Performance and Challenges of the Income Protection System for Older People in Ecuador

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Abstract

The purpose of this work is to analyze the performance of the Ecuadorian pension system, its challenges, and available policy options. Therefore, the study analyzes coverage, financing sufficiency, and sustainability indicators that were created based on information from the *Encuesta Nacional de Empleo, Desempleo y Subempleo* (National Employment, Unemployment and Underemployment Survey) that was carried out over 2003–16. Likewise, actuarial simulations are made by using the World Bank pension reform options simulation toolkit. The findings show that, although in the latest 13 years there has been coverage extension, resulting from an increase in reported employment and an extension of noncontributory pensions, current coverage is still insufficient. In addition to the challenge posed to coverage extension, in the medium term, population aging would exert some pressure on financial sustainability that, within the current framework, would imply a deficit trend starting in the mid-2030s. However, some public policy areas, parametric as well as structural, have been identified that, together with an extension of noncontributory coverage, may provide a more supportive and sustainable scheme.

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1. Introduction

The Ecuadorian income protection system for older people faces some short-term restrictions, mainly related to its financing and coverage scheme, as well as sustainability challenges, both in the medium and long terms, in relation to the population aging process that the country is undergoing.

Ecuador has an income protection system for older people composed of two main income transfer pillars. First, a contributory pay-as-you-go defined benefit system that provides protection to all workers in the formal sector of the economy. Second, a solidarity pension system targeted to covering a coverage gap in population resulting from the contributory pillar.

The Ecuadorian contributory pension scheme only protects formal workers, which accounted for less than 30% of the workforce in the last decade. There has been a significant improvement in coverage in the last five years due to a more favorable macroeconomic context and significant efforts made by the authorities to ensure policy compliance. This improvement, which in some regions was up to more than 50%, would achieve social security coverage levels a bit higher than 40% in urban population and almost 30% in rural population. This is particularly important because it is possible to move towards workforce formalization[2] if some basic conditions are met and if there is political conviction about it. However, although advances are significant, they are still not enough for offering appropriate social protection for the whole population in the short term; therefore, other types of initiatives are essential.

Likewise, there are different financing sources in pension schemes. On the one hand, financing resources from formal employee´s contributions, which are significant in the expenditure incurred by the contributory pillar. However, there are also general income resources compromised. These are aimed at financing not only non-contributory pensions, or social pensions, but also 40% of pension expenditures incurred by *Instituto Ecuatoriano de Seguridad Social* (IESS, acronym in Spanish) (Ecuadorian Institute for Social Security). This mixture of contributory and non-contributory resources in the IESS-managed scheme leads to a conflicting context where the horizontal equity of the system is under discussion and which deserves consideration.

Given the gradual population-aging context, the current challenges faced by social protection will tend to increase over time. At present, 6.5% of the Ecuadorian population is 65 years of age or more, but this percentage will almost triple by year 2050. Whether fiscal resources necessary to ensure adequate

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[2] In this document, the term "formal" employment means that an employee contributes to the social security system and that he/she is covered for loss of earnings and other shocks.

social protection may seem insufficient right now, it is clear that the challenge in the medium and long terms will be more serious and will require substantial reforms to be designed and applied in the short term.

Therefore, the purpose of this work is, first, to look into the performance of the income protection system for older people as a whole, taking into account both mentioned pillars, that is to say, the contributory and the non-contributory pension schemes. Second, to understand the challenges involved in the medium and long terms posed by the demographic transition, particularly in relation to financial sustainability in the IESS-managed contributory system.

The structure of this document is the following: Next section relates to the historical progression of the design of the income protection system for older people. The third section presents and discusses different indicators related to the performance of current pension schemes and impact thereof on poverty and income distribution. The fourth section makes an actuarial simulation by means of the World Bank Pension Reform Options Simulation Toolkit, which allows simulating income and expenditure paths in IESS pension insurance. Finally, there is a final conclusion section.

2. Literature Review: Historical evolution of the pension system

The pension system in Ecuador, as it is right now, is far from having consolidated over time. Just as in the rest of the region, the social protection system and related different components have been extensively modified from their initial conception.

In Ecuador, there was a first approach in 1928 with *Ley de Jubilación y Montepío, Ahorro y Cooperativas* (Law of Retirement and Assistance Fund, Savings and Cooperatives), that gave birth to the Pension Fund. Being corporatist and independent from the government, this fund aimed at providing retirement pensions, funerary assistance and widow pensions to public servants, civilians and military officers (Ibarra-Jarrin, 2015; Valverde, 2008; Sasso, 2011). Further that same year, this insurance extended to cover also banking employees. In 1935, the *Seguro General Obligatorio* (SGO, acronym in Spanish) (Compulsory General Insurance) was created, and the *Instituto Nacional de Prevision* (National Social Security Institute) was created as the top social insurance body covering both public servants and private employees. The two-part contribution system was established with compulsory individual contributions ranging from 5% to 10% of wages, and a similar employer contribution (Galvis Muñoz, 2015). In the next decade, under Carlos Arroyo del Rio's administration, the state's contribution was

added to the system accounting for 40% of the total expenditures on pensions.[3] In this sense, in 1942, additional financing coming from general income was introduced by means of the approval of *Ley Obligatoria de Seguridad Social* (Compulsory Social Security Law). This law's original proposal was that financing was to be temporary considering that the system was still recent and surplus, which would allow fund accumulation which, by means of investment, would create returns to finance part of the pension expenditures. However, this financing source was established indefinitely until year 2015. In that year, with the approval of Ley de Justicia Laboral *(Labor Justice Law)*, the state contribution was then fixed at 40% for the pension fund as a guarantee applied solely when the Social Insurance would have insufficient resources for covering the assumed undertakings was replaced. Then, in year 2018, the Constitutional Court declared section 68.1 second and third subsections to be unconstitutional, and the state was again obliged to provide that fixed contribution from year 2019 on. This court decision made the pension system regressive leading to horizontal inequality: the state transferred a subsidy in order to finance benefits granted to the covered population while the ones financing this subsidy were excluded.

In 1970, the National Social Security Institute and different social security components were suppressed; both the components corresponding to the Pension System for Old Age, Disability and Death, as well as those corresponding to the Health Fund, the Labor-Risk Fund and the Unemployment Fund were then governed by the National Social Security Institute, which in 1974 modified its structure to become finally the Ecuadorian Social Security Institute (IESS, acronym in Spanish). The different types of insurance provided by this new public institution, decentralized in nature, were financed and distributed independently (Valverde, 2008; Gonzalez Jaramillo et al., 2018).

The next significant coverage extension took place by the end of 1981, when *Ley de extensión del Seguro Social Campesino* (SSC, acronym in Spanish) (Farmer Social Insurance Extension Law), was created, by which the IESS created a fund to cover rural families and small-scale fishermen. This insurance protects the heads of rural families and their families, but it is a solidarity system, since the household heads make differentiated contributions ranging from 2% to 3% of the employee minimum wage proportion, based on their economic profile, community needs, age structure and active family members' contribution capacity.

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[3] With the arrival of Czech actuarial field expert Schoenbaum, hired by the International Labor Organization, the system was technically structured, as expressed in 1942 Law, in the By-Laws of the 1944 Social Security Funds and 1945 National Social Security Institute By-Laws (Mantilla and Abad, 1984).

The management of pension funds of the armed forces and police is under autonomous institutions, and in 1992, *Instituto de Seguridad Social de las Fuerzas Armadas* (ISSFA, acronym in Spanish) (Armed Forces Social Security Institute) and, in 1995, *Instituto de Seguridad Social de la Policía Nacional* (ISSPOL, acronym in Spanish) (National Police Social Security Institute), were created.

The beginnings of the system's non-contributory component dates back to that same decade with the creation, in 1998, of the non-conditioned transfer program called *Bono Solidario* (Solidarity Bonus). At first, it was established as a compensation to the most vulnerable families due to the elimination on gas and energy subsidies, and it was granted to household mothers under poverty income threshold based on a self-screening process. These mothers were required to complete a form provided at catholic or evangelical churches (Velazquez Pinto, 2003). Although the program was then called *Bono de Desarrollo Humano* (Bonus for Human Development), as it is called at present, between 2003 and 2006, it only admitted one benefit per household. Later, it was allowed that older and disabled people would be separately eligible for a benefit targeted to a family group, which was formalized as the social security non-contributory component (Celis Calderon, 2015). It was then set at 7 dollars monthly, but it increased over time up to a current amount of 50 dollars.

In 2001, the Congress approved the *Ley de Seguridad Social* (Social Security Law), acknowledging the mixed nature of the pension system, which is composed of intergenerational solidarity and personal funding. The latter would include the creation of IESS-managed individual accounts with private company investment, completely apart from the solidarity scheme (ILO, 2008). Likewise, a separation of different IESS fund reserves was proposed, also prohibiting crossed transfer of resources from different types of insurance. In essence, the law aimed at reducing the state actuarial deficit and segmenting the kinds of pensions based on contributory capacity. However, on the following year, the court declared many sections as unconstitutional, especially whatever referred to the mixed system, for which, in practice, the law was dismissed.

The last significant reform took place in year 2015, when the 40% contribution of the total expenditure made by the state was eliminated and replaced by a resource transfer guarantee for deficit situations. Additionally, the contribution rates for Disability, Old Age and Death Insurance were reduced from 9.44% of income to 5.76%, in such a way that the tax rates assigned to Individual and Family Health Insurance were increased from 5.71% to 9.94% (Table 1). The final purpose of this change was to finance temporarily the financial unbalance in health insurance and to have resources for building hospitals.

