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Evaluating the Impact of COVID-19 on Pension Systems in Latin America and the Caribbean:

The Case of Argentina

Rafael Rofman
Joaquín Baliña
Emanuel López Méndez

Inter-American Development Bank
Department of Research and Chief Economist

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Centro de Implementación de Políticas Públicas para la Equidad y el Crecimiento (CIPPEC)

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Abstract[*]

This paper presents a first approximation to assess the impact of the COVID-19 outbreak on Argentina's pension system in both the short and medium/long-term. To this end, we have used the Pension Projection Model of the Inter-American Development Bank (IDB) to design and analyze possible scenarios and outcomes, based on alternative scenarios. According to the data analyzed and the projections, the impact of COVID-19 on Argentina's pension system in the short run seems to have been limited, particularly given the rapid recovery during the last months of 2021. The long-term impact is harder to predict. Given the macroeconomic effects of the efforts made by authorities to protect the system and pensioners during the pandemic on the one hand; and the effects of COVID-19 within the labor market on the other, overall consequences are still to be fully understood.

JEL classifications: I31, I38, J11, J14
Keywords: COVID-19, Pension system in Argentina, Short-Term and Long-Term Impacts, IDB projection model

[*] In Latin America and The Caribbean, there is very little research to date about the impact of COVID-19 on pension systems. In this context, the Department of Research and Chief Economist (RES), through the Latin American and Caribbean Research Network, together with the Labor Market and Social Security Division (LMK), through the Network for Pensions in Latin America and the Caribbean (PLAC Network), launched a research project to evaluate the impact of COVID-19 on pension systems in the region. This project analyzes the pandemic's impact on key aspects of pension systems such as replacement rates, contribution density, intergenerational equity, financial sustainability, and pension fiscal expenditure, among others. The study was applied in four countries of the region—Argentina, Chile, El Salvador, and Peru—and it addressed both defined benefit and defined contribution pension systems.

To carry out these studies and guarantee the homogeneity of the analysis methodologies for the different countries, a standard pension projection model developed by the PLAC Network was provided for the different country studies. Since 2015, the PLAC Network supports regional efforts for improving the institutional and technical capacity of pension entities.

The specific objectives for each country study were to: i) generate country-specific evidence on the impact of COVID-19 on pension systems, addressing the effect on key indicators; ii) calculate the pre-COVID and the short and long-term fiscal pressures stemming from the crisis; and iii) evaluate political implications and policy recommendations for the region.

This paper was undertaken as part of the Latin American and Caribbean Research Network project "Evaluating the Impact of COVID-19 on Pension Systems in Latin America and the Caribbean."

1. Background

1.1 A Short History

Argentina is one of the world's pioneers in pension policy, having introduced its first schemes more than a century ago. The first formal pension system was approved in 1904, when a fund to finance pensions for civil servants was created. The system slowly expanded to include other groups and by 1950 most workers were eligible to participate in a pension scheme. The system was highly fragmented, as independent funds covered workers from different industries, and generally generous, which resulted in a serious financial crisis in the 1960s. Aiming to consolidate and strengthen the different schemes, two laws passed in the late 1960s merged most national schemes into three funds (one for civil servants, one for private wage earners and the last for self-employed workers) that operated coordinately. The laws also allowed for "differential" regimes, that offered more generous terms to workers in hazardous jobs, and other special regimes (including those for civil servants at provincial level and a number of "special" regimes for privileged groups) were allowed. This 1968 reform established a retirement age of 60 years old (55 for women) and a vesting period of 20 years in the general regime, a proportional defined benefit formula based on the best three years of the worker's income history, and some minimum and maximum benefits, to improve the system's distributive impact.

During the 1980s and early 1990s financial sustainability issues became more critical, and a debate around a possible reform resulted in a new law approved in 1993 that introduced a deep structural reform to the national scheme. The new program adopted a multi-pillar design, with all workers required to participate in a first pillar that provided a flat benefit to those who reached retirement age (65 for men, 60 for women) and a vesting period of 30 years. The second pillar was either a new, smaller pay-as-you-go scheme that offered a proportional benefit or a funded scheme, based on individual accounts managed by independent firms, that accumulated contributions and paid annuities after retirement. This reform made the system "more contributory" in the sense that, by increasing the vesting period, it excluded many workers who had longer periods of informality in their working history. At the same time, given that a significant part of the revenue was directed to individual accounts, the system's dependence on general revenue funds increased, making it "less contributory" (Rofman and Oliveri, 2012).

Since its implementation, both the design and performance of the new system was subject of strong political debates. On one hand, the designers hoped that competition among fund

managers would reduce costs and make the system more efficient, but market failures and weak supervision resulted in cartelization, limited competition, and high administrative costs. Also, the transition cost was difficult to finance (particularly in a context of already limited fiscal space), deepening already existing macroeconomic problems. The reform was considered by many as one of the leading causes of the fiscal crisis of 2001. Because of these controversies, the system was subject to multiple reforms and regulations until a new law approved in 2008 closed the funded scheme and forced all workers to move to the publicly managed PAYG scheme for the second pillar.

While the general regime of the national system is by far the largest scheme in the country, both in terms of participants and resources, the number of "exception regimes" is quite large. In fact, there is no clear centralized information about the number of exception regimes, contributors, beneficiaries or benefits paid. In a recent report, Rofman (2021) identified 177 different regimes that accounted for 40 percent of all benefits and 55 percent of all payments. Authorities have tried to limit these numbers several time in recent decades, most notably with the 1993 reform and again in 2002 with a specific law, but both initiatives were reversed.

1.2 The System's Performance

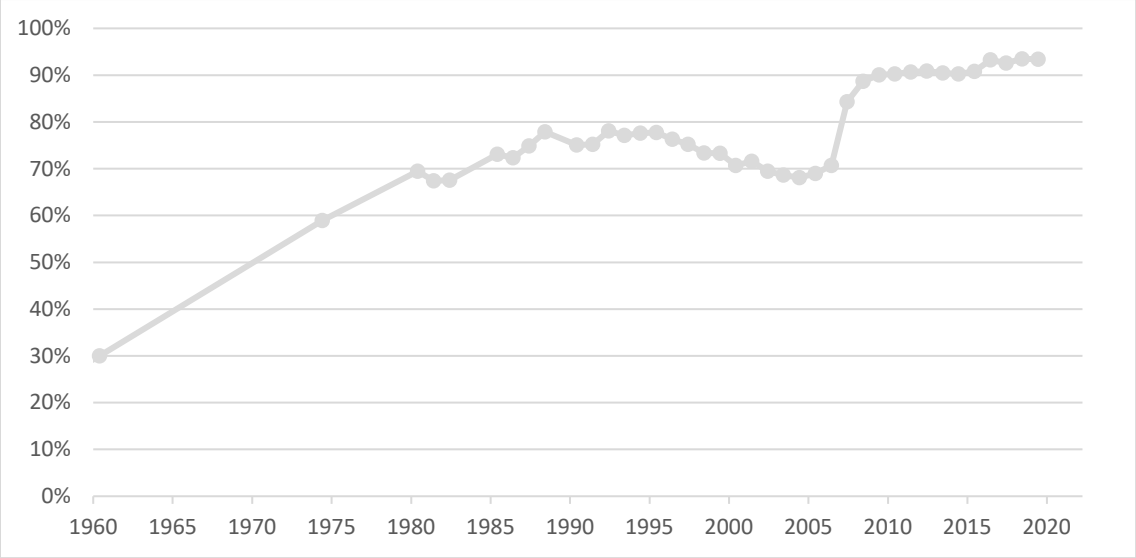
Pension systems' performance are usually assessed along three main dimensions: coverage (how many potential beneficiaries are actually protected), adequacy (how large the benefits are) and sustainability (how much the system costs). As these dimensions compete with each other (high coverage and adequacy implies less sustainability, high sustainability and adequacy would require low coverage, and so on), the challenge for policymakers is to find reasonable balances that are socially acceptable, avoiding in the process inefficiencies or other potential negative impacts on labor markets or macro balances.

