the PBU benefit becomes universal in the year 2024 and is granted to all elderly people, except for those not receiving a pension charged to the national budget.

69.   The PBU reform, as considered by the government, leads to an immediate restructuring of pension revenues and to substantial expenditure increases, however, only over the long-term. In the mid-term this reform does not increase substantially overall public pension expenditures because PBU benefits mostly replace former RNC benefits. Moreover, only a small share of the uncovered elderly population will additionally receive PBU benefits until 2030 - due to its gradual implementation.

70.   Over the long-term total public pension expenditures rise significantly (+0.6 percent of GDP) as an increasing share of the elderly population will be covered by the PBU scheme. PBU expenditures amount to 1.6 percent of GDP by 2070 (see Table 6) and these costs can be partially covered by lower IVM pension expenditures (-0.6 percent of GDP) and lower RNC expenditures (-0.4 percent of GDP). IVM expenditures decline mainly due to the abolishment of minimum pensions and the general reduction in IVM benefits[24].

71.   To finance these additional long-term pension expenditures (0.6 percent of GDP) the PBU scheme needs to run surpluses over the coming decades. For this purpose, one percent of GDP shall be transferred to the new PBU scheme annually. Over the next 30 years these revenues are expected to be higher than the PBU expenditures which allows to build up substantial reserves.

72.   The annual PBU financing of one percent of GDP can be partially covered by reducing IVM state contributions and RNC revenues, with a remaining financing gap of around 0.2 percent of GDP. From a general government perspective, the PBU reform is mainly financed by redirecting government transfers from the first pillar pension schemes (0.5 percent of GDP). Additionally, revenues dedicated to the RNC scheme can be used to finance PBU benefits. The latter amount to 0.3 percent[25]. Still a financing gap of around 0.2 percent of GDP remains for which additional resources need to be identified.

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[24] IVM benefits decrease for all retirees in the long-term due to the rule that IVM and PBU benefits in total cannot be higher than IVM pensions under current rules.

[25] We assume that not all RNC benefits can be replaced by the PBU scheme, namely those paid to RNC beneficiaries below the age of 65 years.

Table 6. Fiscal Impact of the PBU Proposal

PBU Proposal (change relative to the baseline, in percent of GDP)							
	2022	2030	2040	2050	2060	2070	2022-2070
Pension expenditures	**0.0%**	**0.0%**	**0.2%**	**0.4%**	**0.6%**	**0.6%**	**18%**
of which							
PBU	0.0%	0.4%	0.6%	0.8%	1.3%	1.6%	35%
IVM	0.0%	-0.1%	-0.1%	-0.1%	-0.3%	-0.6%	-5%
RNC	0.0%	-0.3%	-0.3%	-0.3%	-0.4%	-0.4%	-11%
Pension revenues *	**0.0%**	**0.2%**	**0.1%**	**0.1%**	**0.1%**	**0.1%**	**5%**
of which							
IVM employer and employee contributions	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0%
Government Financing	0.0%	0.2%	0.1%	0.1%	0.1%	0.1%	5.0%
of which							
PBU	*0.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*30%*
State contributions	*0.0%*	*-0.5%*	*-0.5%*	*-0.6%*	*-0.6%*	*-0.6%*	*-19%*
RNC	*0.0%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*	*-8%*
Treasury pensions	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0%*
Memorandum items							
PBU reserves	*0.0%*	*5.0%*	*11.3%*	*17.1%*	*21.2%*	*21.1%*	
IVM reserves depleted: 2030							

73. The PBU reform allows to prefund future rising PBU expenditures which comes, however, at the cost of deteriorating fiscal stability of first pillar pension schemes. For the IVM and other first pillar pension schemes the PBU reform results in sizeable redirections of transfers affecting their financial long-term stability negatively.

74. Under the PBU scenario IVM finances will rapidly deteriorate as state contributions decline significantly, while pension reductions remain limited in the mid-term. In total IVM state contributions are lowered by 0.5 percent of GDP compared to the base scenario. This is the result of the new rules to calculate state contributions. With the PBU reform they will be estimated based on 0.75 percent of twice the urban poverty line, instead of 1.57 percent of the workers contribution basis in the PBU introduction year 2024. The resulting revenue loss for IVM is increasing in the mid-term as the rise in IVM state contribution rates to 1.91 percent in 2029 cannot be realized under the PBU reform. Only a small share of these revenue losses can be compensated by somewhat lower expenditures under the PBU reform. The bill foresees in Article 11 that pensioners are not anymore exempt from SEM health care contributions. This lowers IVM expenditures - which currently cover these health contributions – by about 5 percent (0.1 percent of GDP) from 2024 onwards[26].

75. The PBU reform results in a faster drawdown of IVM reserves and an earlier need to overcome insolvency of the IVM scheme. According to our projections IVM reserves will be depleted by 2030 with the introduction of the gradual PBU reform, four years earlier than in the base case scenario. Without further measures, the IVM will run significant deficits from 2030 onwards which are not only occurring earlier but are also higher than in the base scenario, at least until around 2060. Thus, the

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[26] Additionally, reference earnings used to calculate future new benefits will decline somewhat according to the PBU proposal. This reform item will affect pension expenditures only in the long-term and only to a marginal degree.

reform creates new risks outside of the central government which are likely to be, ultimately, underwritten by the government. The RCC and FPJ schemes are similarly affected by the reform[27].

Immediate universal PBU introduction

76.   The immediate introduction of the PBU system to (nearly) the entire elderly population in 2024 would cost around 1.3 percent of GDP, further rising in the future (see Table 7). Under this scenario only retirees in the pension schemes charged to the state budget would not be entitled to a PBU benefit in 2024 and thereafter.

77.   To finance these higher costs additional resources would have to be identified. The current reform proposal outlines a number of financing resources for the PBU system. This includes transfers allocated to the RNC (about 0.4 percent of GDP) and other revenues (0.2 percent of GDP). Additionally, the fiscal gains from reducing in state contributions of about 0.4 percent of GDP may be used to finance the PBU expenditures. These resources will, however, not be sufficient to pay for all PBU benefits under an immediate reform introduction.

78.   Given these high costs, it seems unrealistic to build up a reserve under the immediate PBU scenario. Already in the first year of the PBU introduction 2024 expenditures would be significantly higher than the minimum financing obligation of 1 percent of GDP stated in the reform proposal. This makes the prefunding of future PBU benefit obligations difficult and shows the tradeoff between reaching a higher PBU coverage rate in the short-term and building up reserves.

79.   Under the immediate PBU scenario expenditures in the IVM would drop more than revenues, with the result of a later depletion of reserves. The loss in state contributions to IVM would be more than compensated by the reduction in IVM expenditures. This decline in expenditures is mainly driven by the partial substitution of IVM pensions with the PBU benefit and by lower IVM expenditures for health contributions. Overall, this leads to a later draw down of IVM reserves[28].