Table 1. Contribution Rates per social insurance

Insurance	Contribution Rate (former)	Contribution Rate (2015)	Difference (%)
Pensions	9.44%	5.76%	-3.68%
Health	5.71%	9.94%	4.23%
Labor risks	0.55%	0.20%	-0.35%
Total	15.70%	15.90%	0.20%

Source: ILO (2018)

The contribution rate aimed at financing the health insurance was increased by 4.23 percentage points, where 3.68 points came from the pension insurance tax rate, and 0.35 from the labor risk insurance. This measure was set temporarily, and it provided for a gradual increase in contribution tax rates into the pension system up to 10.36% by 2021. Simultaneously, the health insurance contribution rate would be gradually reduced until reaching 5.16% in that same year. The purpose of this rate adjustment was to overcome the financial deficits in the short term shown in health insurance.

In this way, the system is composed of five programs, three of which are strictly contributory in essence (the Compulsory General Insurance for formal workers and pensions for armed forces and police officers), a fourth program that is partly contributory (Farmer Social Insurance) and a fifth non-contributory program BDH (Human Development Bonus). While ISSFA and ISSPOL provide benefits similar to those of the Compulsory General Insurance, Farmer Social Insurance benefits are remarkably lower since they are formed by a minimum contribution made by rural workers and a state-subsidized and other formal workers-provided component (Rofman, 2008).

At present, the Disability, Old Age and Death Insurance, as part of the Compulsory General Insurance, provides retirement benefits for disability, transitory subsidy for disability, ordinary retirement for old age, pension for funeral assistance. Beneficiary eligibility is determined by a combination of age and contribution years. Regardless of gender, workers may retire at any age if a total of 40 years of contribution are achieved, at the age of 60 years with contributions made for 30 years, workers aged 65 who have contributed for less than 15 years or workers aged 70 having at least 10 years of contributions.

For its part, the pension amount is calculated as an average percentage of monthly wages during the top five years, based on the number of contribution years: 50% for those who have made 10 years of

contribution, 75% for 30 years, 81.25% for 35 years, 100% for 40 years, and 125% for more than 40 years.

Find below some traditional indicators allowing to understand the performance of the income protection system for older people for the term extending between 2003 and 2016.

3. Performance of the income protection system for older people

In general, the performance of the pension systems, both contributory and non-contributory, is assessed based on three criteria: (i) coverage, meaning benefit access for older people, and considering the contributory scheme, by workers who acquire rights for the future; (ii) benefit adequacy, that is, how sufficient the value of transfers received by beneficiaries in order to meet purposes is; and (iii) financial sustainability, that means that the system management is able to meet financial undertakings assumed in the short, medium and long terms. These three criteria are conflicting against each other, so, it is not possible to increase any coverage or benefit without affecting the financial needs of income protection schemes.

This section describes the main indicators featuring the Ecuadorian social security system, evolution thereof and the reasons for the current dynamics, as observed.

3.1 Contributory System Coverage

Traditional coverage in social protection programs refers to the proportion of persons receiving a benefit in a reference group considered eligible. However, this concept for income protection programs for disability, old age and death is more complex given that it does not depend from the situation at the time of a "claim" but on participation background through sustained individual contribution.[4] In a contributory system, income substitution only takes place when reaching a required age for such purpose and if simultaneously sufficient contribution years are accumulated.

For that reason, this definition must be corrected in pension systems given the need to take into account the kind of benefit and population eligibility requirements. Frequently, the references on
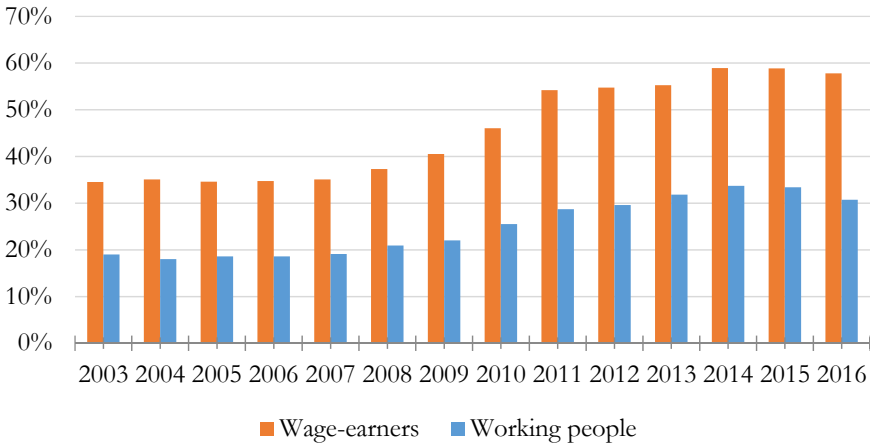
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[4] Contributory coverage provides protection in case of possible loss of earnings not only for old age but also in active population, such as disability and death.

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social security systems are based on those individuals receiving a benefit (retirement or pension). However, such coverage comprises two stages. The first stage relates to the term in which a worker contributes to the system and becomes entitled to a benefit, including protection against other contingent losses. This stage refers to the coverage of economically active population. The second stage relates to the receipt of a monetary benefit when an individual retires from the labor market. This stage refers to the coverage of passive population.

Figure 1 presents the percentage of active population contributing to the social security system between 2003 and 2016. Two different target populations were taken into account when creating this indicator: working population and wage-earner working population, that is to say, "employees".

The Ecuadorian contributory system is featured by providing low level coverage, both considering the total number of working people as well as considering only the wage-earner working population. In this sense, between 2003 and 2007, the percentage of working population contributing to social security was on average only 18.6%, while if wage-earner working population were considered, this percentage climbed on average up to 34.8%.

Figure 1. Percentage of People Contributing to Social Security

Source: author elaboration based on ENEMDU

The result achieved by the social security system directly links to the performance obtained in the labor market, defined by the formality level of the workforce. In effect, in the contributory pension schemes, the coverage of a working person is mainly determined by the manner in which that person is involved in the labor market.

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However, from year 2007 on, a steady increase in active coverage has been checked, growing from 19.1% of the working population in 2007 to 30.7% in 2016. A similar increase is observed among wage-earner workers whose coverage experienced an increase by 22.7 percentage points in that same period.

This significant increase in active coverage relates to two factors. On the one hand, the economic growth experienced in recent years because of an enhancement in exchange terms. On the other, a policy change implementation that allowed improving control on employers' duties and reducing labor informality (Rofman, 2012). Likewise, a significant increase at formal public servants was recorded, which increased by 46% between 2006 and 2015 (Ministry of Labor, 2015).
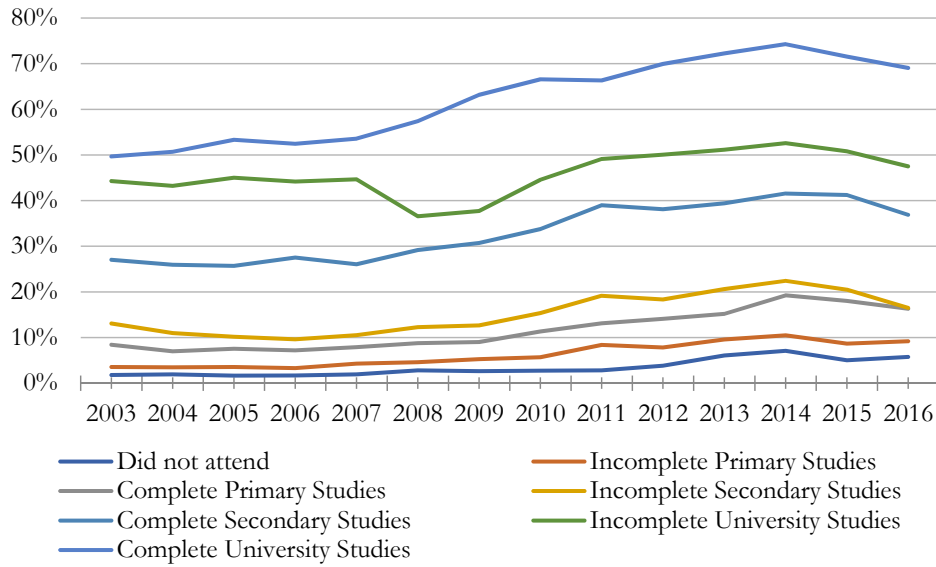
The increase in contributing population to the IESS is complex due to its direct relation with a reduction in labor informality in Ecuadorian economy. Therefore, all those policies promoting a labor informality reduction also promote higher contribution rates to social security. These efforts include the use of the state's coercive power (public servants penalizing employers who do not report on their workers) and the creation of incentives such as simplified schemes for tax payment.

Likewise, the IESS started offering a credit line for building and repairing households, as well as for buying plots of land for all workers complying with certain requirements, including a requirement as a contributing worker with at least 36 running months of contributions to social security.

Despite this increase in active coverage, there are still significant differences identified based on workers' characteristics. In fact, the percentage of working employees having completed university studies is over six times higher than the coverage for those with incomplete primary studies (Figure 2). Although this coverage gap has shown a slight reduction, it is still very significant.