1.2.1 Coverage

Pension coverage in Argentina is among the highest in the world, with more than 90 percent of the population aged 65 or more receiving a benefit. Figure 1 shows this indicator from 1960 until recently. As shown, coverage slowly grew from around 30 percent of the elderly in 1960 to almost 80 percent in the 1980s, then declined (as a result of the higher vesting period required since the 1993 reform). Coverage rapidly recovered in the mid-2000s, thanks to a loophole created in the independent workers regime. As these workers are required to make their own contributions to the

system, they can at any time acknowledge and pay missed past contributions, with the corresponding penalties. A law approved in late 2005 and regulating decrees created a scheme (known as "moratoria") that allowed these workers to access an extremely generous payment schedule that, in practice, implied that anyone of retirement age could receive a slightly reduced pension benefit if vesting requirements were not satisfied. While this scheme was supposed to be a short-term measure, different extensions have made it possible to maintain the option open for more than 15 years.[1]

Figure 1. Pension Coverage among Elderly (65 years or older), 1960-2020



Source: Authors' calculations based on EPH-INDEC.

In addition, a new benefit was introduced in 2016 that provided a flat noncontributory benefit to any citizen aged 65 and more with no other income. The Universal Pension of Older Adults (PUAM, by its acronym in Spanish) provides a benefit equivalent to 80 percent of the minimum pension to any individual that qualifies. This is a noncontributory benefit that works as a close substitute for moratoria in the case of men (as most beneficiaries under moratoria received an amount similar to a PUAM to pay for old age contributions that were not done while the person was an active worker), but not as close for women, given that under moratoria they could retire at

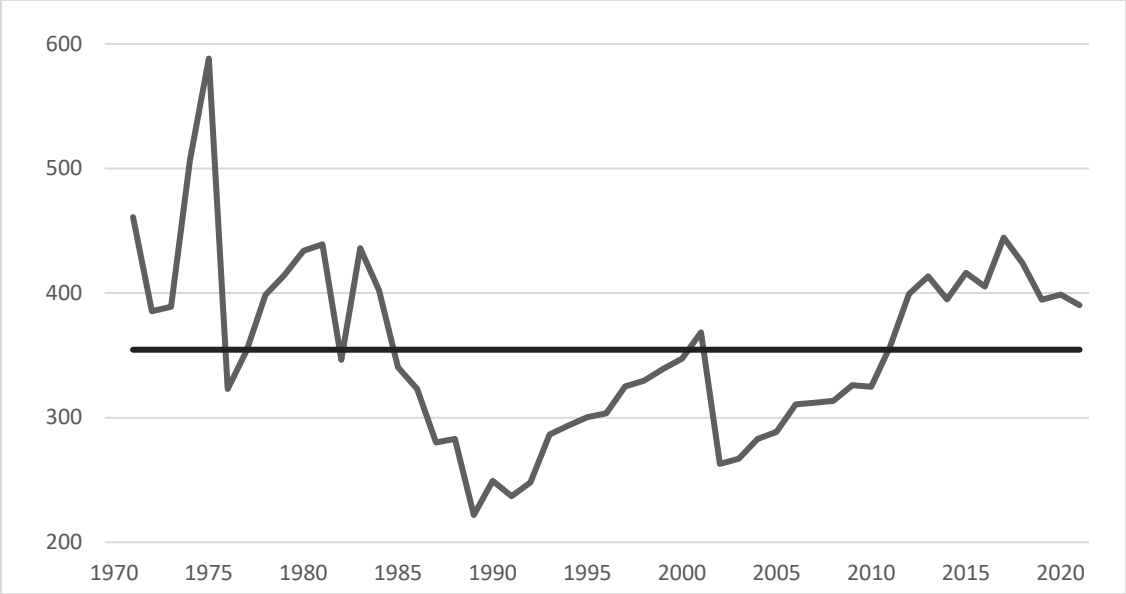
[1] The latest version of this program was supposed to expire on July 2022, but was extended to December 31, 2022 by ANSES Resolution 174/2022.

60 years old and PUAM requires 5 more years of age. Also, PUAM does not generate survivors' pensions. The benefit is indexed under the same rules that applied to ANSES' general regime.

1.2.2 Adequacy

Because of high fragmentation among plans, pension benefits in Argentina are heterogeneous, even among individuals with similar working histories. Average benefits in the national system have fluctuated over time, mostly due to inadequate indexation rules in a context of high inflation. Figure 2 shows the real value of pension benefits from 1970 to 2020, which are currently slightly over the historical average in real terms.

Figure 2. Average Benefit, National Pension System: 1971-2021
(in 1997 pesos)



Source: Informe de la Seguridad Social, ANSES.

The trend changes observed in the abovementioned figure reflect policy reforms. For example, the decline between the early 1980s and 1990s was caused by the manipulation of indexation rules, and the increase between 2010 and 2013 reflects a strongly procyclical indexation formula. Part of the problem is that, given political and legal restrictions on modifying pension benefits in nominal terms, different governments have tried to adjust spending by limiting or delaying indexation in a high-inflation context. Whether benefits paid by the pension system are adequate is clearly a normative issue, reflecting social preferences. By 2020, average benefits were,

as mentioned, somewhat over the historical average, and approximately 7.33 percent higher than the minimum wage. However, the high heterogeneity implies that many beneficiaries received the minimum benefit (82 percent of the minimum wage), while others receive many times that figure.

1.2.3 Sustainability

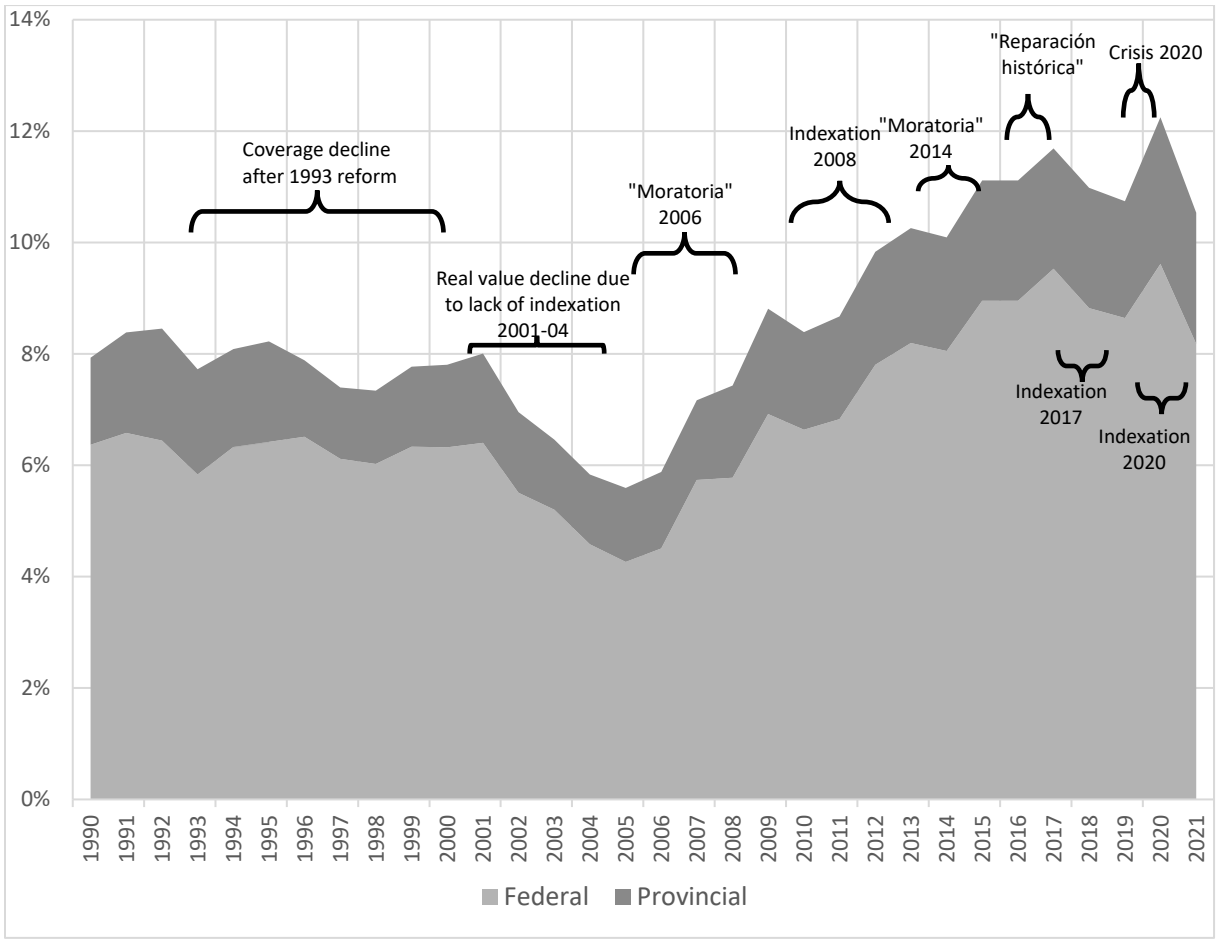
Sustainability is the third relevant dimension that must be considered in assessing the pension system's performance. For obvious reasons, this dimension represents the restrictions that designers and implementers must confront when building a pension system. By 2019, Argentina had managed to expand coverage and provide benefits that were higher than the historical average. Unavoidably, this had an impact on the system's expenditures. Pension spending in Argentina has been volatile, following macroeconomic shocks and policy decisions. The maximum level was reached in 2020, when the country spent 12.2 percent of its GDP on pensions. A quick look at the evolution of this indicator over the last three decades allows the identification of nine periods:

1. From 1994 to 2000, spending stabilized with a slight decline, due to the combination of decline in coverage (as a result of the increase in vesting periods established by the 1993 reform) and an increase in average benefits (due to reduction in inflation that limited the effect that indexation rules had in the past).
2. From 2001 to 2004, a sharp decline, given the lack of an indexation rule in a context of renewed inflation, after the 2002 crisis.
3. From 2006 to 2009, a rapid increase due to the implementation of "moratoria," as discussed earlier.
4. From 2008 to 2012, a rapid increase due to the implementation of an indexation rule that linked pension benefits to wages and tax revenue, making it strongly pro-cyclical.
5. In 2014, a new moratoria law was passed, resulting in another increase in coverage and spending.
6. In 2017, a law aiming at closing all open legal challenges offered blanket increases for nearly all beneficiaries, increasing spending.
7. In 2017 the indexation rule was changed to prices, with an implementation lag of approximately nine months. Due to the acceleration of inflation starting in mid-2018, this resulted in a loss of real value for pension benefits.

8. In 2020 there was a sharp increase, mostly explained by the COVID-induced GDP decline.
9. Finally, in 2021 there is a decline, due to the changes in the indexation formula implemented in 2020.

Interestingly, while demographic trends showed an increase in the proportion of older individuals (as the proportion of population older than 65 years rose from 9 percent to 12.5 percent), changes in pension expenditures in the last 40 years barely reflect this process, as short-term macroeconomic shocks and policy decisions had a much stronger impact.

Figure 3. Pension Spending at the Federal and Provincial Levels, 1980-2021
(% of GDP)



Source: Boletín Estadístico de la Seguridad Social – SSS.

1.3 Main Challenges

By the time the COVID-19 pandemic hit the world, Argentina's pension system had achieved remarkable success in terms of coverage, was able to provide benefits that could be considered reasonable in comparison with other indicators in the country and pension benefits in similar countries, and had a serious (and probably growing) problem in terms of fiscal sustainability.

While coverage was high, it was achieved through the implementation of exceptional (supposedly one-time) measures, primarily the "moratoria" schemes approved in 2005 and 2014. This brought into question whether high coverage could be sustained over time. In terms of adequacy, average benefits may have been reasonable. There was, however, wide heterogeneity in benefits (even among individuals with very similar contribution histories), that depended on many different factors, including the occupations and industries where these individuals worked or where they lived, the time of their retirement, whether they attempted (and succeeded at that) to get their benefits recalculated though lawsuits, and so on. In short, the system confronted several critical challenges, that needed (and still need) to be addressed to ensure that the objective of protecting old age income flows is achieved.

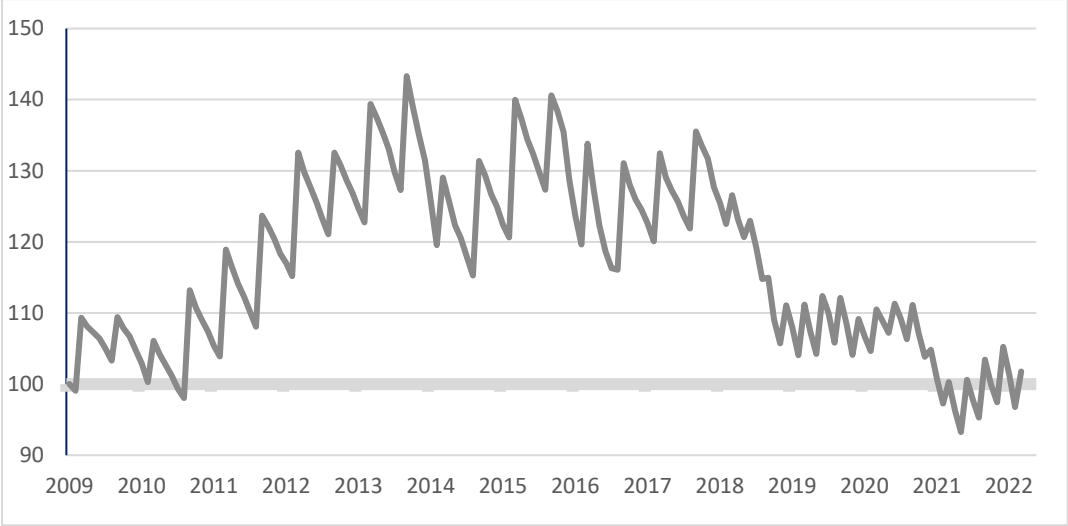
Most of the challenges involve a common factor: efficiency. By late 2019, Argentina spent nearly 10.7 percent of its GDP on pensions. However, had the system paid the average benefit of the national scheme to each resident aged 65 or more, the total cost would have been significantly lower, at around 7 percent of GDP. The difference can be explained by the number of beneficiaries with two or more benefits, the possibility for many participants to receive higher benefits through an exception regime, and the large number of young beneficiaries. These problems are caused, in turn, by the very high fragmentation of the system that results from the proliferation of exception regimes and the outdated design of the survivors' benefits programs.

In addition, the pension system in Argentina had a critical problem that is not common in other countries: the indexation rule. Because inflation has been high and sustained for many decades, whether benefits are indexed and how this is implemented is critical to define both adequacy and sustainability. Between 1950 and 2021 the annual average inflation has been 60 percent, with three hyperinflation periods and very high volatility. Indexation should be a relatively simple rule that protects benefits' purchasing power through a cost-of-living annual adjustment, but it has become the most relevant aspect of the system in Argentina, especially in the short term.

According to the National Constitution, pensions should be indexed, but the government's failure to apply consistently this principle during most of the 1980 resulted in a growing number of lawsuits and the consequent increase in spending (which, given that decisions were taken case by case, also implied a growing inequality). The 1993 reform adopted a simpler, more transparent indexation rule, that required all relevant parameters to adjust with changes in average contributions (and, indirectly, salaries). However, this was cancelled in 1995, when it was established that benefit increases would be discretionally decided by authorities, a rule that remained in place until 2008, when Congress accepted an order by the Supreme Court to reinstate an indexation rule.

The method adopted in 2008 was controversial, as it linked benefits to salaries and tax collection, resulting in a strongly procyclical effect that produced an increase of nearly 40 percent in real terms from 2010 to 2013. A new law approved in late 2017 replaced this with a scheme that combined price inflation and salaries, but its application was suspended in 2020 (when discretional adjustments were granted) and the old 2008 rule was reinstated in 2021. The frequent changes in regulations resulted in very high volatility, in a context of growing inflation. As a result, the indexation rule has clearly failed to deliver its main goal of maintaining stable purchasing power.

Figure 4. Pension Indexation, 2009-2022
(December 2009=100)



Source: Boletín Estadístico de la Seguridad Social – SSS.