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[27] The RCC and FPJ schemes are similarly affected. According to the PBU proposal state contributions are lowered and measured on a flat basis in the RCC and FPJ scheme, too. This reduces per capita state contributions transferred to these schemes significantly as comparably high earnings of judiciary and teacher affiliates are not anymore used as the basis for state contributions. In terms of overall revenues, the impact of the PBU reform is somewhat lower in the FPJ system as state contributions account only for 5 percent of total contributions under current rules. This compares to a share of state contributions of 9 percent in RCC and 14 percent in IVM. Overall, the reform leads to an earlier depletion of reserves in these schemes by around 3 years.

[28] In the RCC and FPJ schemes the effect of the immediate PBU introduction is mixed. In the judiciary scheme the share of pensions substituted by the PBU is small given the high average benefit level in this scheme. As a result, the revenue loss cannot be fully compensated by lower expenditures. In the RCC scheme, future average benefits are lower than in the FPJ system. Therefore, a higher share of expenditures is replaced by PBU benefits. Overall, this more than compensates revenues losses in the RCC – in particular in the longer term with a rising dependency ratio. As a result, RCC reserves are drawn down slightly later than in the base scenario.

Table 7. Fiscal Impact of an immediate PBU Production

Immediate PBU Reform *(change relative to the baseline, in percent of GDP)*							
	2022	**2030**	**2040**	**2050**	**2060**	**2070**	**2022-2070**
Pension expenditures	**0.0%**	**0.3%**	**0.3%**	**0.4%**	**0.5%**	**0.5%**	**12.6%**
of which							
PBU	0.0%	1.4%	1.5%	1.7%	1.9%	1.9%	55.7%
IVM	0.0%	-0.7%	-0.8%	-0.9%	-0.9%	-0.9%	-29.1%
RNC	0.0%	-0.3%	-0.3%	-0.3%	-0.4%	-0.4%	-11.3%
Pension revenues *	**0.0%**	**0.2%**	**0.1%**	**0.1%**	**0.1%**	**0.1%**	**5%**
of which							
IVM employer and employee contribu	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0%
Government Financing	0.0%	0.2%	0.1%	0.1%	0.1%	0.1%	5.0%
of which							
PBU	*0.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*1.0%*	*30%*
State contributions	*0.0%*	*-0.5%*	*-0.5%*	*-0.6%*	*-0.6%*	*-0.6%*	*-19%*
RNC	*0.0%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*	*-0.3%*	*-8%*
Treasury pensions	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0%*
Memorandum items							
PBU reserves	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	
IVM reserves depleted: 2039							

* Pension revenues exclude capital income from reserves.

Source: IMF staff calculations.

D. Welfare Impact Analysis

80.   The PBU proposal shows only a minor impact on future expected pension replacement rates. The reform partially substitutes benefits paid out in the contributory pension schemes with the new PBU benefit: while the contributory minimum pension will be no longer applicable to people eligible for the PBU, the combined benefit cannot be lower than according to current rules (including the contributory minimum). Therefore, on average, it does not lower pension levels. An exception are low wage earners with a PBU benefit being lower than their minimum pension top-up. The share of this group among retirees is, however, very small[29].

81.   The new calculation of the reference earnings may decrease pension replacement rates somewhat in the future, in particular for high wage earners. Replacement rates, measuring the ratio of starting pensions to final earnings, decrease by about 2 percent for an average wage earner when considering the new reference earnings (see Table 8). In line with Article 8 of the proposal the lower state contributions paid to the IVM scheme shall be considered in the calculation of the reference earnings. In the short-term this will have only a minor effect on future new retirees benefits as the lower reference earnings are only applied for those earnings accrued after the reform. Additionally, the measure shows a larger effect for high wage earners for which the state contribution is lowered most after the reform. For a low wage earner with a short contribution career, on the contrary, the measure shows, generally, no effect. This affiliate will receive a benefit equal to the (former) minimum pension level also after the reform.

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[29] According to the micro data, for instance, about 4 percent of minimum pension recipients or 1 percent of overall pensioners who retired in 2021 and 2022 belong to his group. When simulating enacted changes in accrual rates after 2023, the share of total new retirees for whom the PBU benefit would be smaller than the minimum pension top-up also remains small (about 5 %).

Table 8. PBU Replacement Rates

Average Wage Earner - Average Career						
Year	2022	2030	2040	2050	2060	2070
BASELINE	*52%*	*46%*	*46%*	*46%*	*46%*	*46%*
Gradual PBU Reform	52%	45%	45%	44%	44%	44%
Immediate PBU Reform	52%	45%	45%	44%	44%	44%
Low wage earner - Short Career						
Year	2022	2030	2040	2050	2060	2070
BASELINE	*45%*	*44%*	*44%*	*44%*	*44%*	*44%*
Gradual PBU Reform	45%	44%	44%	44%	44%	44%
Immediate PBU Reform	45%	44%	44%	44%	44%	44%
High Wage earner - Long Career						
Year	2022	2030	2040	2050	2060	2070
BASELINE	*56%*	*50%*	*50%*	*50%*	*50%*	*50%*
Gradual PBU Reform	56%	49%	49%	48%	47%	47%
Immediate PBU Reform	56%	49%	49%	48%	47%	47%

Source: IMF staff calculations.

82.   The fiscal impact of introducing the Universal Basic Pension (PBU) must be seen in the broader context of the country's public spending and investment needs, including the additional resources needed to eradicate poverty. The government plans to allocate at least one percentage point of GDP annually to finance the PBU. This allocation represents approximately double the budget allocation for the institution in charge of social protection in the country IMAS in 2022 (0.55 percent of GDP) and 2.5 times the non-contributory old-age benefits budget allocation (0.4 percent of GDP).

83.   Allocating the same amount to existing anti-poverty program would make a tangible impact on poverty. One percent of GDP, if a transfer equivalent to the urban poverty line is considered, combined with the prioritization of households with older adults, is enough to eradicate poverty among older adults and reduce the overall poverty headcount by 10.6 percentage points, from 25.5 percent to 15 percent. Additionally, when considering the total budget allocation for the PBU from 2024 to 2030 (7 percent of GDP), and comparing this amount to the additional funding requirements, both public and private, to make significant progress toward the Sustainable Development Goals (SDGs) in five sectors by 2030: education, health, electricity, water and sanitation, and roads, we find that the cost of introducing the Universal Basic Pension is about one-third of the additional spending needed to achieve the SDGs[30].