As mentioned above, the social security contribution by a worker is based on labor placement, which in part relates to labor offer features, among them, the educational level, which accounts for an approximation to labor productivity.
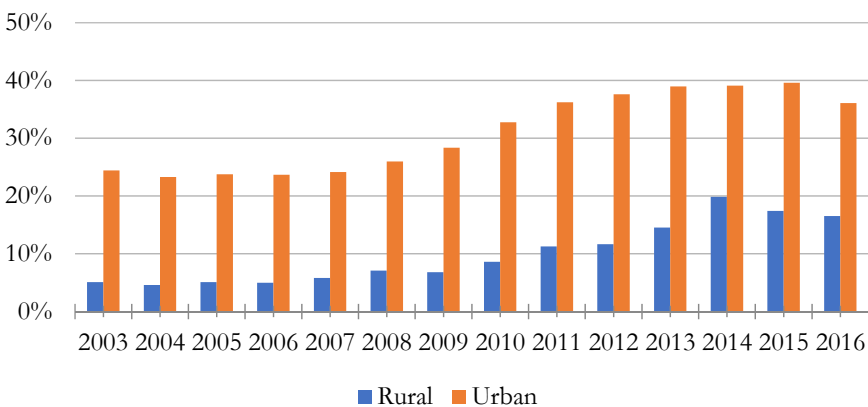
Figure 2. Percentage of Working People Contributing to Social Security per Educational Level.

Source: author elaboration based on ENEMDU

Figure 3 shows the percentage of working people contributing to social security per geographical area (whether urban or rural). Results show a wide difference in scope in the pension contributory system per area. While in year 2016, the percentage of contributing working people in urban areas achieved 36%, in rural areas it only climbed up to 17%. These differences were stable throughout the whole study term.

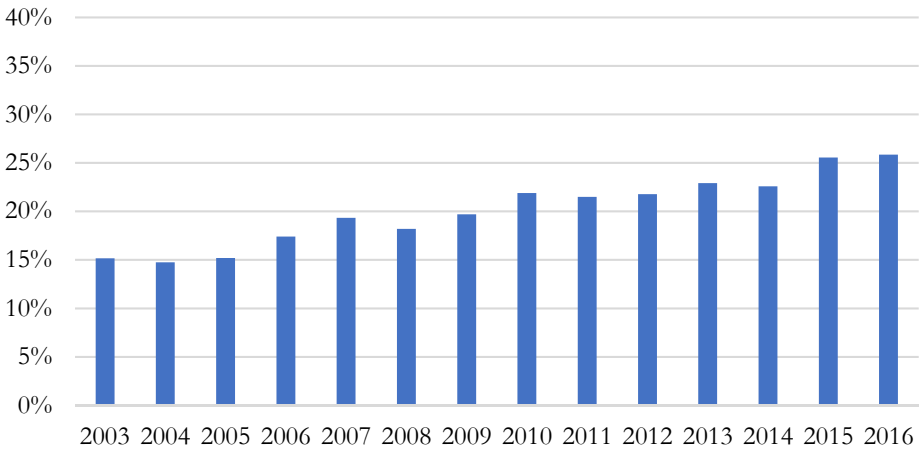Figure 3. Percentage of Working People Contributing to Social Security per Urban/Rural Area.

Source: author elaboration based on ENEMDU

In terms of coverage on passive population, its measure does not present many difficulties since its relation comprises beneficiary population and older people. Figure 4 shows a percentage of the population older than 65 years receiving a social security benefit granted by the compulsory (contributory) insurance system during years 2003 to 2016.

The passive social security coverage in Ecuador has been one of lowest level in Latin America in the 1990s. Between years 2003 and 2007, there was an important increase in the percentage of older people earning a contributory social security benefit, which climbed up to 20% approximately. From that year on, the trend started climbing up slightly to achieve 25.8% in 2016.

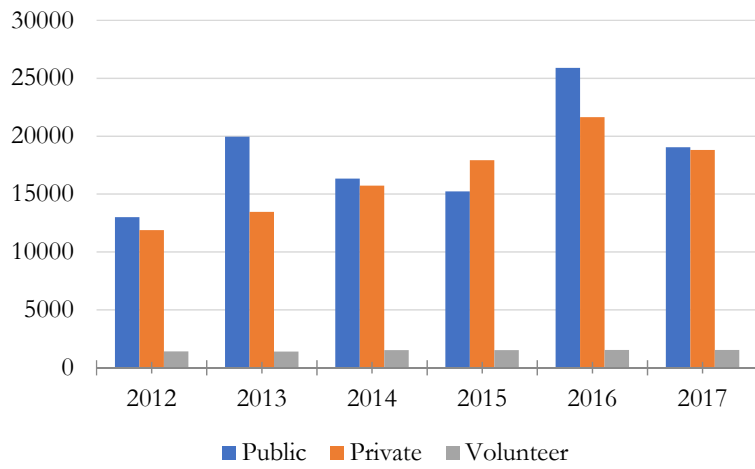Figure 4. Percentage of Older people over 65 Years of Age Receiving a Contributory Benefit. 2003 - 2016

Source: author elaboration based on ENEMDU

This moderate increase is due to a program of incentives promoting worker retirements offered by the state, mainly those serving at the health and education systems, which consisted of payment of a fixed amount as a "bonus" plus payment of monthly benefits (Figure 5).

Figure 5. Pensions Granted by the Program of Incentives. Years 2012-2017

Source: IESS

The inequality patterns in terms of active coverage identified above are reproduced at retirement. In this sense, the passive coverage provided by the compulsory insurance is clearly biased in favor of top income quintiles (Figure 6). In this sense, in year 2016, while 5% of older people in the first income quintile were receiving a contributory social security benefit, this percentage was 53% among those in the fifth quintile.

Figure 6. Percentage of Older people over 65 Years of Age Receiving a Contributory Benefit per Household Income Quintile. 2003 - 2016

Source: author elaboration based on ENEMDU

Likewise, a bias favoring men is also identified (Figure 7). On average, for the whole period studied, the passive coverage among men is 50% higher than the one recorded for women. These results show that women face greater challenge for maintaining a contribution volume that would allow them to be entitled to the old age benefit. This suggests that just as it happens in most countries in the region, women face a high rate of transition between formal and informal work and unemployment.

Figure 7. Percentage of Older people over 65 Years of Age Receiving a Contributory Benefit per Gender 2003 - 2016

Source: author elaboration based on ENEMDU

3.2 Non-contributory system coverage

The scope of the Ecuadorian pension system discussed above shows one of the greatest problems faced by any contributory system: the coverage level is defined outside the social security system itself, while the dynamics and performance of the labor market trigger worker inclusion and exclusion. The contributory coverage reproduces the labor market patterns given that workers in intermediate age groups, having the highest physical productivity, with higher educational level, employed by large companies or in fields characterized by labor stability, have higher chances of contributing (Apella, 2007).

In order to reduce the coverage gap on passive population, in year 2006, the authorities introduced a non-contributory pension, managed apart from the contributory scheme, as a particular kind of transfer of the Human Development Bonus. Originally, this scheme was focused on older people in

the 40% poorest population, according to a targeting index devised by *Secretaría Técnica del Frente Social* [Technical Social Front Secretariat].

However, the constitutional amendment in year 2008 ordered a gradual expansion in social protection. In order to comply with this, in 2009 a revised policy was established in order to consider people age 65 or older living under poverty income threshold eligible. However, in 2012 this policy became more flexible to allow introducing the whole population in the social records.[5]

The original transfer amount was really low (USD11.50, approximately 7% of minimum wages), which was then updated, and from 2013 on, it is USD50 (16% of the unified basic wages).

In terms of coverage, social pension implementation achieved a significant percentage increase in older people getting this social security benefit. In this sense, as discussed above, while in 2016 the contributory system covered 25.8% of older people, with the implementation of the non-contributory pension, the percentage of older people protected by a transfer scheme climbed up to 60%. In other words, the non-contributory pension managed to narrow the gap reaching out to 34% of older people (Figure 8). However, there is still a significant group of older people excluded from the pension system.

Figure 8. Percentage of Older people over 65 Years of Age Receiving a Social Security Benefit per Kind of Scheme. Years 2003-2016

Source: author elaboration based on ENEMDU

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[5] At the same time, the government has implemented a non-contributory pension within the framework of program *Mis Mejores Años* [My Best Years]. This program is different from the traditional social pension in the benefit amount that is USD100. This transfer was announced at the latest presidential campaign and it is being gradually introduced. The eligible beneficiaries for *Mis Mejores Años* are vulnerable 65-aged and older people according to the welfare index based on social records.

Low contributory coverage affects more significantly older people in the lowest income quintiles, while those in the top income quintiles not only have a greater coverage but also have experienced an increase in the recent years. The implementation of the non-contributory pension allowed narrowing this gap (Figure 9).

Figure 9. Social Security Coverage per Income Quintile and Kind of Pension. Years 2006, 2010 and 2016

Source: author elaboration based on ENEMDU

The results presented in Figure 9 allow identifying a significant and negative correlation between non-contributory pensions and income quintiles. In other words, the lower the income quintile, the higher the social pension coverage. Therefore, the social pension allowed narrowing the coverage gap between income quintiles.

In this sense, taking into account the last available year, while the compulsory contributory system provides coverage to 5% of older people from the first quintile and 14% of those in the second quintile, the non-contributory scheme reaches out to 49% and 40%, respectively. Conversely, in the fifth quintile, the contributory scheme scope is 58% while 11% receives a social pension.[6]

In summary, the inclusion strategy developed during the recent years acknowledges two parallel ways: contributory system coverage expansion and extension of the non-contributory system scope. The first one is a process having begun in 2007 and having accelerated between 2009 and 2010. Likewise,

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[6] This result may suggest that there is an inclusion-related error that deserves revision.

this scenario of more formal labor is due to two factors: sound general economic performance with a GDP increase of about 5% annually in the last decade, and greater State comptroller capacity in order to comply with social security duties undertaken by employees and employers.