1.3.1 Fragmentation and Exception Schemes

While the national pensions system is by far the largest scheme in terms of both participants and financial flows, there are many smaller schemes with different rules and, in many cases, different institutional structures. The number of different schemes has been estimated at 177 (Rofman, 2021) or even more than 200 (Bertín, 2022). There are five types of exception regimes, according to their legal status and justification. The **differential schemes** are part of the national system, with some specific benefits (in most cases, earlier retirement age). This difference is justified by the risky or arduous conditions attributed to specific occupations. The second group includes what is known as **special regimes**, which offer more generous conditions (either earlier retirement, lower vesting periods, higher benefits, or more favorable indexation rules), and they are usually justified considering merits. In nearly all cases they are targeted to civil servants (teachers, university professors, judges, diplomats) who are considered to deserve a better treatment as a way to show society's appreciation for their work. The third group includes **retirement schemes for the military and security forces,** also justified on grounds of merit. The fourth group consists in **noncontributory pensions**, sometimes offered as merit recognition (such as former presidents or vice-presidents, winners of Olympic medals, Nobel laureates) and sometimes in response to extreme necessity (such as mothers of seven children, or disabled individuals with no other income). Finally, the fifth group includes schemes that protect, through a contributory system, **civil servants at the provincial level**, which are independently run and financed by provincial governments (although they usually receive funds from the federal government as well).

This high fragmentation results in inefficiencies and bureaucratic difficulties for beneficiaries (as some individuals go through different schemes and coordination is not automatic), serious inequities (as individuals with similar working histories and even similar tasks over their lifetime but different industries or job title may receive significantly different benefits). While these exceptions exist in most countries, their relevance is surprisingly high in Argentina. Nearly 40 percent of all pension benefits and 55 percent of spending correspond to exception regimes. As a benchmark, Poland is the European country with the largest proportion of population under an exception pension scheme, at nearly 22 percent of the retired population, and most other countries in the EU are well below 10 percent.

1.3.2 Duplication of Benefits

One of the most critical challenges affecting the pension system in Argentina is the very large number of individuals with more than one benefit. This is partly due to the fragmentation discussed above (as some beneficiaries may qualify to receive benefits from two or more different schemes), but mostly to a survivor benefit scheme with an outdated design. Both the national and most exception systems have very generous rules, in terms of coverage and benefit amount. The rule that governs access to this benefit is simple: surviving spouses and underage children of any individual who died while receiving a benefit or having the right to receive one is entitled to a survivor pension. That includes retirees, individuals who had not applied for a retirement benefit but had all qualifying conditions (including age and vesting period) and individuals who would qualify for a disability pension (which means being an active contributor to the system with some regularity). Children are eligible to receive benefits until their eighteenth birthday (with some possible extensions), and spouses (including legal and common law) receive a lifetime benefit, regardless of their age. Benefit amounts are also generous: 70 percent of the reference salary or pension benefit of the deceased individual for the spouse, plus additional benefits for children.

These rules, which might have made sense at a time when traditional families had one breadwinner and a spouse (usually, the wife) would do the non-remunerated domestic work, seems less reasonable as women have increased their labor force participation and pension systems have been reformed to expand old age coverage to make it nearly universal. Until the late 1990s, less than 20 percent of women and nearly no men of retirement age and receiving a survivor benefit were also pensioners by their own right, but those percentages have grown to over 85 percent as pension coverage expanded. The national system has approximately eight survivors' pension beneficiaries per 10 old age beneficiaries, a ratio that among OECD countries is approximately 2.2, thanks to limits to the time a widow or widower may receive a benefit and a less generous rule regarding the amount received.

2. COVID-19 and Pensions in Argentina

2.1 Short-Term Impacts

Most COVID-19 impacts on the pensions system in Argentina were indirect, as consequences are expected to result from changes in the labor market and other similar channels, over time. This section presents a discussion of short-term impacts, considering both direct and indirect effects.

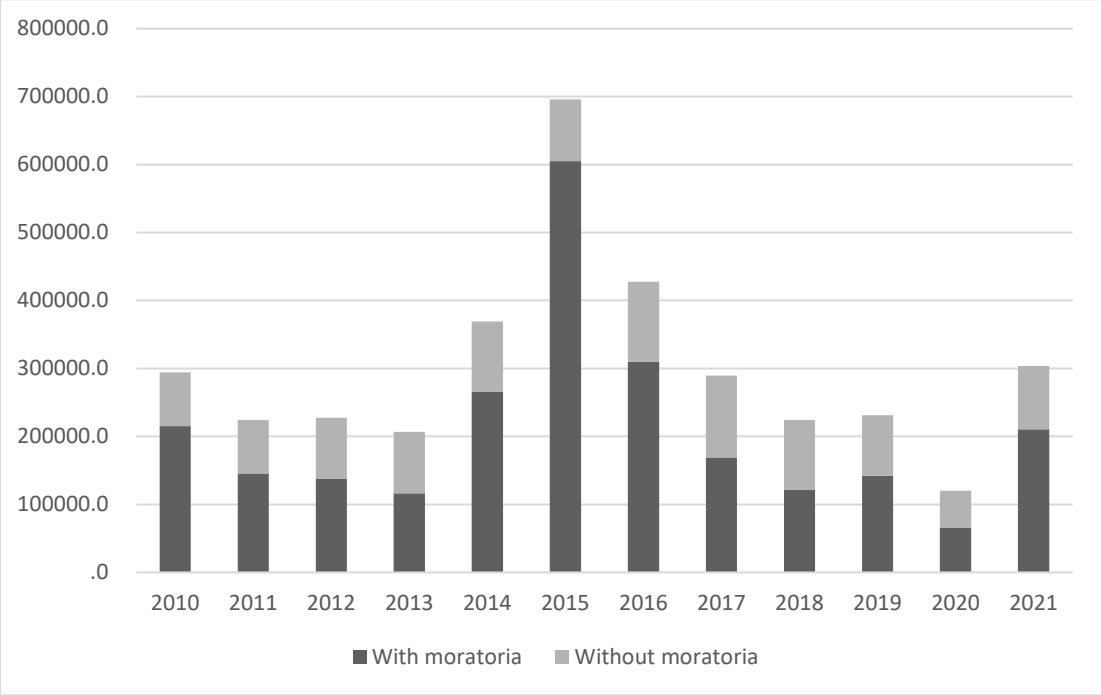
2.1.1 Direct Impacts on Core Dimensions

Coverage

The restrictions imposed by the national government affected key functions of the public administration, including the administrative offices of the national agency that is responsible for the administration of pensions, ANSES. These offices consequently reduced in-person service to the minimum possible, making processes remote and establishing new procedures.

ANSES' lockdown had an important impact on the number of new benefits during 2020. Figure 5 illustrates how registrations for new pensions declined steeply. In 2019, ANSES added over 142 thousand new pensioners. By contrast, in 2020 the total amount of new pensions was 66 thousand, not even half of those administrated during the previous year. The rhythm recovered in 2021, with over 210 thousand new pensions, many apparently for individuals who otherwise would have initiated their pension procedure during the previous year. As such, the number of new requests administered during 2021 was one of the highest since 2010, with the exception of 2014-2016, when the second "moratoria" program was launched.

Figure 5. New Pensioners in SIPA, 2010-2021
(Benefits granted per year)



Source: Authors' calculations based on BESS.

Considering the average of annual requests of previous years, this reduction had a direct short-term impact, as it most likely prevented potential beneficiaries from requesting their pension in a timely manner. Consequently, it resulted in a reduction of coverage during 2020, which was corrected during 2021.

On the other hand, a regulation approved in July 2021 may have increased coverage, as a new decree established that women would receive additional retirement years as recognition for their role as caregivers. Hence, women were credited in one additional year of contributions per child born, plus an additional year in the case of disability or two for adopted children or children receiving the "*Asignación Universal por Hijo*" benefit. Even though this measure might not have affected a large portion of the pension's universe (as it was intended to reach a specific segment of the population), it was adopted during the period of the outbreak to attend a specific demand related to caregiving activities, which was very much discussed during the pandemic.

In short, the outbreak affected coverage of the pensions system, especially during 2020. This reduction of coverage was mainly produced by the closing of administrative offices and

ANSES' shift to remote processes. Nevertheless, the reduction was afterwards addressed during 2021, as the number of new benefits raised considerably. Additionally, coverage extensions were granted through the recognition of caregiving activities.

Adequacy

Adequacy of the pension system in Argentina is particularly challenging, given the high heterogeneity in the system and macroeconomic instability. The pension indexation rule approved in 2017 established that benefits would be adjusted according to changes in cost of living and salaries. In December 2019, a few weeks after taking office, the new Congress passed a law suspending this mechanism and authorizing the executive branch to discretionally adjust benefits for a period of six months, which was then extended for another six months. Benefits were affected as result of this change, and the real value of pension benefits declined by approximately 4 percent in one year. In December 2020, a new law (27.609) was approved, establishing that adjustments would be granted quarterly and based on a composed index that included variations in taxes and salaries.