84.   The PBU is expected to take around nine years to achieve full coverage among older adults currently living in poverty, with a reduction of 6.5 percentage points in the old adult's

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[30] The additional expenditure in the infrastructure sectors represents annual expenditures, whereas the spending on education and health refers to the expenditure in 2030.

poverty headcount, at most. The proposed transfer amount, which consists of 13 payments of CRC 82,000 each, corresponds to approximately 69.2 percent of the urban poverty line and 89.6 percent of the rural poverty line in 2022. Considering that the average number of inhabitants in households where older adults reside is 2.6, with about half of them being individuals aged 65 and over (the only eligible recipients of the PBU), the proposed amount falls short of effectively lifting seniors out of poverty. As the program will be introduced gradually, with the initial beneficiaries being those who already receive a social pension and prioritizing the expansion of coverage to include poor older adults who currently do not receive any contributory pension, it will only be by 2032 that all now uncovered poor older adults will become beneficiaries. Consequently, the PBU is not expected to reduce poverty significantly in the initial years of its implementation. By 2032, when the maximum poverty reduction effect is expected, the program is projected to decrease poverty among older adults by 6.5 percentage points. After 2033, the predicted reduction in poverty is expected to remain constant at that level. These impact assessments assume that the annual benefit will be indexed to inflation. If the benefit is not indexed accordingly, the impact on poverty will be lower.

Table 9. Poverty and Inequality impact of introducing the Universal Basic Pension

|	Program coverage among people aged 65+	Average monthly transfer (in 2022 prices)	Population 65+			Additional cost*
			Poverty headcount	Poverty gap	p90/p10	
Baseline Scenario	18%	88,787	27.0	8.7	10.7	0%
Panel A: Introduction of the Universal Basic Pension						
PBU gradual (impact in 2024)	19%	88,787	27.0	8.4	10.7	150%
PBU gradual (impact in 2030)	25%	88,787	22.4	5.9	9.0	150%
PBU gradual (impact in 2032)	27%	88,787	20.5	5.5	9.0	150%

Source: IMF staff calculations.
Note: * The additional cost is computed as a percentage of today expenditure in the Non-contributory pension covering people 65 and older.

85.   The redistributive effect of government spending aimed at supporting the elderly population will fade as the PBU gains coverage and reaches the elderly in the highest quintiles. Government expenditure considered in the analysis includes both the spending on the non-contributory system and the state contribution used to top-up minimum pensions in the IVM regime. Among the future PBU beneficiaries who are currently not covered by a pension (contributory or social), only 30 percent are classified as poor or extremely poor. However, by 2032, when all new PBU beneficiaries will be older adults living in poverty, a greater proportion of government expenditure intended for supporting the elderly will go to old adults living in poverty. Currently, 54.1 percent of the spending goes to senior adults in the bottom 30 percent of the per capita income distribution. By 2032, due to the introduction of the PBU, this percentage is projected to increase to 64.5 percent (see Figure 9).

Figure 9. Distribution of IVM top-up and social pension (current vs 2032)
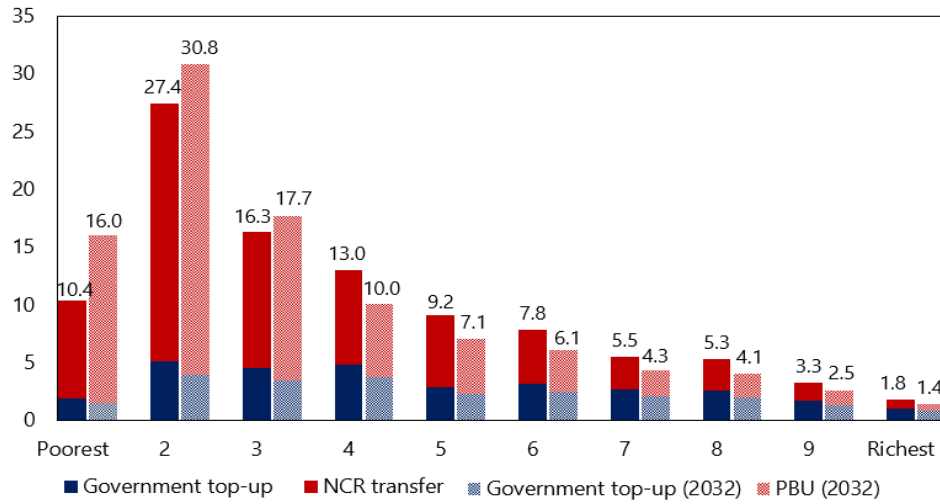
Source: IMF staff calculations based on the Costa Rica Household Survey (ENAHO, July 2022).

86.   Starting in 2033, when non-poor older adults begin to receive PBU benefits, the additional resources will gradually erode the positive redistributive effects achieved by the program up until that point. As the PBU reaches full coverage and given that older adults are evenly distributed throughout the income distribution, it is expected that only 33.4 percent of the resources allocated to the program will be directed toward poor older adults.

IV. Recommendations

87.   The mission's recommendations focus on the PBU and its possible alternatives in improving old age income security – but other issues identified during the mission are also discussed. Noncontributory old age income security schemes operate in the broader context of pension policy, social protection, labor market and tax policies, as well revenue administration, and public financial management. The mission identified numerous areas which, while not directly related to PBU, merit attention. In case of pension policy and parameters, the report offers recommendations while in other cases – where the team lacked the mandate and an in-depth knowledge of the issues - only the problems are identified.

88.   Quantitative fiscal and welfare impact analyses are only offered with regard to PBU scenarios and its alternatives. Recommendations concerning parametric changes to the existing system – which are considered necessary irrespective of whether the PBU is launched or not – are not modelled for the purpose of this paper, primarily for presentational reasons: the number of scenarios would grow exponentially and would make discussing the report's main recommendations concerning PBU convoluted.

A. Improving Coverage and Adequacy

89.   Instead of a universal basic pension, consider measures aiming to expand coverage in IVM and RNC. Eliminating certain regulatory and administrative shortcomings in the current pension system can help the government achieve its objective of extended coverage without the PBU's drawbacks. Indeed, greater coverage by RNC promises a greater and less costly anti-poverty impact than a PBU as proposed by the current bill. This outcome is primarily driven by the country's administrative capacities and reliable databases which permit efficient targeting of RNC benefits. PBU, as proposed, would not only target the poor elderly and would therefore imply a large inclusion error (assuming that the government's objective is old age poverty alleviation and not simply supplementing every elderly persons' income with a universal transfer).

90.   Improve information exchange between the tax department and the CCSS. Currently, taxpayers can register with the CCSS without registering with the tax department or (especially in the case of the self-employed) vice versa. It is important that registries are regularly reconciled, and tax and contribution records are cross-checked. Social security, labor inspectorate and tax audit results need to be shared across institution.