The second strategy developed, aiming at enhancing the scheme scope of older people transfers, was the expansion of the non-contributory pension coverage. Since 2006 on, this program has promoted the inclusion of the most vulnerable older people, making it easier to include those who do not access the contributory system coverage. However, the purpose of the universal coverage is still unmet. Although the 2008 constitutional amendment formally so expressed it, there is not yet a regulating law. Therefore, there is still a coverage gap.

As mentioned above, the mixed financing receiving the contributory insurance results in a horizontal inequality context, which deserves attention. The IESS benefits are partly financed with resources from general income, which are, in turn, collected through tax collection afforded by the whole population.

3.3 Impact on poverty and income distribution

The chance of falling down the poverty income threshold depends on several factors. Among them, labor policies and social protection play an important role since wages, independent workers' income and social protection transfers are the main income sources for households.

From an age-related perspective, the incidence of poverty related to age is conditioned by the transfer and consumption patterns throughout a life cycle. In this life cycle, three periods are identified: At first, individuals, in childhood, represent a deficit since their expenditures are higher than the resources they create. In fact, in that stage, people are not capable of making income and require financing from the adults taking care of them. Later on, in a second stage, because of having got into the labor market, income may exceed the consumption level given the chance of saving and accumulating assets. Finally, in the last stage, there is deaccumulation of assets and a reduction in labor income related to labor market retirement.

This classification has important consequences when analyzing the incidence of poverty since, based on the life cycle of each household member, there will be different risk exposure in a poverty context. Specifically, those households with non-working members, such as children and older people, are

more exposed to poverty due to a higher expenditure level as compared to the labor income flow of those who are working.
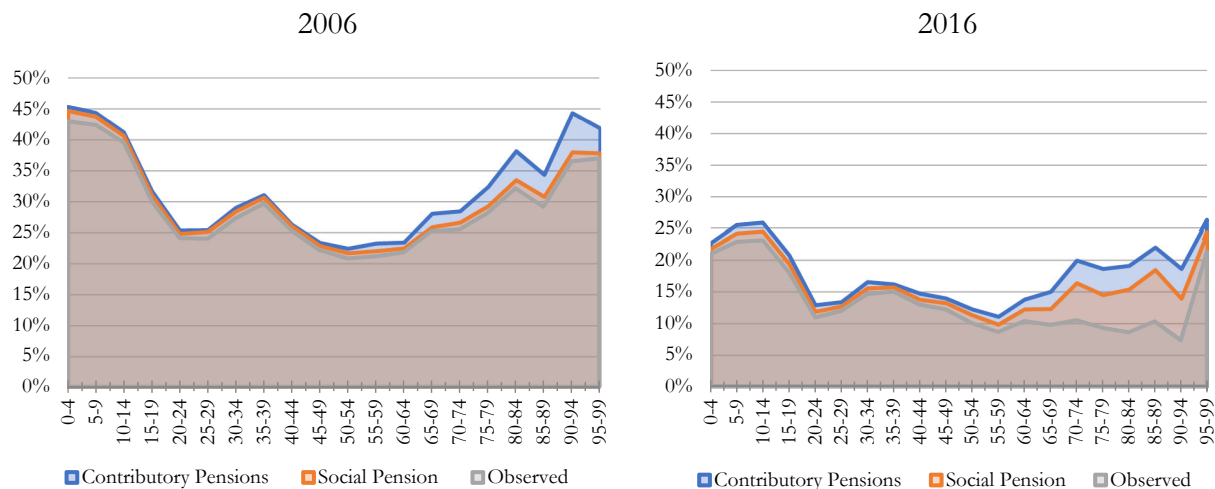
For that reason, pension systems are considered as an important component in social security systems where the main purpose is to relieve consumption (or income) during an individual's life cycle and to reduce the poverty incidence among those who are elderly.

In order to approach the importance of transfers from the income protection system to older people, when containing poverty incidence and distributive inequality, an arithmetical exercise for poverty in years 2006 and 2016 is presented. Based on information taken from the National Employment, Unemployment and Underemployment Survey, this exercise consists of calculating the incidence of poverty and income distribution based on age, taking into account the total household income with and without transfers from the two pension schemes: compulsory contributory insurance and solidarity pension.

These two estimations do not contemplate the effects that the transfers may have on the behavior of household members that are not affected by their presence or absence. Therefore, this analysis is inevitably partial, but it allows identifying the existence of trends related to the effects taken into account.

Figure 10 presents, for years 2006 and 2016, the percentage of people in poor households per age quintile, identifying the potential impact of deleting all kinds of transfers for pensions. Therefore, it is noticed that in 2006, poverty affected 30.6% of the population, but if there had not been these transfer programs, there would not have reached 32.4%. However, the distribution of age-based poverty incidence is not homogeneous. In effect, poverty is higher in two well-defined age groups: those under the age of 20 and those who are older than 65 years. In this sense, the contributory pension scheme has a higher impact on reducing poverty among people older than 65 years, since social pensions have a lower impact on age distribution as a whole.

Figure 10. Percentage of People in Poor Households per Age Group before and after Pension Transfers.
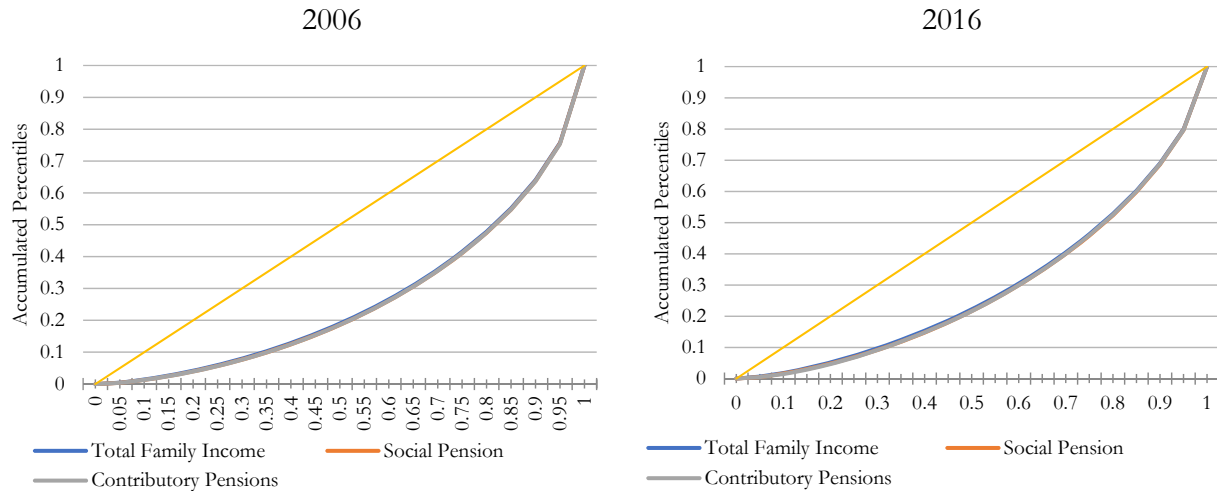

Source: author elaboration based on ENEMDU

In 2016, the incidence of poverty is significantly lower (15.6%) to that recorded throughout 2006 as observed for all age groups. Just like in 2006, income transfers coming from the pension system play a key role for reducing it, since without these programs, the percentage of individuals living in poor households would have climbed up to 18.2%. However, two different phenomena arise as compared to year 2006. On the one hand, the impact of transfers on poverty incidence is higher given that the reduction in theory is equal to 17%, while in 2006 it was just 6%. On the other, the importance of social pensions in these reductions increased significantly. That is the result of an increase in the benefit amount given. In this sense, while in 2006 the social pension was USD11.5, accounting for 20% of the poverty income threshold value, in 2016 this transfer was increased to USD50 up to 60% of the poverty income threshold value.

With respect to the distributive impact of the pension system, Figure 11 shows the Lorenz curve of total household income before and after transfers for years 2006 and 2016. The results are less encouraging from the distributive perspective. The Gini ratio in Ecuador is 0.41 in 2016 (similar to the one observed in 2006, 0.47). However, in a scenario that does not take into account the contributory pensions and/or social pensions, this indicator is not affected in any way. In other words, given the value of the benefits paid by the Ecuadorian pension system, both contributory as well as non-contributory, they do not affect income distribution.

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Figure 11. Lorenz Curve before and after Pension Transfers

Source: author elaboration based on ENEMDU

In summary, the income protection system for older people has a slight incidence on poverty, though it does not affect income distribution.