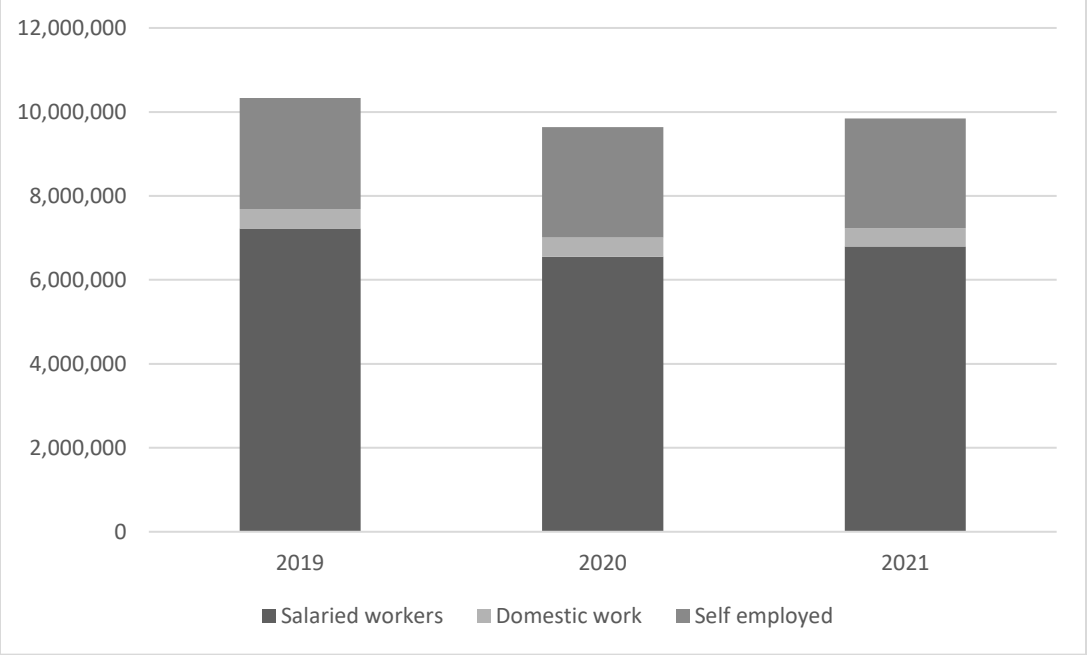
The combination of accelerating inflation and a gap between the period of reference and the adjustment of benefits resulted in further loses and, by August 2021, the accumulated loss in real terms since December 2019 was close to 13 percent. In an effort to compensate, a one-time $3,000 bonus was distributed in March 2020 for those receiving the minimum pension. Additional bonuses were granted in 2021. In March 2021, an extraordinary subsidy of up to $1,500 was paid, depending on the amount of the pensions, to ensure that nobody received less than $32,357. Subsequently, in July 2021 the national government announced another extraordinary bonus of $5,000 for pensioners receiving up to two minimum pensions. In addition, all beneficiaries of social programs were granted an additional transfer equivalent to 15 percent of the amount spent with their debit cards, with a maximum per month of $700.

Additionally, considering the ups and downs of the labor market during the pandemic, the impacts on labor and contribution histories appear to have been temporary. By late 2021 employment rates were at levels similar to those of late 2019, and a similar situation can be observed in the number of contributors. Hence, the impact of COVID-19 on the accumulation of pension rights by current workers was very limited, as discussed earlier.

Sustainability

As a consequence of the economic shock, the pensions system suffered a decline in revenue, due to a reduction in the number of active contributors and the implementation of temporary exemptions. Regarding the first item, the number of contributors to the system was reduced from 10 million in 2019 to 9.45 million in 2020 (BESS, 2022). Figure 6 shows this decline, as well as a partial recovery in 2021.

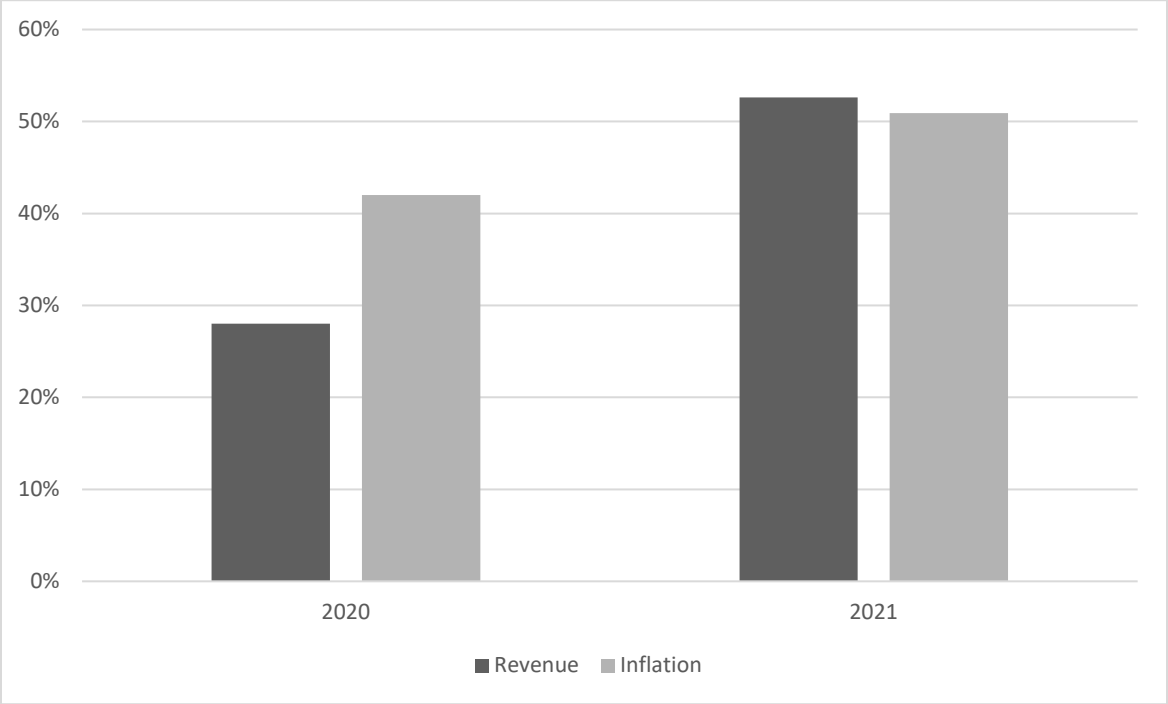
Figure 6. Active Contributors to the Pensions System, 2019-2021
(Number of contributors)



Source: Authors' calculations based on BESS.

The decline in social security collection between 2019 and 2020 was significant. As shown in Figure 7, the variation of revenues was 28 percent, well below the inflation rate of 42 percent. For 2020-2021 there was a small recovery, as revenue increased by 53 percent, while inflation was 51 percent.

Figure 7. Social Security Revenue and Price Inflation, 2019-2021
(% change from previous year)



Source: Authors' calculations based on BESS and INDEC.

3.1.2 Indirect Impacts

Education

The restrictions imposed widely affected access to education services, as schools closed rapidly after the onset of the pandemic and slowly (but far from universally) offered continuity through virtual connections. As previously stated, the national government implemented a remote scheme for all educational levels during the outbreak, including the full 2020 academic year and a substantial part of 2021. Given this situation, many children dropped out from their studies, and others continued in a situation of low pedagogical continuity.