91.   Consider collecting wage and income tax returns from all employees and self-employed persons, irrespective of income levels. Currently, employees with incomes in the zero-rate income tax bracket are not reported to the tax department by their employees. This information gap hinders enforcing tax compliance and would render any collaboration between the CCSS and the tax department less effective – especially considering the large concentration of people reporting incomes to CCSS close to the minimum contributory income.

92.   Consider reducing further the retroactive payment of self-employed people registering with the CCSS later than with the tax department. Reducing retroactive payment obligations to one year may encourage noncompliant self-employed workers to come forth and join IVM.

93.   Make participation in the second pillar mandatory for the self-employed or, at a minimum, consider auto-enrollment. The objective of allowing self-employed workers to only participate in the first pillar is unclear and is acting against the old-age welfare of a segment of the labor force which, in light of employment forms and career paths becoming more heterogeneous, is likely to grow in the future. Auto-enrollment automatically registers participants in the second pillar and starts collecting contributions – however, auto-enrolled participants have the freedom to opt out. Due to this approach's reliance on behavioral effects ("nudging"), it has been a highly successful instrument of improving coverage in most countries that introduced auto-enrollment.

94.   Consider reducing the minimum contribution history (vesting period) in IVM but keep it as a condition for eligibility for a contributory minimum pension. Lower vesting periods, for instance of 12 instead of 180 months, can help to tackle equity, coverage and, potentially, incentive problems of the system. This measure avoids that individuals pay contributions for up to 179 months without receiving any benefit at all. At the same time individuals may get an incentive to contribute to the system, namely those who are likely not to meet the current high vesting periods. The overall impact of lower vesting periods on contribution densities is, however, uncertain[31]. Straightforward is, on the contrary, that reduced vesting periods help to increase pension coverage (as e.g., the Pension Moratorium in Argentina has shown). This comes, however, at the cost of increased future pension expenditures. In order to limit these costs, it is advisable to increase (or at least keep) the length of contribution history required for eligibility to the contributory minimum (currently 180 months).

95.   Commit to eliminating the RNC waiting list within a clearly defined and published timeframe and amend eligibility rules so that receiving an RNC benefit doesn't prevent other elderly household members from receiving the same benefit. The credibility of the government's commitment to addressing old age poverty depends on its actions to address old age poverty already in the short-term. In other word, old age poverty alleviation should not be subordinated to the long-term goal of creating a PBU (as a program and as a reserve). Current RNC rules should be amended so that RNC benefits can be received by more than one household member.

96.   If the government wishes to go ahead with the PBU proposal, consider the following options:

●   Increasing the eligibility age relative to the normal retirement age for people without a contributory benefit, in exchange for introducing the new scheme faster or at a lower cost. One of the main shortcomings of the proposal is the very gradual introduction of PBU, failing to address old age income poverty. In order to sufficiently differentiate between people with contribution histories justifying a contributory pension but on the basis of low earning, and people with short or without contribution histories (and thereby weaken the disincentives of the PBU for contribution compliance), consider making the PBU eligibility age higher -for example, by 5 years - than the

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[31] For some affiliates the current vesting periods may also serve as an incentive to reach the minimum contribution history of 180 months and to increase contribution densities.

applicable IVM retirement age. Apply the resulting savings to expand coverage among the elderly.

• Operating PBU as a tax-financed scheme without pre-funding. Pre-funding future PBU liabilities delays universal applicability as it creates a double-financing problem, similar to the partial replacement of pay-as-you-go social insurance schemes with fully funded ones: benefit obligations accumulated in the past remain in the system and continue accruing according to current rules while part of social security contributions – or, more broadly, resources that could be made available immediately for poverty reduction – are set aside in a reserve fund. Considering that a reserve invested almost entirely in public debt represents no additional source of financing (as future obligations will be financed from future tax revenues, as the reserve's securities mature), accruing a special PBU reserve may create more problems than solutions.

• Expand coverage to people with disabilities who meet the eligibility conditions for an IVM disability pension but have no access to a benefit due to their insufficient contribution histories. While universal basic pension schemes may differ in their design, excluding the most vulnerable subgroup of the economically inactive population: people with disabilities without other sources of income compromises the scheme's social policy objectives.

B. Fiscal and Welfare Consequences: Comparison

97.   Better targeted programs will enable significant poverty reduction among the elderly with the same fiscal cost or achieve comparable results at a lower cost. The same results in poverty reduction, expected in 2032 with the gradual PBU, can be achieved immediately with two alternative approaches of different fiscal implications. The first alternative is to extend the coverage of the RNC to include all elderly individuals living in poverty who currently do not receive any pension. This would cost 0.1 percentage points of GDP in 2023. This cost is approximately one-third of the additional spending allocated to the gradual PBU scenarios. The second alternative is to immediately introduce the PBU for all individuals above 65 years of age, which would imply a significant increase in the current budget allocation of the non-contributory regime. The allocation need is as high as four times the current budget allocation (see Table 10). The average household poverty gap for the poor elderly not covered by RNC is CRC 123,985 monthly, and among poor elders receiving a non-contributory pension is CRC 91,907 monthly, which shows that the amount considered in the PBU project will not be enough to reduce poverty among older adults significantly. Therefore, if the government aims to alleviate poverty among old adults, it will be necessary to adjust the transfer amount. For example, if coverage of the non-contributory regime is expanded while the transfer is increased to the urban poverty line (CRC 128,406), poverty among older adults will be reduced by half[32]. Implementing this program would require an increase in public spending of 0.5 percent of GDP, equivalent to the annual additional budget allocation for the PBU.

98.   A coverage extension of RNC beneficiaries to the elderly uncovered poor would increase overall RNC expenditures by about 0.2 percent of GDP over the long-term (see Table 11)[33]. For this

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[32] This scenario implies an increase of the transfer for current beneficiaries of CRC 50,320 monthly.

[33] These additional fiscal costs will not widen significantly over the coming decades at least in terms of GDP. This is mainly explained by the indexation of RNC benefits with prices, while GDP is, generally, growing at a higher pace. On this basis fiscal pressure due to demographic ageing can be mitigated in the RNC scheme and costs in terms of GDP kept relatively constant.

scenario we take the simplifying assumption that the share of the uncovered poor in the elderly population remains constant over time. The costs of this IMF proposal are about 0.4 percent of GDP lower over the long-term compared to the PBU scenario. The main reason for this cost difference lies in the lower coverage of the IMF proposal which focuses on the uncovered elderly poor, only.