3.4 Financial situation of the contributory pension scheme

The financing of the contributory pension scheme administered by the IESS has three main sources: (1) current income, composed of statutory contributions made by workers and employers; (2) capital income, which mainly relates to the sale of assets in general managed by the technical reserve fund and, (3) public transfers. The latter source of resources was defined as 40% of total expenditures on pensions and was used until year 2015.
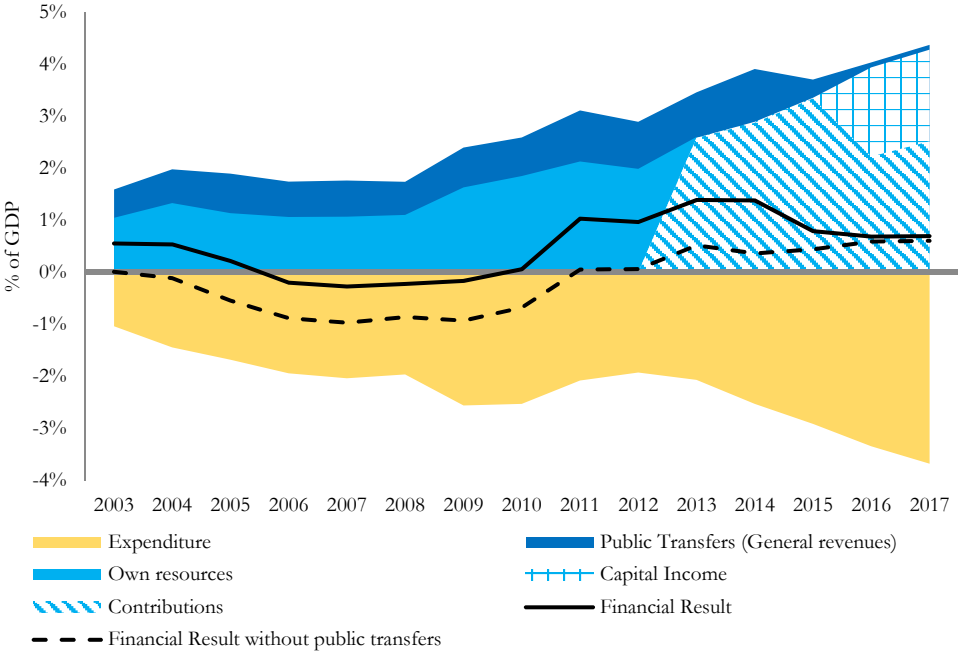
Figure 12 presents expenditures, income level and financial results of the contributory pension scheme expressed as a GDP percentage. From 2003 to 2012, the information available allows differentiating the resource sources in two main categories: own resources (current income and capital) and public transfers. From year 2013 to 2017, own resources, in turn, may be divided into current income (income per contributions) and capital income.

On average, for the whole period taken into account, it is noticed that the financial result of the pension system was positive and equal to 0.5% of the GDP. However, it is possible to differentiate two well-defined periods. Between years 2003 and 2015, both current income as well as public

transfers showed an increasing trend, experiencing a 220% increase, while the expenditure level increased too, though at a lower rate (181%).

In particular, during year 2010 and 2014, the financial result was significantly positive climbing up to its top level in 2014 (1.3% of the GDP). These positive results presented in Figure 12 depend greatly from transfers made by the State, which account for 40% of total pension expenditures. Without these public resources, the IESS would have had a sustained deficit (on average equal to -0.15% of the GDP).

Figure 12. Resources, Expenditures and Financial Result 2003 - 2017
(in GDP %)

Source: author elaboration based on IESS
Note: Public transfers correspond to transfers made by the State for 40% of total expenditures on pensions.

A second term begins from year 2015 on. Two important changes have affected the composition of resources to the contributory pension system managed by the IESS. On the one hand, the public sector financing chance was eliminated: 40% of total pension expenditures. On the other hand, as mentioned before, contribution tax rates were reduced. These changes implied a significant reduction in income sources. In order to finance the undertakings assumed for pensions, the IESS resorted to

capital income by making use of technical reserves, which allowed not only financing current expenditures but also maintaining a positive financial result. However, this implies a reduction in the fund accumulated by the system. Based on IESS-provided information, technical reserves diminished from USD 9 billion in 2015 to approximately USD7 billion in 2017.

From the expenditures point of view, recently a steady increase has been noticed. This trend relates directly to two factors: Firstly, an increase in coverage, as described above, and secondly, a sustained increase in the benefit level.

In 2010, the approval of *Ley Cero* [Zero Law] established an automatic mechanism for updating benefits, which resulted in increases exceeding the inflation rate (Table 2). For that reason, between years 2011 and 2015, the average increase in benefits climbed up to 9% (Figure 13). This, in addition to an increase in coverage, explains the increase in total expenditures. However, in 2015, the inflation rate directly replaced this mechanism for updating benefits. Based on this new rule, benefits experienced an annual increase on average of 3% between 2016 and 2018.
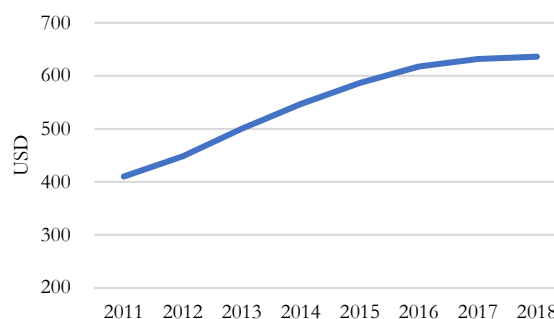
Table 2 Legal increase of contributory pensions up to 2015

Benefit Amount (as a percentage of basic minimum wages)	Legal Variation(*)
Lower than 50%	16.16%
50-100%	12.41%
100%-150%	9.53%
150%-200%	7.31%
200%-250%	5.61%
250% and more	4.31%

Source: IESS
Note: (*) Variation of the benefits established by *Ley Cero*

Figure 13. Benefit on Average Years 2011-2018

Source: IESS

Regarding social pensions, the cost of the non-contributory program is financed by means of income coming from general income or specific funds, and during 2016 it accounted for 0.3% of the GDP.

The financial sustainability of the social security system is an important challenge that has to be considered in the medium and long terms. The sum of resources that the Ecuadorian community allocates to social security (adding up IESS and BDH costs) accounts approximately for 4.6% of the

GDP. While public resources finance social pensions, capital income finances the contributory scheme in about 41%.

Under a traditional approach to social security finance, the expenditure rate is relatively low. However, the rapid increase of total expenditures observed during the last years, which not only relates to an effort to increase system coverage, requires certain attention. If this trend continues, the pressure on the system may be excessive, which in turn could exert pressure towards a reduction in expenditures which, in general, take place through access or benefit restrictions, that is to say, through a reduction in coverage.
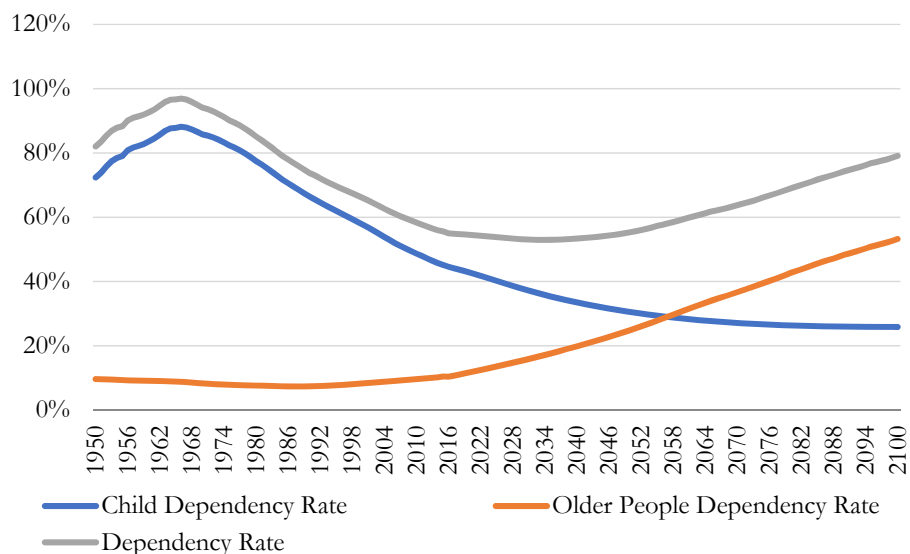
4. Demographic transition and challenges in the medium and long terms

Ecuador is undergoing a demographic transition process towards an older population structure. That is the result of a simultaneous reduction of the fertility and mortality rates from the beginning of the last century. Based on that, there is a growth projection both on the dependency ratio as well as on the older people rate for the coming decades (Figure 14). In addition, in 2018, the total demographical dependency ratio, that is to say the coefficient between the population that depends, in theory, of third party´s income (people younger than 15 years and older than 65 years) and working age (between 15 and 64 years), was 54.7 and would reach its lowest value (53%) in year 2035. This term in which the lowest levels in dependency rate are recorded, known as demographic bonus, would end by year 2060, when the demographic dependency would exceed 60%.

On its part, the older people dependency rate presents an increasing trend from the beginning of the 21st century. While the relation between the population older than 65 years and the working population is 11.4% in 2019, this coefficient would reach 24.9% by 2050 and 53.2% by 2100.

The increase in number and proportion of population older than 65 years of age in many countries of the world is interesting due to the impact of this trend on social security systems. The apparent implication of this phenomenon puts pressure on sustainability of expenditures targeted to finance pension benefits at the same time that income for contributions reduces, due to a lower number of working-age population.

Figure 14. Rate of Demographic Dependency Years 1950 – 2100

Source: United Nations Population Division

In this context, the demographic transition process taking place in Ecuador towards an aged population structure affects directly on the number and sufficiency of transfers made through the pension system. This is a consequence of two factors: i) the demographic transition itself, resulting in a change of size in working population and beneficiary groups as population ages, and ii) the changes in public policies as a result of these demographic trends.

Current policies may affect the number of retirements and public finances in the coming decades. Although the Ecuadorian pension system currently has costing capacity, it would face pressure in the medium term because of these described demographic trends.

In this context, the purpose of this section is to analyze the possible impact of the demographic trends on IESS pension insurance financial sustainability. For that reason, the World Bank PROST (*Pension Reform Options Simulation Toolkit*) was applied as it allows simulating income and expenditure paths in pension schemes and reforms thereof, both parametric as well as structural.[7]

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[7] This simulation toolkit works up pension contribution, pension right, system income and expenditure models in a long term. The model design intends to promote an information-based policy formulation. It is a flexible computer-based toolkit easily customizable to a wide range of circumstances depending on each country.