A study conducted by UNICEF (2021) shows that the pandemic deepened pre-existing problems and educational inequalities among children and adolescents. According to UNICEF's estimations, during 2021 approximately 27,000 students dropped out from their studies. Additionally, according to an evaluation carried out by *Argentinos por la Educación*, students dedicated less time to education activities, which negatively affected their learning process. This represents a severe issue in a context in which, even in normal times, only half of students

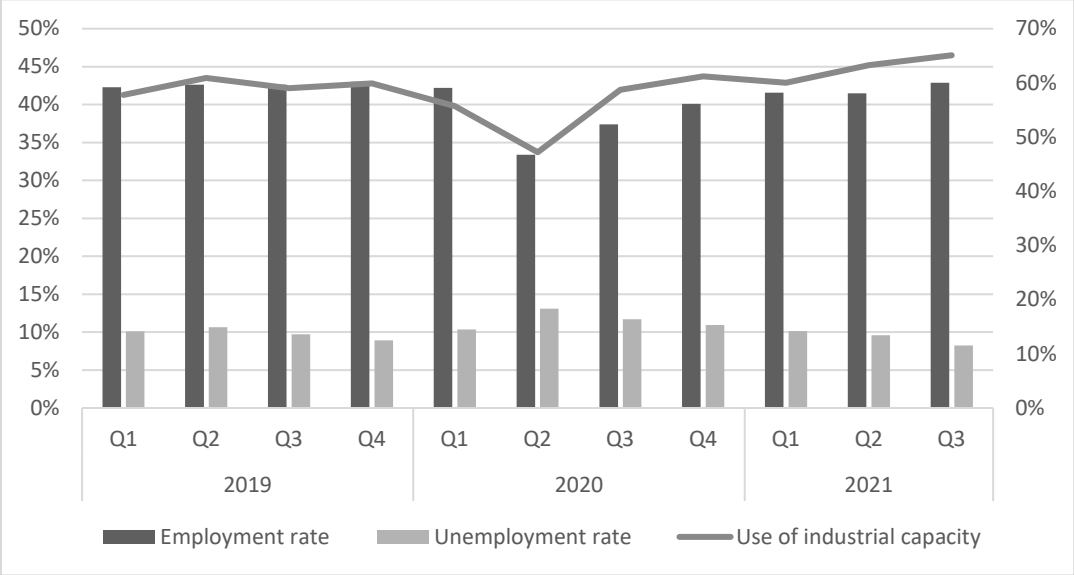
successfully complete the whole track of secondary school because of deep social and economic gaps.

The impact of this problem on educational outcomes is evident, and as a consequence it can be expected to have an effect on labor markets and pension systems in the future, as it is probable that many of these children will enter the labor force with less human capital. Even though these consequences are still unclear, it is expected to have a negative outcome at an economic level, which translates to a potential decrease of revenues and coverage of the pension system.

Labor Market and Economic Activity

As previously stated, the lockdown measures affected negatively economic activity, diminishing job creation and households' consumption. The economic downturn impacted the pension system, as formal job losses resulted in less revenue and interrupted contribution histories. Still, this situation seems to be indirect and in the short term, as the economic recovery is better than expected: economic activity is recovering, and jobs creation is once again rising. Figure 8 illustrates this rapid shift: during 2019, the employment and unemployment rates were approximately 43 percent and 10 percent, respectively. Additionally, the use of industrial capacity was 60 percent. In 2020, both the employment rate and industrial capacity use went down by 9 percentage points in the second quarter. Nevertheless, the recovery was fast: by the end of 2020 industrial capacity use was already at pre-pandemic levels, and employment rates reached the previous levels by early 2021.

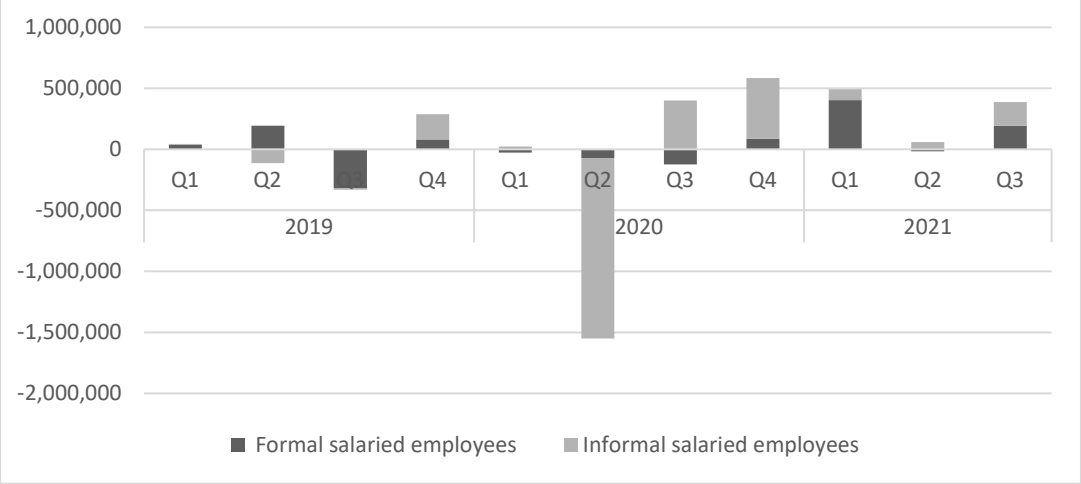
Figure 8. Employment and Unemployment Rates and Use of Industrial Capacity, 2019-2021



Source: Authors' calculations based on EPH-INDEC.

The changes in employment were highly concentrated in the informal sector, as it had no protection during the shutdown. Figure 9 shows how most of the lost jobs were in that sector. Thanks to the measures discussed earlier, formal salaried jobs were effectively protected, and according to latest data, the decline seems to have been very small.[2]

Figure 9. Employment Trends by Formality Status
(Annual change)

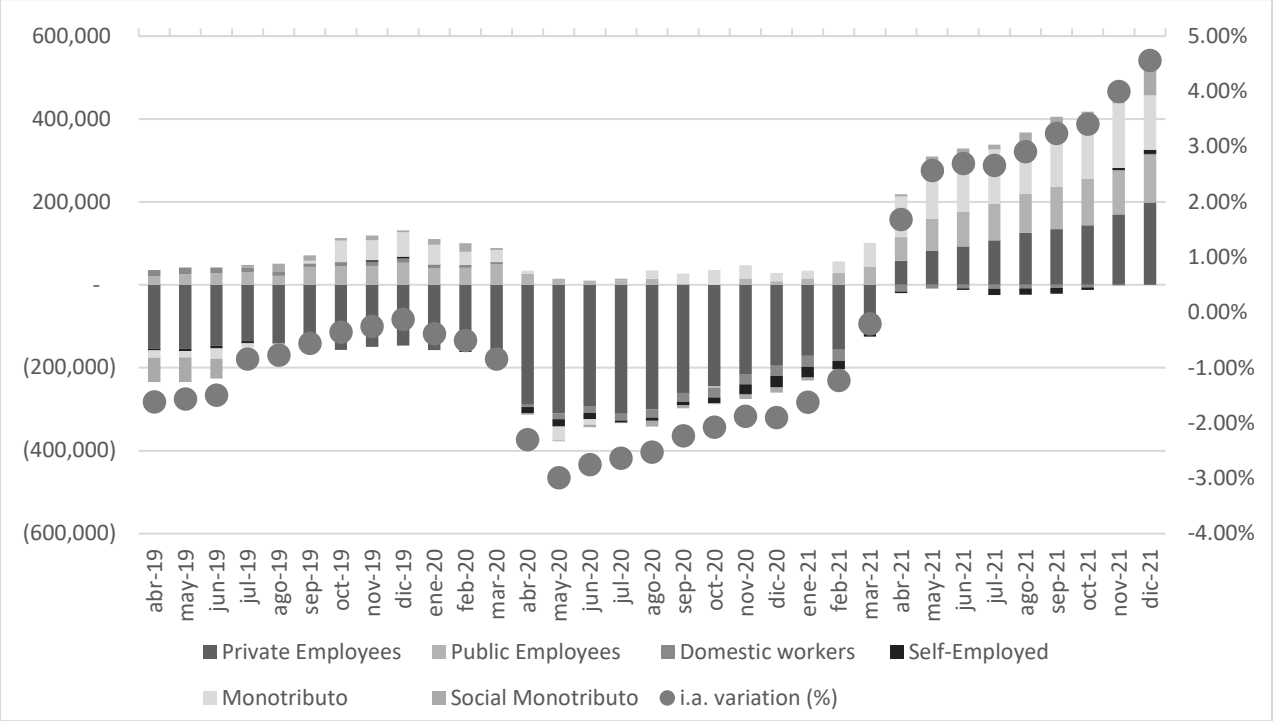


Source: Authors' calculations based on EPH-INDEC.

[2] This specific aspect is taken into account in the alternative scenarios, among which there is a specific scenario that assumes a degradation of the social and economic structure and projects a slow and insufficient recovery of the labor market.