Table 10. Poverty and Inequality Impact Alternative Scenarios

| | Program coverage among people aged 65+ | Average monthly transfer (in 2022 prices) | Population 65+ | | | Additional cost % of baseline |
			Poverty headcount	Poverty gap	p90/p10	
Baseline Scenario	18%	88,787	27.0	8.7	10.7	0.0%
Panel A: Introduction of the Universal Basic Pension						
PBU immediately	94%	88,787	20.5	5.5	9.2	330%
PBU gradual (impact in 2024)	19%	88,787	27.0	8.4	10.7	150%
PBU gradual (impact in 2030)	25%	88,787	22.4	5.9	9.0	150%
PBU gradual (impact in 2032)	27%	88,787	20.5	5.5	9.0	150%
Panel B: Expanding the Non-contributory regime						
Increase NCR coverage (people 65+ living in poverty and extreme poverty, currently not covered by any other pension scheme)	27%	88,787	20.5	5.5	9.0	47%
Increase NCR coverage (people 65+ living in poverty and extreme poverty, currently not covered by any other pension scheme) and increase in the monthly transfer (monthly urban poverty line)	27%	139,107	11.8	3.1	7.5	147%

Source: IMF staff calculations based on the Costa Rica Household Survey (ENAHO, July 2022).
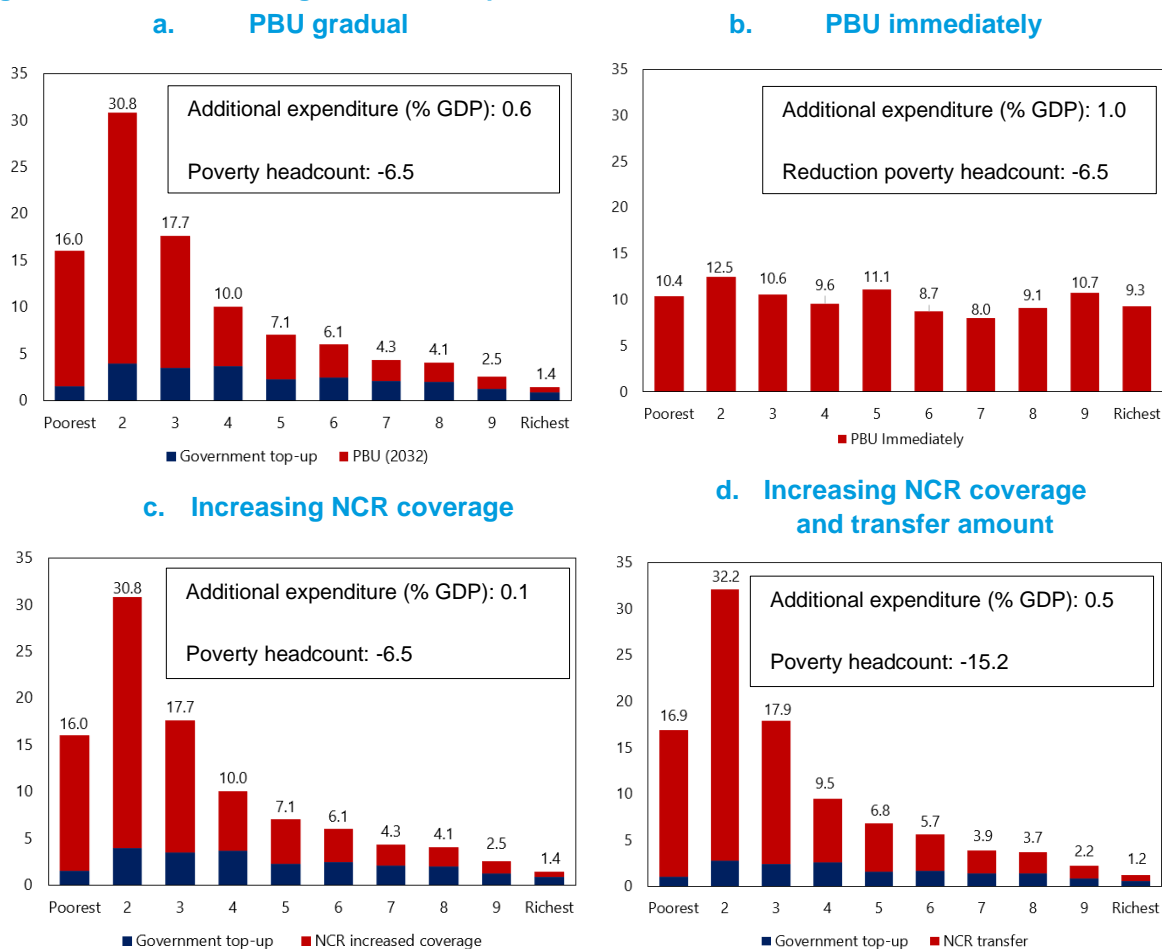
Table 11. Fiscal long-term costs of the IMF Proposal

YEAR	2022	2030	2040	2050	2060	2070	2022-2070 (NPV)
BASELINE							
RNC Expenditures	**0.4%**	**0.4%**	**0.4%**	**0.5%**	**0.5%**	**0.5%**	**16%**
IMF PROPOSAL: Extending RNC coverage to the uncovered poor							
RNC Expenditures	**0.4%**	**0.5%**	**0.6%**	**0.6%**	**0.7%**	**0.7%**	**22%**

Source: IMF staff calculations.

99.   Well-targeted social protection programs reduce poverty at the minimum possible cost and have a greater redistributive effect. In Costa Rica, where administrative capacity to efficiently target social cash transfer is high, it is desirable to use targeted programs to reach the most vulnerable populations and reduce poverty and inequality at a lower cost. By immediately expanding the PBU to the entire population, all the redistributive effects achieved by the non-contributory regime thus far are

erased. On the other hand, increasing the non-contributory regime coverage enhances the redistributive effect of public spending (Figure 10.c). The distribution of the program's budget allocations across the income distribution in the scenarios where the non-contributory regime coverage is expanded, regardless of whether the transfer is increased, is relatively similar (Figure 10.c. and Figure 10.d). In the case of the PBU, as it is universal in nature, the only variable that influences the distribution of benefits across the income distribution is the distribution of older adults themselves. Since older adults in Costa Rica are evenly distributed across the income distribution, spending is evenly distributed across the income distribution (Figure 10.b).

Figure 10. Distribution of government expenditure: Alternative scenarios

a.   PBU gradual

Additional expenditure (% GDP): 0.6

Poverty headcount: -6.5

Legend: Government top-up · PBU (2032)

b.   PBU immediately

Additional expenditure (% GDP): 1.0

Reduction poverty headcount: -6.5

Legend: PBU Immediately

c.   Increasing NCR coverage

Additional expenditure (% GDP): 0.1

Poverty headcount: -6.5

Legend: Government top-up · NCR increased coverage

d.   Increasing NCR coverage and transfer amount

Additional expenditure (% GDP): 0.5

Poverty headcount: -15.2

Legend: Government top-up · NCR transfer

Source: IMF staff based on the Costa Rica Household Survey (ENAHO, July 2022)
Note: The additional expenditure accounts for the additional requirements beyond the existing budget allocated to the RNC's old-age pension program.