Therefore, population projections made by the United Nations Population Division are used, as well as administrative information from the IESS in relation to current coverage levels per kind of benefit, number of contributors, wage levels and benefit amounts, all of which per simple age and gender.
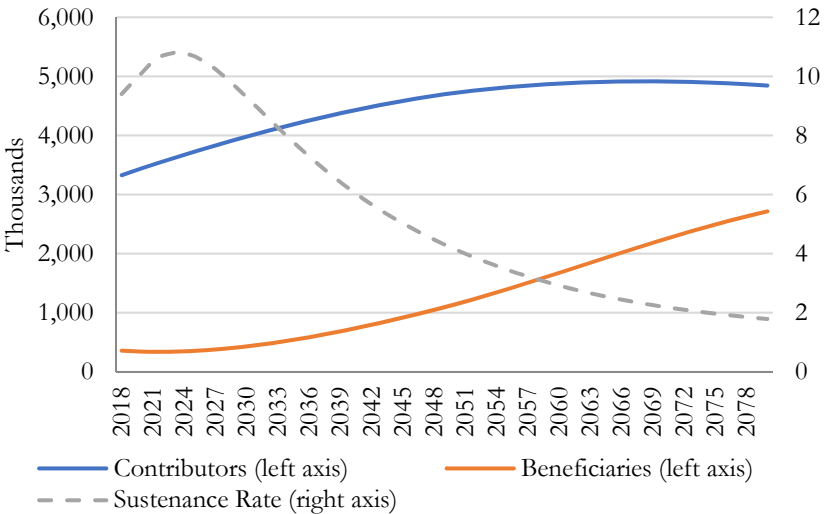
Long-term projections are necessary for assessing how a system would react towards expected changes under given economic, political and demographical conditions. These are not predictions "to forecast future", but they allow assessing system perspectives, given certain reasonable hypotheses on long-term evolution of some determining variables. Likewise, this exercise allows assessing the impact of alternative hypotheses and/or reforms to current policies on coverage and social protection financing.

The simulated scenario in this work considers the current rules in terms of model patterns (contribution numbers, contribution rate, minimum legal age of retirement and both passive and active coverage levels). In particular, for simplicity reasons and without compromising generality, this work assumed that retirement age is 60 years of age considering 30 years of contributions. This combination of age and contribution years results in a replacement rate of 75%. Also, the current contribution rate is established to equal 8.2% as personal contribution and 1.3% as employer's contribution. In terms of system performance, it is assumed that the population percentage, by simple sex and age, contributing to social security remains stable in the long term. Finally, benefits are adjusted based on the current policy, depending on simulated inflation in the country.[8]

Based on current parameters of the Ecuador pension system, the number of beneficiaries would shift from 340,000 in 2019 to 680,000 by 2040 and to 2.7 million by 2080 (Figure 15). On its part, the number of contributors also shows an increasing trend, though of lower volume, up to the 2060s to remain relatively stable at approximately 5 million. As a result, the system sustainability rate would present a constant decreasing trend from the 2020s shifting from 10 contributors per beneficiary to 2 in 2080. This result is proper of the aging population process taking place in the country, since this process not only implies larger elder population participation but also a lower percentage of working population.

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[8] GDP and inflation projections made by the International Monetary Fund (www.imf.org) as of year 2023 are used. Based on that, an inflation rate of 1% annually and GDP growth rate of 2 % are assumed.
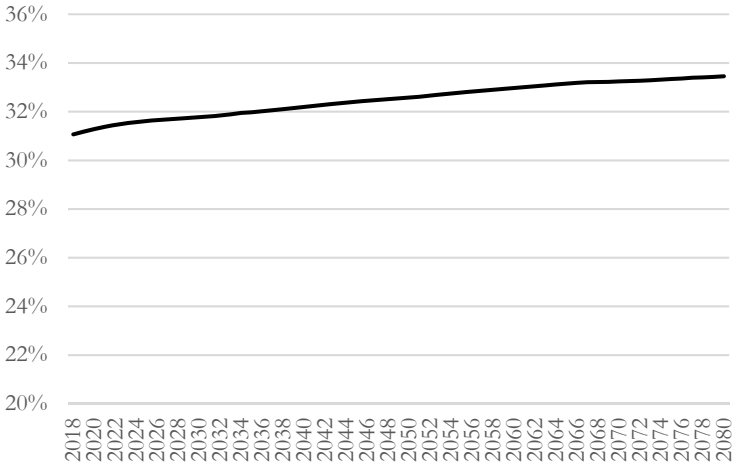
Figure 15. Number of Contributors, Beneficiaries and Sustainable Livelihood Rate. Years 2018 - 2080

Source: author elaborations based on administrative data, IESS.

Consequently, the rate of coverage on active population would present a constant trend of approximately 30% and 35% of older people (Figure 16).
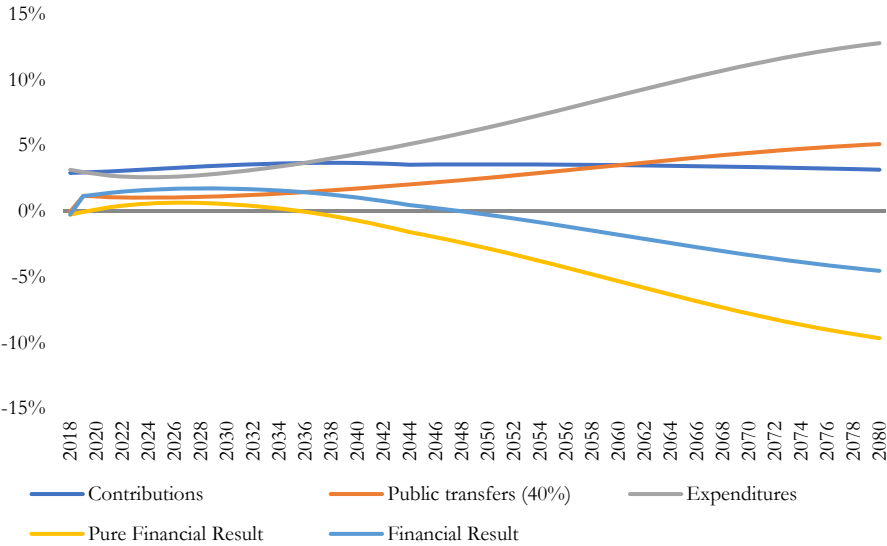
Figure 16. Percentage of Population Contributing to the IESS Pension Insurance. Years 2018 - 2080

Source: author elaborations based on administrative data, IESS

Based on assumptions, and the projected evolution of the population by simple gender and age, the actuarial projection (Figure 17) shows a sustained growth of total expenditures, shifting from 3% of the GDP in 2019 to 6.9% by 2050, until reaching 13.8% by 2080. This relates to an increase in elderly population while the country moves forward in this demographic transition. At the same time, income per contributions made by workers would keep this trend relatively stable at about 3.3% of the GDP during the whole term being studied. As a consequence of these trends, the pure financial result, that is to say, the result arising from the difference between contributory resources and total expenditures on pensions, would be positive at approximately 3% of the GDP until the beginning of the 2030s. From that decade on, it would become negative and it could reach 3% of the GDP by 2050 and almost 11% by 2080.
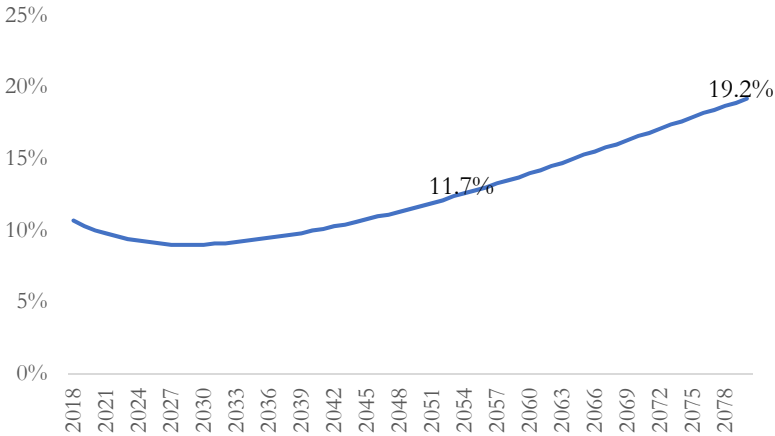
Figure 17. Resources, Expenditures and Financial Result of Pension Insurance. 2018 – 2080

Source: author elaborations based on administrative data, IESS

Maintaining the financial equilibrium purely contributory would require, by keeping the rest of the system parameters constant, an increase in total contribution tax rate as of the first year in which a deficit is recorded (Figure 18).

Figure 18. Financial Equilibrium Contribution Rate

Source: author elaborations based on administrative data, IESS

However, and like most pension systems in the region, the IESS-managed pension insurance has fiscal resources as a financing source, which are equal to 40% of the total expenditure on pensions, as introduced in section two. By taking into account this complementary financing source, the total financial result would be negative over one decade later (approximately by 2045).

At present, Ecuador has just started a term of 40 years with the most favorable population age structure having the largest proportion of working-age population. This phenomenon, called demographic opportunity window, could favor a higher economic growth. Likewise, this demographic opportunity may provide an ideal setting to set the foundations in the long term for sustainable policies and foster economic and social opportunities. On the other hand, there is a certain urgency related to launching an institutional framework and adequate policies taking into account this gradual demographic change. That is due to two reasons: (i) institutional changes take time, and (ii) those people who will be older adults from 2060 on are the ones joining the labor force at present and, therefore, their current decisions are subject to the current game rules. Social and economic institutions, whether current and future, frame the decisions taken by people throughout their adult life, which define economic security in old age. In addition, a political reality normally imposes a long-term transition until full application of a new institutional framework. The more the reform postpones, the greater the need of it and the more radical its implementation will be. Consequently, the cost of

the existing programs may keep on growing for several years throughout this transition term before beginning to perceive the stabilizing effects of a reform.