A deeper look at formal workers can offer some interesting insights. Data from social security contributions show that most of the decline in formal work can be explained by the reduction in the number of salaried workers in the private sector (Figure 10). This was to be expected, as this group represents the largest proportion of formal workers, but the impact was proportionally higher than in other groups. Two hundred fifty thousand formal jobs were lost in the first quarter of 2020 (equivalent to 2.1 percent of the total). Among those, two-thirds corresponded to workers in the private sector. The other two categories that were most affected by the decline were domestic workers and high-income independent workers. The recovery was driven by "monotributistas" (low-income independent workers) and public sector workers.

Figure 10. Employment Trends by Type of Worker, 2019-2021



Source: Mera, Karczmarczyk and Petrone (2021). Data calculated and updated based on Situación y Evolución del Trabajo Registrado (MTESS).

The next section presents a more specific discussion related to the measures adopted and some of the consequences regarding the pensions system, taking into consideration the three core dimensions of the system: coverage, adequacy and sustainability.

3. Medium and Long-Term Impacts

3.1 Introduction

To assess the impact of COVID-19 in Argentina's pensions system we used the IDB's Pension Projection Model. The model allowed us to build a baseline scenario, which was defined starting from 2019, assuming sustained growth of the economy and no significant changes in labor participation or composition. Based on these features, we defined three alternative scenarios (later explained) considering possible long-term impacts of the pandemic and comparing them to the baseline. This baseline was completed, and the main results are presented below, while the alternative scenarios are presented in the subsequent pages.

3.2 Baseline Scenario

This scenario assumes that the underlying demographic trends will follow the projections estimated by the UN Population Division, revised to consider the recent decline in fertility rates[3] and that labor market participation, structure in terms of salaried/independent work and formality will remain stable at 2019 levels. For the income profiles for formal salaried workers, we considered the values reported by the Social Security Secretariat for public and private sectors by age, starting at 18 years of age. Self-employed taxable income is set at a fixed level, following the rules.[4] With respect to other economic variables, we assumed a constant 3 percent real increase in salaries and GDP.

The model was built trying to account for the normative heterogeneity in the pension system, and four separate "schemes" were defined to reflect this. First, workers regularly employed as salaried workers, formally registered and earning rights to receive pension systems (as long as they accumulate contributions for 30 years or more) were considered part of the "salaried workers" scheme. A second scheme includes self-employed workers, who are assumed to be registered under the "monotributo" regime, which requires monthly contributions for a fixed (and very small) amount and generates rights to a benefit that is very close to the minimum. The third scheme includes those who obtained a pension benefit under the "moratoria" regime. These individuals have no history of contributions (or, if they have it, it is insufficient to generate pension rights) but obtained a pension through one of the "one-time" moratoria schemes that have been open since

[3] Rofman and della Paolera, 2021
[4] Self-employed workers do not contribute a percentage of their actual earnings, but a fixed amount.

2005 until the end of 2022. Hence, this is considered a closed scheme, where no new participants can enter in the future. The final scheme aims at reflecting the dynamics of the relatively new PUAM ("Pensión Universal para el Adulto Mayor") program, a basic benefit that grants 80 percent of the minimum pension to any individual aged 65 or more if he or she was not able to obtain a contributory pension.

The model was built for each of the eight groups (four schemes for men and women) independently, except for PUAM beneficiaries, as will be discussed below. The model considers the population aged 14 or older as potentially contributors and beneficiaries of old age and disability benefits. On the other hand, survivors' benefits can overlap with other benefits and are estimated assuming that both spouses have the same age.

PUAM and moratoria participants do not generate income for the system but do generate expenditures. In 2019, salaried workers had a total contribution rate of 20 percent (including both employees' and employers' rates) while monotributo participants had a flat contribution, equivalent to a monthly income of $6,990 (compared to average wages of $49,800 for men and $42,933 for women).

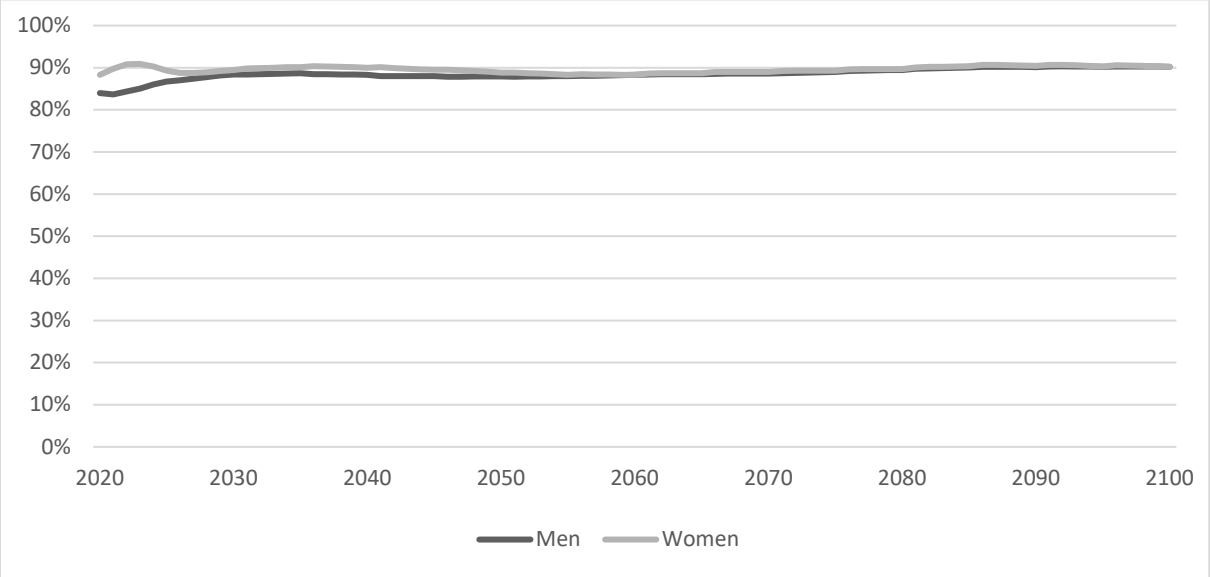
In the baseline model, both "salaried workers" and monotributo models add new retirees each year considering a retirement rate by age (that is, the percentage of the total population that retire at each single age) based on data observed in 2019. In the case of moratoria there are no new retirees, and for PUAM we defined new beneficiaries as a residual: given that nearly everyone who does not qualify to receive a pension benefit under one of the traditional schemes can obtain a PUAM, we defined that each year the number of new PUAM beneficiaries would be such that total coverage will remain at 90 percent. Mean benefits are calculated in different ways for each system: retired salaried workers receive a pension related to their average wage over a 10-year period prior to retirement, monotributistas and moratoria beneficiaries receive the minimum pension and PUAM beneficiaries receive 80 percent of the minimum pension.

Coverage

As Figure 11 shows, the model projects high stability in coverage of both men and women in the four schemes. The data reflect the lack of new moratoria, more relevant for women than men, and the increasing importance of the PUAM. This result shows the initial relevance of the four schemes selected as they initially cover almost 80 percent of men and 90 percent of women of retirement age. (There are many smaller schemes in Argentina that are not included in this analysis, including

provincial-level programs, special pension schemes, military and security forces retirement and others. For a detailed discussion, see Rofman, 2021).

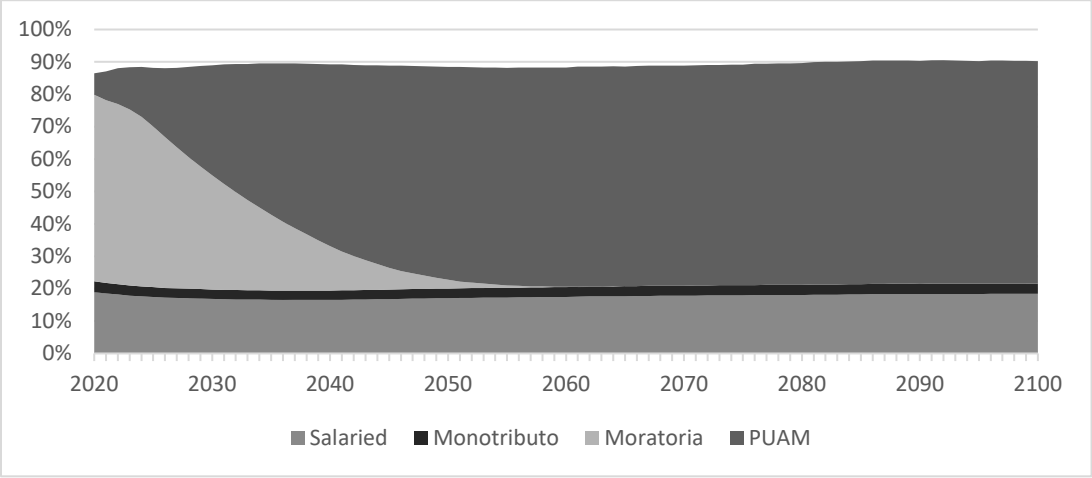
Figure 11. Older Population (65 years and more) with Pensions, 2020-2100 Projection
(Percentage of Elderly)



Source: Authors' calculations based on the IDB's Pension Projection Model.