100.   Despite the majority of resources from the non-contributory regime being allocated to individuals within the poorest 30 percent of the population, there is still scope for enhancing the targeting and allocation mechanism to minimize leakage to wealthier households. Currently, the non-contributory regime requires the beneficiary to express his interest. However, since poor older adults can be identified by SINIRUBE, a transition from a request regime (in which the person has to express his interest in the program) to an automatic allocation regime, in which priority is to older adults living in extreme poverty will ensure that a greater proportion of the benefits go to those most in need.

Additionally, SINIRUBE's accuracy in predicting poverty status can be improved by incorporating additional sources of administrative information, such as self-employed income tax declarations. Expanding information exchange agreements with other relevant institutions in Costa Rica can provide SINIRUBE with a broader dataset, allowing for a more comprehensive assessment of households' socio-economic conditions. With access to this additional information, the system can better identify those in greatest need. This increase in information will reduce the need for income estimation and enhance the performance of the matching learning algorithm, ultimately leading to improved targeting accuracy and reduced inclusion and exclusion errors.

C. Further Issues

Parametric changes to the current system

101.   The equity characteristics of the current system would improve by eliminating state contributions and shifting the burden of financing the social security system onto members and their employers. The state contributions -financed from general revenues – redistribute income from people outside the pension system to those inside. It also redistributes from poorest to richest households, given the incidence and ease of avoidance of income taxes vs indirect taxes (such as consumption taxes). Finally, the existence of a state contribution suggests as if the state was a separate, independent source of financing – whereas its ultimate source of funding is enterprises and households without recourse to any other. The state contribution could be replaced by a subsidy equal to the actual annual cost of the minimum contributory pension top-up.

102.   Legislate backward-looking, automatic price indexation of pension benefits. Automatic indexation to prices maintains benefits' real value, makes benefit values stable and predictable and enables more reliable projections concerning schemes' future financial position. It also protects pensioners from discretionary downward adjustments in time of fiscal pressures and prevents politically motivated upward adjustments.

103.   Consider changing the indicator used for valorizing elements of the reference wage from prices to wages. Valorizing with prices undervalues earnings relative to economywide productivity growth to which new retirees contributed during their active years. While price valorization is an effective method of reducing starting pensions, a more transparent way of achieving the same goal is to revise accrual rates.

104.   There are no early retirement penalties applied in public schemes and delaying retirement is insufficiently incentivized. Early retirement penalties should, at a minimum, reflect the combined financial effect of lower lifetime contributions and longer withdrawals. Furthermore, they may be designed to provide strong disincentives to withdraw from the labor market early. Given the contraction of the working age populations, the marginal replacement rates earned by years of service beyond the normal retirement age could be increased. The two sides of this proposals can be designed in a financially neutral manner.

Other considerations

105.   The suggestions of this section fall outside the scope of the mission but may merit attention. The recommendations should be viewed as indicative of the desirable direction of changes but not as technical proposals.

106.   Pension policy and regulations may benefit from a clearer division of responsibilities between parliament, government and CCSS. The dualistic nature of policymaking and regulations involving parliament and the government on one hand, and the CCSS, as a separate center of power, on the other is a source of uncertainty, especially when it comes to amending social security rules. The division of labor across the MLSS, SUPEN, and the pension schemes should be re-defined, with policymaking and regulations entrusted to a single government entity – preferably on MLSS. In a manner similar to many developed economies, CCSS' powers could be limited to interpreting laws and other regulations, and to enforce them on scheme members and their employers.

107.   Revenue administration should undergo a comprehensive review with the objective of improving monitoring, collection and enforcement of income taxes and social security contributions. The current system of separately reporting incomes to the tax department and the CCSS encourages underreporting, partial coverage and differentiated registration and income reporting. While tax policy and revenue administration are outside the mission's mandate, closer collaboration, more comprehensive income reporting (irrespective of whether the income falls within taxable brackets) is crucial to narrow the social security coverage gap and reduce the share of workers reporting contribution liable incomes at or close to the minimum permissible level.

108.   To promote fact-based policymaking, transparency and accountability, long-term fiscal and welfare impact analyses should mandatorily accompany regulatory amendments impacting public pension finances. The PBU proposal is not accompanied by any impact assessment – however, discussion with the authorities, including the CGR, indicate it is uncommon to attach such analyses to draft bills. The authorities may consider ensuring, by enacting or strengthening procedural fiscal rules, that no draft legislation with tangible fiscal consequences can be submitted for reading in parliament without standardized impact assessment.

109.   The legislative process may also be augmented by the requirement of a mandatory offsetting: proposals with an effect of increasing government financial obligations or reducing revenues accompanied by proposals offsetting the negative impact. Mandatory offsetting can prevent (or limit) increasing unfunded liabilities. While mandatory offsetting can be applied generally, it is particularly important – such as in pension systems – when incremental obligations are spread over a very long horizon and may involve asynchronous revenue and expenditure effects.

Annex 1. Modeling Methodolgy: A Brief Summary

The pension projection of this report uses a **dynamic cohort simulation model**. It is based on age- and gender-specific profiles which reflect current and future benefit and contribution levels, scheme participation rates, contribution densities as well as retirement behavior. Simply speaking, the cohort model weights these average pension and contribution levels per person with expected demographic changes. **The following paragraphs outline the applied methodological approach and assumptions in further detail**[34].

Table AI.1. Main Assumptions of the Baseline Projections

Demographic	UN World Population Prospects 2022 (Medium Variant)
Inflation	3 % in the long-term
Wage Growth, in real terms	2 % in the long-term
GDP Growth	IMF estimates unti 2028, wage + employment growth thereafter
Pension Indexation	Generally Price Indexation Only minimum pensions as well as pensions charged to the state budget are indexed with wages
Minimum Wage	Growing with wage growth in line with its real increases in the past decade
Discount Rate, in real terms	3.50%
Rates of Return of Reserve Funds, in real term	3.50%
Employment and Participation Rates	2022 Rates

The **information used for the modelling is mainly based on administrative data provided by the authorities.** For the evaluation of reform scenarios and their impact on the future distribution of pension benefits micro data has been applied. It covers pension levels and historic contribution variables of 20,000 retirees. For the incorporation of contribution career trends, a micro simulation is used which bases on contribution careers of 20,000 non-retired IVM scheme members. Up-to-date population projections of the National Statistical Institute (INEC) were not available, also mortality information of IVM scheme members could not be provided.[35] The demographic assumptions, therefore are, based solely on