The reforms introduced in European countries targeted to improving the sustainability of pension systems work as examples. Increasing the legal retirement age, aiming at increasing economic and financial contributions of the working-age population and at reducing pressure on social security expenditures, has been difficult to put into practice. Recent experiences in Europe are discouraging. In France, a proposal to raise the retirement legal age by two years was strongly opposed in 2010, including massive strikes and demonstrations, so, it was reversed in 2012. In Italy, a similar reform was approved in 2012. This reform established the minimum age for retirement at 66 years for men and women in 2018. This proposal also faced strong resistance though it was approved in a context of critical economic crisis. However, in Uruguay workers started to postpone their retirement from the labor market in response not only to incentives, in terms of expected benefits or capacity to access the pension system, but also in response to their own willingness to stay in the labor market. In any case, for this option to be feasible it is indispensable to ensure that future cohorts of older people have good health.

Given this context, Ecuador is not capable of applying the policies adopted by wealthy countries and that have become older in a term much longer and, even then, are facing serious problems. Other countries' experiences deserve attention, in particular those in developing countries having experienced faster aging in the last half century, especially Western Asia. In the end, any effort should be consistent with each country's particular features.

These projections imply that, in the next decades, the Ecuadorian community will have to identify effective responses in order to ensure sustainability for the social protection system. Options are clear: on the one hand, it will be indispensable to ensure sustained economic growth to allow creating more resources. At the same time, it is expected that, by means of population behavior changes or policy adjustments, effective parameters in the pension system adjust to this new demographic reality.
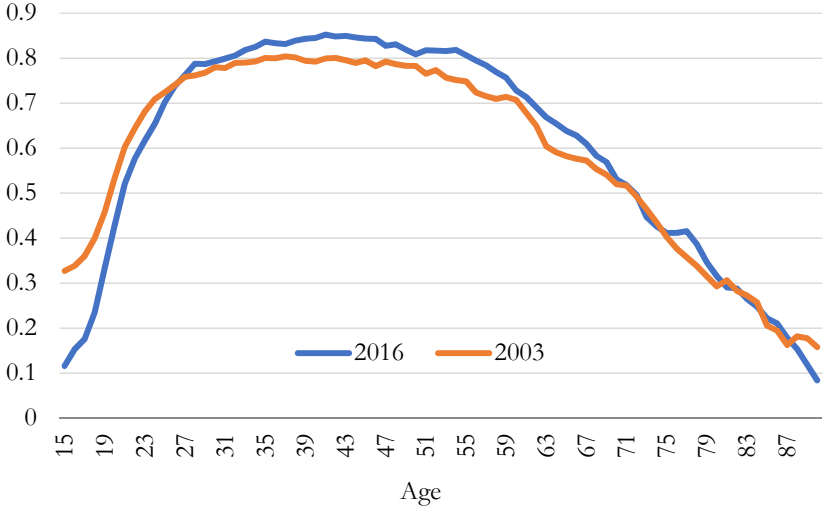
In brief, Ecuador faces two challenges: The first one relates to the low coverage traditionally featured by its system resulting from high labor informality in which workers perform. Secondly, based on this progress in demographic transition, there will be pressure on system financial sustainability due to an increase in the number of pension beneficiaries (expenditures) and relative reduction in contributing active population (income). For that reason, some parametric and structural reforms are now under

discussion. In order to contribute to the discussion, PROST modeled some changes in order to get better information in relation to trends in income and expenditure flows.

In this context, it is possible to consider an increase in the legal age of retirement, removing requirement combinations of age and contribution years currently in force, in order to allow, on the one hand, a more active life of workers and, on the other, to support this increase of life expectancy over time.

According to ENEMDU-provided information, between 2003 and 2016, an economic participation increase has been observed in individuals from different age groups (Figure 19). In general, the percentage of the economically active population showed an increase by one percentage point, shifting from 52% to 53% between the selected years. However, the greatest growth took place among people between 27 and 65 years of age.
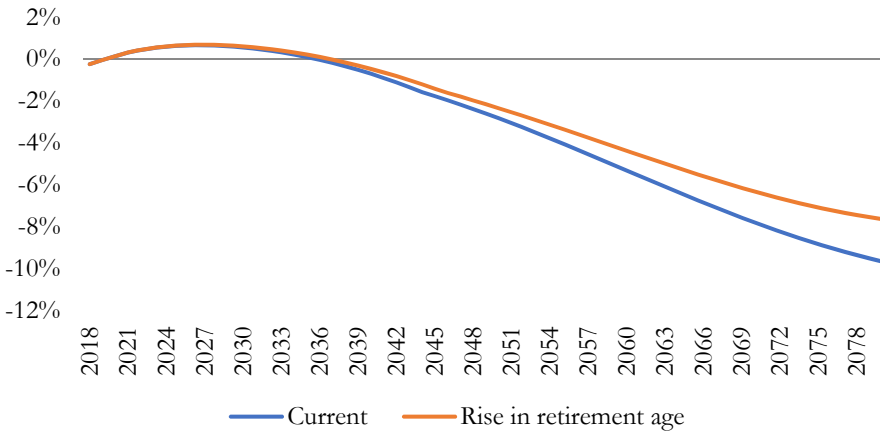
Figure 19. Percentage of Economically Active Population per Age. Years 2003 and 2016

Source: author elaboration based on ENEMDU

In this context, a public policy scenario is outlined in which retirement age is raised by one year every 10 years as of 2028, keeping the rest of the model parameters constant. Figure 20 presents estimated trends in a pure financial result as compared to the baseline scenario between years 2018 and 2080.

Figure 20. Financial Result Compared before and after the Retirement Age Raise. Years 2018-2080

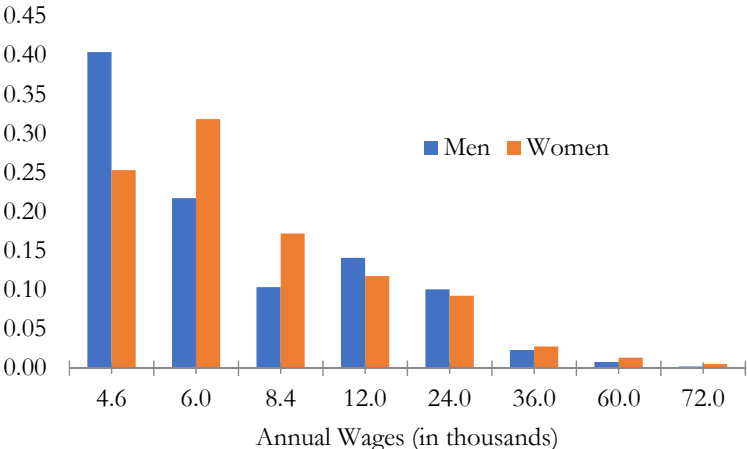Source: author elaborations based on administrative data, IESS

The results obtained are the ones expected. From a financial perspective, the alternative scenario would imply a one-year delay in system deficit, though, considering that there would be gradual changes in retirement age, that allows approximate savings for one percentage point of the GDP during a whole deficit term, while savings were 2 percentage points in the last years.

A complementary idea that usually arises in public policy discussions relates to the inclusion of a funding pillar. In Ecuador's particular case, the option under analysis involves including an individual funding scheme targeted to managing workers' social security savings from the top income quintiles. The reason for this relates to a potential inequity resulting from a higher subsidy (given the 40% transfer of state expenditures) received by these workers as beneficiaries.

Thus, the impact on financial results from the traditional pay-as-you-go scheme managed by the IESS that would lead to an individual funding scheme has been simulated. Therefore, it is assumed that the total active population between 15 and 50 years of age, working and earning wages 2.5 times higher than the unified basic wages,[9] choose the funding scheme and contribute up to that cap on the pay-as-you-scheme and above it to the funding scheme. This accounts for approximately 15% of total contributors to the IESS (Figure 21).

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[9] In 2018, the Unified Basic Wages were equal to USD386 monthly. In 2019, this value climbed up to USD394.
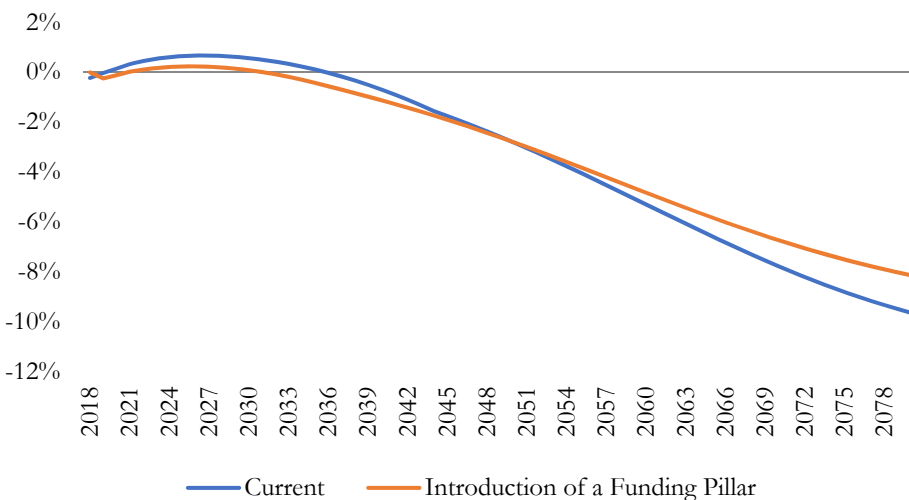
Figure 21. Distribution of IESS Contributors per Wages Intervals. Year 2018

Source: IESS- based own source.

Figure 22 presents the results found in the simulation of the financial flow in the traditional pay-as-you-go scheme given the introduction of a funding pillar. The results suggest that, given the assumptions established in this simulation, the cost of transition to be faced does not seem significant. In effect, the pure financial result remains positive until the beginning of 2030, a point in time at which it turns negative. These almost five years in advance of the negative result relate to the cost of transitioning from one scheme to another. However, in the long term, the savings made in terms of deficit are equal on average to almost 2 GDP points.

Figure 22. Financial Impact of Introducing a Funding Pillar. Years 2018-2080
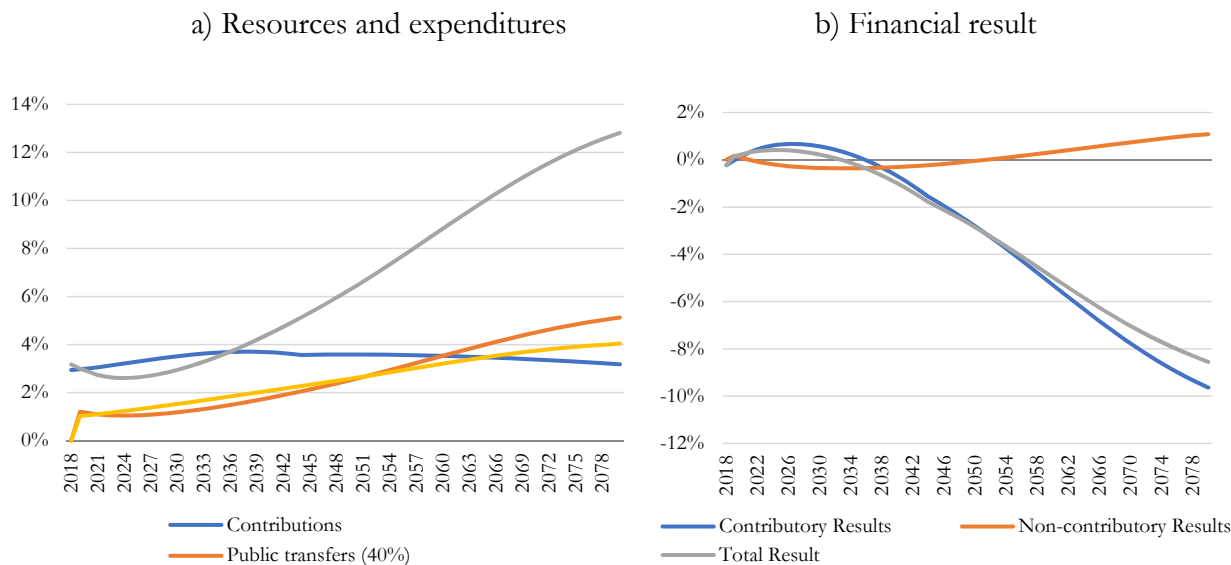

Source: author elaborations based on administrative data, IESS

So far, simulations have been made without reforms aiming at facing the pressure on financial sustainability of the contributory pension system posed by population aging. However, an additional challenge facing the elder income protection system is coverage expansion. Given that the contributory system, providing coverage to approximately 26% of 65-aged older people, is financed by general income, there arises a horizontal inequity issue: those who are not covered finance, by paying taxes, the protected population that, as above stated, belong also to the top income quintiles. This fact justifies public intervention by means of granting a social pension, which in part has already been taking place, to the excluded population. Thus, a transfer, contributory and non-contributory scheme is achieved to allow an almost universal coverage.

In order to estimate the financial impact of a scheme like this, the income and expenditure paths of the pension system are simulated, taking into account two key assumptions: i) universal pension is granted, made of contributory transfers for those who are eligible and social pensions for the remaining excluded 70-aged older people; and ii) the amount of the non-contributory benefit is USD100.

Figure 23 presents the results obtained in relation to contributory resources and public transfers, and the contributory and social pension expenditures.

Figure 23. Resources, Expenditures and Financial Result of Pensions per Scheme. Years 2018 – 2080.

a) Resources and expenditures

b) Financial result

The introduction of a universal non-contributory scheme generates, of course, an increase in the expenditure level which shifts from 1% of the GDP in 2019, to 2.6% by 2050 and to 4% by 2080 (Figure 23.a). This trend relates to population aging maintaining the contributory coverage relatively stable. However, the fiscal effort that has to be made, if the rule setting transfers to the IESS at 40% of social security expenditures remains in force, is not only increasing but also higher than the non-contributory requirements. As a consequence, fiscal (non-contributory) resources compromised by the IESS system are higher than the financing needs for universal social pension, and in the medium and long terms there will be a surplus (Figure 23.b).

In brief, it is possible to identify several alternatives for reforming the income protection system for older people, both parametric as well as structural, that could relieve the impact of population aging in the medium term and expand the coverage level. The public policy alternatives that were previously analyzed are not exclusionary and a mixture of parametric and structural reforms could be simultaneously taken into account.

5. Final reflections

This document has analyzed the performance of the income protection system for older people. This performance features three key variables: coverage, that is to say, the number of people included in the system, coverage sufficiency, that is to say, the magnitude of benefit granted, and financial sustainability.

In relation to the first one, the Ecuadorian contributory pension system managed by the IESS, ISSPOL and ISSFA, provides low-level coverage. The result links to the performance obtained in the labor market, defined by workforce formality level. However, from year 2007 on, a steady increase in active coverage has been checked, which has increased from 19.1% of the working population in 2007 to 30.7% in 2016. A similar increase is observed among wage-earner workers whose coverage experienced an increase by 22.7 percentage points in that same period.

This increase in active coverage relates to three factors: an improvement in macroeconomic performance, policy reforms allowing greater control on employers' duties and an increase in formal public employment.

In this sense, all those policies promoting a labor informality reduction also promote higher contribution rates to social security. These efforts include the use of state coercive power (public servants penalizing employers who do not report on their workers) and the creation of incentives such as simplified schemes for tax payment. Likewise, the IESS started offering credit facilities to its subscribers, which may work as a contribution incentive.

Consequently, the coverage among older people has been one of the lowest levels in Latin America in the 1990s. However, by mid 2000s, an increase related to the retirement incentive program offered by the state to workers was recorded, mainly those working in the health and education systems. Even then, the coverage is at very low levels.

In order to reduce the coverage gap on passive population, in year 2006, the authorities introduced a non-contributory pension, managed apart from the contributory scheme, as a particular kind of transfer of the Human Development Bonus. In this sense, the implementation of a social pension achieved a significant increase in the percentage of older people receiving a social security benefit: while in 2016, the contributory system covered 25.8% of older people, with the implementation of a social pension, the percentage of older people protected by a transfer scheme climbed up to 60%.

The transfers of income coming from different pension schemes play a key role in diminishing poverty, in particular, in households were older people live. In year 2016, 15.6% of the people lived in poor households. However, without transfer programs, both contributory as well as non-contributory, this percentage would have climbed up to 18.2%.

Finally, the financial result of the contributory pension scheme is relatively balanced. Although in the last years there have been policy reforms, such as the elimination of transfers coming from the state, which in 2019 were reestablished, and reductions in contribution tax rates, the scheme remained balanced. However, the demographic transition towards older population warns about sustainability in the medium and long terms. In particular, this implies some pressures on the contributory scheme, which could start getting negative financial results by the mid-2030s, when the dependency rate starts an ascending trend. For that reason, the country is in an adequate context for starting to think about reforms in the institutional framework and adequate policies, taking into account the gradual demographic change.

In this sense, some fields for making parametric changes into the model have been identified. The current scheme, which contemplates the ratio years of contribution to age, is too flexible allowing retirement from the labor market to people under the age of 60. By considering a gradual increase and constant life expectancy, along with possible improvements in people health stock, there is margin for discussing the establishment of a sole eligibility requirement, setting an older age of retirement. Likewise, the gradual increase in the contribution tax rate ensuring contributory financing is a discussion to take place among policy makers, workers and employers. From the sections above, it appears that partial increases in the total contribution rate would preserve the financial equilibrium.

In addition, the introduction of a funding pillar targeted to managing individual savings from all those workers earning higher income could be an alternative to take into account. That would have two possible benefits. First, it would reduce public subsidies towards this group of workers and, then, it would allow an increase in the worker replacement rate since they could contribute in excess of top segments.

In the short term, the challenge to Ecuador is the low social security coverage and the existent horizontal inequity. In effect, while the IESS receives part of its financing through tax resources equivalent to 40% of total expenditures, the percentage of older people receiving a pension climbs up to 26%. That is to say, there are 74% older people excluded from benefits but which contribute to financing through tax payment (in general, consumption tax). As discussed in the second section in

this document, the group of contributory beneficiaries belongs to the wealthiest quintiles; therefore, the current financing scheme is regressive.

In this context, it is necessary to consider a non-contributory pension program expansion using financing from general income to the IESS. Based on the simulation presented in section above, this effort is not only viable, but it also significantly affects coverage, correcting in this way the existent inequity.

However, the political context existing in any change process normally imposes a long-term transition until building consensus and full application of a new institutional framework. The longer the reform is postponed, the greater is the need for it and the more radical its implementation will be. Consequently, the cost of the existing programs may keep on growing for several years throughout this transition term before beginning to perceive the stabilizing effects of a reform.

For that reason, promoting dialogue and agreement spaces among the political sector, the private sector, workers' unions and the civil society is of vital importance in the scope of consensus allowing thinking about the income protection system for older people in the medium and long term ensuring adequate coverage levels and financial sustainability.

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