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[34] This description bases partly on the authors report for Eurostat, named Technical Compilation Guide For Pensions in National Accounts, p. 112-122.
[35] The last publicly available population projection from INEC is from 2018.

the latest *UN World Population Prospects* data (2022 Revision[36], medium variant).[37] **For the projection of macroeconomic variables IMF staff estimates are applied** (see Table AI.1). GDP in the long-run is based on the sum of wage and employment growth.[38] Current employment rates and probabilities to contribute are kept constant over the projection horizon.[39]

In the projection first pension profiles for current existing retirees in the base year 2022 are estimated. They are calculated by distributing the aggregated amount of today's pension expenditures to the different cohorts in retirement age. By this procedure an age-sex-specific benefits' cross-section profile is generated from the budget and micro data.[40] It is measured in per capita of the population units. In other words, pension benefits $p_{b,k}$ (in the base year b of a cohort born in k) of a x (x=b-k) year old Costa Rican in a given base year are quantified. Formally, (see Eq. 1), $p_{b,k}$ is derived by multiplying the average pension benefit of a scheme's retiree $B_{b,k}$ of a certain age x by the number of scheme retirees at this age $M_{b,k}$ and dividing this product by the cohort size of the overall population $C_{b,k}$.

$$Eq.1 \qquad \boldsymbol{p_{b,k}} = \boldsymbol{B_{b,k}} * \frac{M_{b,k}}{C_{b,k}}$$

Profiles are estimated for different types of pension benefits (old age, spouses, orphan, etc.). Formally, the estimation of the existing retirees' benefits is based on the following identity:

$$EQ.2 \qquad P_b = \sum_{k=b-D}^{b} p_{b,k} C_{b,k}$$

This identity states that the sum of age-specific individual pension benefits $p_{b,k}$ (in the base year *b* of the cohort born in *k*) weighted with the cohort size $C_{b,k}$ must equal the corresponding macroeconomic pension expenditures, denoted by P_b.[41] The problem of Eq. 2 is that it holds only in theory. While macroeconomic data, typically taken from financial reports, is relative exact, **micro data is** in general difficult to gather and tends to be **afflicted with inaccuracies**.

To resolve the problem of unprecise micro data we estimate re-scaled age-sex-specific benefit profiles. This is done in two steps. First, age-sex-specific information regarding per capita pension benefits is collected in order to capture the relative fiscal position of different age groups as accurately as possible. The vector of relative pension benefits by age, taken from the statistics, ($\tau_{t,t-D}, \dots \tau_{t,k}, \dots, \tau_{t,t}$), is then denoted by $\tau_{t,k}$. Note that this vector is supposed to show only the relative pension position in period *t* of an individual born in the year *k* and thus imposes less restriction on the accuracy and availability of micro data on the absolute level. Second, the estimated relative age distribution is tallied with the corresponding aggregate pension expendtirues P_b by application of a proportional, non-age-specific

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[36] It has to be noted that the population structure of the UN 2022 Revision for Costa Rica for the year 2022 differs to national estimates at older age groups. For the projection this is of lower relevance as the age distribution of those older than 60 years in 2020 is, generally, not taken into account. For these age groups we can rely on age and gender distributions of retirees and only mortality data needs to be considered additionally in the projections.

[37] Based on these assumptions, we may underestimate the duration of pension pay-outs and future total expenditures in the IVM, FPJ and RCC as it is likely that life-expectancy of pension fund members is higher than in the general population.

[38] For further information on this assumption see, e.g., European Commission (2011), The 2012 Ageing Report: Underlying Assumptions and Projection Methodologies, pages 123-125.

[39] This assumption is in line with relatively constant employment and participation rates observed in Costa Rica over the last 10 years.

[40] For ease of notation the sex-specific notation is dropped from now on.

[41] Please note that *D* represents the maximum age of an individual which is 100 years by our assumption.

benchmarking factor, denoted by φ. The relative distribution of pension payments is then re-evaluated according to:

$$EQ.3 \qquad p_{b,k} = \varphi \tau_{b,k}$$

for all living generations of birth year b-D ≤ k ≤ b, where φ is defined by

$$Eq.4 \qquad \varphi = \frac{P_b}{\sum^{bk=b-D} \tau_{b,k} C_{b,k}}$$

Eq. 4 assures that Eq. 2 is finally satisfied such that the expenditures to existing retirees are assigned with age-sex-specific profiles to the base year population. Finally, the resulting rescaled average age-sex-specific existing retirees' benefits are projected according to the indexation rules. For the projection of this report a wage indexation is applied in the base scenario.

$$Eq.5 \qquad p_{t,k}^{exis} = p_{b,k}^{exis}(1+g)^{t-b}$$

We apply this calculation to all cohorts *b-D ≤ k ≤ b* living in the base year. Eq. 5 states that an individual already retired in base year *b* receives the same pension in a specific future year *t* as in the base year *b*, only corrected by the **indexation *g* of pension in payment**. Furthermore, Eq. 5 implies a **"phasing out"** of the stock **of existing pension benefits** as it holds only for all living generations.

For future new retirees a separate age-sex-specific pension profile is estimated. It is calculated based on existing retirees' benefits in the base year 2022. This is done in four stages. First, the average benefit of new retirees is calculated per capita of the population. In a second step, pension benefits for new retirees are evaluated for a specific year t. Thereafter, if necessary, future new pension benefits are altered by a deduction factor defined, for example, due to a pension reform. As a fourth and last step, the cumulated average benefits of future retirees are calculated by totalling year-by-year the benefits of new retirees. All of these four steps will be described in greater detail below.

Two approaches are chosen to estimate pension benefits for new retirees per capita of the population $p_{t,k}^{new}$. For old age pensions this variable is derived by multiplying average benefits l of current new retirees in 2022 - weighted with revalorization of pension rights with wage growth v until a given future year t - with the retirement probability $z_{b,k}$ (see Eq. 6). The latter is measured per capita of the population. It reflects the probability to retire and to be a scheme member eligible for pension benefits for an average Costa Rican of a given age x. It considers current retirement behaviour and retirement rates. In other words, it reflects, for instance, that cohorts which retired to a large degree already in past years (e.g. due to still genereous early retirement routes applied in recent years) have a lower probabiliity to retire in future years. The factor $\theta_{t,k}$ reflects the relative change in pension benefits due to the legal changes or changes in contribution histories. In this course, a micro simulation based on actual contribution histories was used to reflect trends in past contribution careers in the IVM system.[42]

$$Eq.6 \quad p_{t,k}^{new} = l_{b,k} * (1+v)^{t-b} * z_{t,k} * * \theta_{t,k}$$

A slightly different approach is chosen to estimate $p_{t,k}^{new}$ for other types of benefits (disability and survivors pensions). Here (see Eq. 7), the new retirees' benefit $p_{b,k}^{new}$ in the base year b for a cohort k is generated

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[42] In case of the IVM we consider, for instance, at this point that female affiliates of middle age can be expected to accrue an about 10 percent longer contribution career than current new retirees - which is a result of a micro simulation – and which will translate in higher benefits in the future.

by calculating the absolute change in existing retirees' benefit $p_{b,k}^{exist}$ of the cohort k to the cohort one year younger in the base year, namely k+1. For future years this profile remains constant, i.e. the base year retirement behaviour continues in the years to come (unless eligibility reforms are considered). As a consequence, the pensions of new retirees in future years t are estimated in the same way as in the base year (see Eq. 8). Only the notation of the respective cohorts is slightly altered and now linked to the future year t and the base year b. Accordingly, a new retiree's benefit $p_{t,k}^{new}$ in a specific year t of a cohort k is developed by calculating the absolute change in the benefit of the existing retirees of the cohort b-(t-k) (the cohort with the same age (t-k) in the base year b) to the cohort one year younger in the base year, namely b-(t-1-k). Eq. 7 sums up the calculation of pension benefit for future new retirees in a given future year t: Then **past pension rights are re-valued annually according to the benefit formula** reflected by the valorisation rate $(1 + v)^{t-b}$. It reflects (pre-retirement) indexation of pension entitlements until the point of retirement with wage growth.

$$Eq.\,7 \quad p_{b,k}^{new} = p_{b,k}^{exist} - p_{b,k+1}^{exist}$$

$$Eq.\,8 \quad p_{t,k}^{new} = [p_{b,b-(t-k)}^{exist} - p_{b,b-(t-k-1)k+1}^{exist}] * (1 + v)^{t-b} * \theta_{t,k}$$

In this study we evaluate pension reforms which may alter future pension benefits. Therefore, in a next step, the benefits of future new retirees' are reduced accordingly by a **deduction factor $\theta_{t,k}$ which reflects the relative change in pension benefits due to the legal changes** considered.

Last, the accumulated future benefits of new retirees need to be calculated. This step **cumulate**s **year-by-year all future new pension benefits** of an x-year-old representative agent of the population (in the base year) during his remaining life cycle. Thus, for example, a 60 year old representative (in the base year) will have a certain probability of receiving a benefit at the age of 61, 62 and so on. Formally, this is done by cumulating year-by-year $p_{t,k}^{new}$, according to Eq. 9. The accumulated age-sex-specific future pension benefits $p_{t,k}^{fut}$ of a retiree for a specific year t of the cohort k are defined as follows:

$$Eq.\,9 \quad p_{t,k}^{fut} = p_{t-1,k}^{fut}(1 + g) + p_{t,k}^{new}$$

From this equation follows that the average individual born in year k receives a future benefit in year t (t>b) which consists of the accumulated pension payment one period earlier (t-1) corrected by pension indexation g (=wage growth) plus the pensions paid to new retirees in that year. In other words, a future new retiree in year t is to some extent a new retiree in this year t — receiving $p_{t,k}^{new}$ – and to some extent an 'old' retiree who has already received a pension benefit in the years before t-1. Thus, the age-sex-specific benefit profile for future retirees builds up year-by year to project the future accumulated benefits of overall retirees.

Based on the profiles for existing and future new retirees, we can **derive the flow of total pension expenditures** (TE) in a respective future year f. TE is estimated by multiplying the cohort specific accumulated benefits of base year ($p_{t,k)}^{exist}$) and future new retirees ($p_{t,k}^{fut}$) by cohort sizes C in future years. The cohort sizes C in future years t are derived from the UN World Population Projections.

$$Eq. 10 \quad TE_t = \sum_{c=b-D}^{t} (p_{t,k)}^{exist} + p_{t,k}^{fut}) * C_{t,k}$$

For the **calculation of future revenues** we base on a similar approach. First, we derive a profile reflecting average contributions per capita of the population by multiplying age- and gender specific average contributions by the respective number of contributors at the given ages and genders and by dividing it by the cohort sizes of the population. To guarantee that these profiles are matching with aggregate revenues statistics they are rescaled (as outlined above for existing pensioners). For future years these revenue profiles are indexed with the general wage growth in the economy. Thus, in general, we assume labour market participation rates observed in the base year to remain constant over time (an increase in participation is assumed for the case of retirement age reforms). Finally, total revenues are estimated by multiplying generated revenue profiles by future cohort sizes.

Annex 2. Public Schemes – Selected Regulatory Features

Fund	IVM Invalidez, Vejez y Muerte	RCC Régimen de Capitalización Colectiva	FPJ Fondo del Poder Judicial
Coverage	Salaried workers and self-employed, voluntary for all other citizens	Teachers and professors who started working after July 1992	Workers of the Judicial Power
Eligibility for old age retirement			
Normal Retirement	65 years	65 years	65 years
Earliest permissible retirement	Males: 61 years + 11 months *(after 2023 not possible)* Females: 59 years + 11 months *(after 2023: 63 years)*	55 years old	Males: 62 years old Females: 60 years old
Minimum service history			
Normal Retirement	300 contribution months	180 contribution months	35 years
Anticipated Retirement	Males: 462 contribution months Females: 450 contribution months	396 contribution months	35 years
Benefit calculation			
Accrual Rates	43percent to 52,5percent (basic amount) for the first 240 (*300 after 2023*) contribution months, depending on earnings, 0.0833 percent for each additional contribution month	60percent (basic amount) for the first 240 contribution months, 0.1 percent for each additional contribution month	82percent of the average of the last 240 updated salaries (or a proportion)
Minimum pension	142,517 CRC monthly in 2022	-	not less than one third of the base salary of the lowest paid in the judiciary
Maximum pension	1,666,062 CRC monthly in 2022	salary of a Director General of Education	10 times the lowest paid in the judiciary
Reference Earnings	last 240 wages indexed with prices	best 32 salaries earned indexed with prices	last 240 salaries indexed with prices

Fund	IVM Invalidez, Vejez y Muerte	RCC Régimen de Capitalización Colectiva	FPJ Fondo del Poder Judicial
Pension Indexation	Discretionary	Discretionary	Discretionary
Contribution Basis			
Minimum contribution base	306,383 CRC monthly in 2023 = proportion of minimum wage for unskilled workers	306,383 CRC monthly in 2023 = proportion of minimum wage for unskilled workers	306,383 CRC monthly in 2023 = proportion of minimum wage for unskilled workers
Contribution ceiling	-	-	-
Contribution Rates			
Employer	5.42percent *(after 2028: 5.75percent)*	6.75percent	14.36percent
State	1.58percent (after 2028: 1.91percent)	1.41percent	1.41percent
Employee	4.17percent (after 2028: 5.75percent)	8.00percent	13.00percent