Figure 12 shows coverage among the population aged 65 and over for both men and women, by scheme. Moratoria is clearly the largest scheme, as it covers nearly 60 percent of the population in that age range. Those who fully retired under the salaried workers scheme are about 19 percent of the total, while PUAM represents 5 percent and monotributo 3 percent. As moratoria will be closed to new beneficiaries at the end of 2022, we expect a significant growth in the number of PUAM beneficiaries, which should reach 50 percent of the elderly by 2085. Under these assumptions, the proportion covered by the salaried workers and monotributo schemes should remain stable over time.

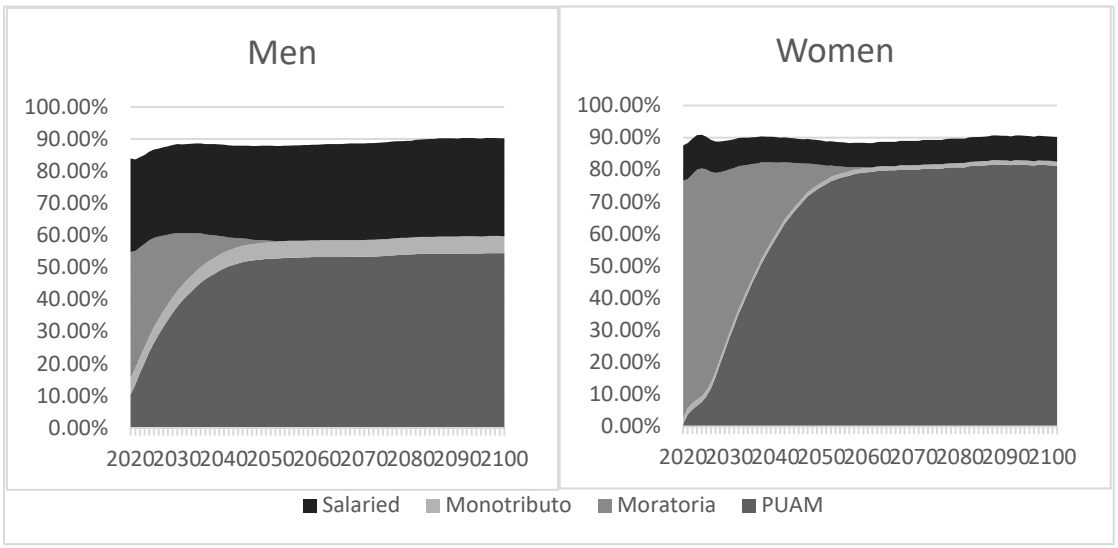
Figure 12. Old Age Coverage, by Scheme, 2020-2100
(Percentage of Elderly)



Source: Authors' calculations based on IDB´s Pension Projection Model.

The situation is similar when we consider the trends by gender. In both cases, we expect salaried workers and monotributo beneficiaries to remain stable while PUAM replaces moratoria over time. However, coverage is different if we look at the projection by gender. Figure 13 shows how pension coverage is mainly explained by the non-contributory moratoria and PUAM among women, while among men the contributive salaried workers and monotributo schemes have higher coverage.

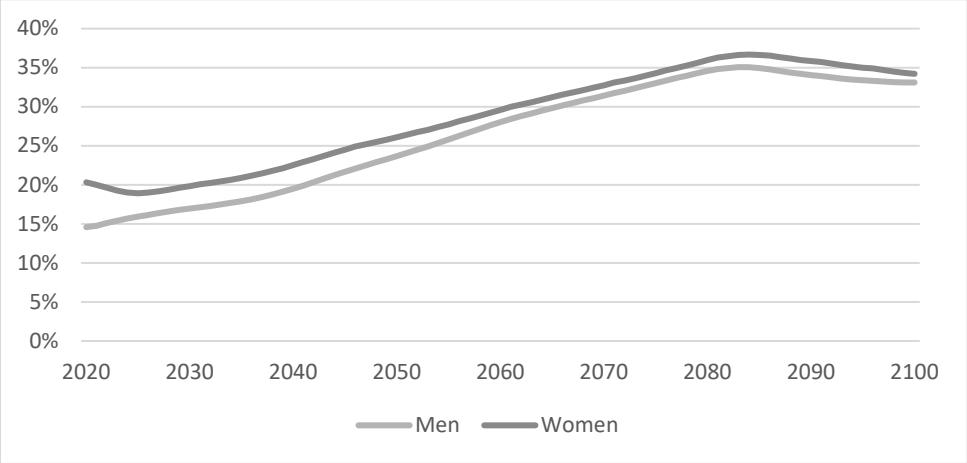
Figure 13. Old Age Coverage, by Scheme and Gender 2020-2100
(Percentage of Older Population)



Source: Authors' calculations based on the IDB's Pension Projection Model.

igure 14 shows the ratio of beneficiaries to the population older than 14 years (excluding those receiving a benefit). In the first years of the projection, female beneficiaries represent 20 percent of the population, while among men the ratio was 15 percent. This baseline shows a decrease for women to reach the same proportion as men by 2030, when pensions start to increase for both genders.

Figure 14. Ratio of Retired to Active Age Population by Gender, 2020-2100
(Ratio)



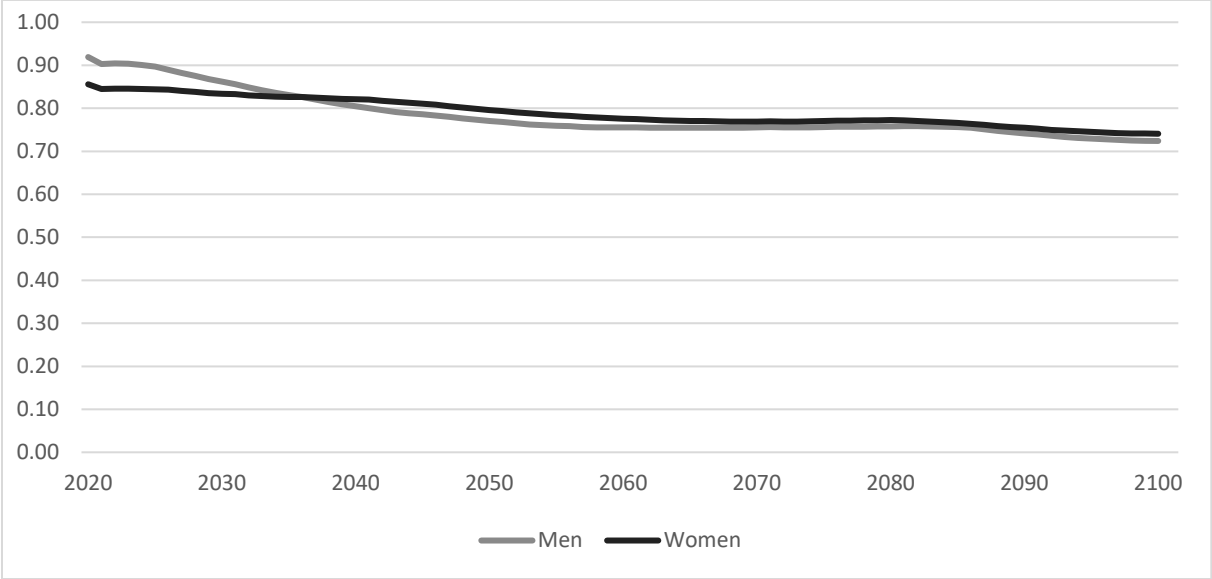
Source: Authors' calculations based on the IDB's Pension Projection Model.

Adequacy

The baseline scenario shows that benefits will be relatively stable in relation to wages in the future. Pension benefits for salaried workers represent approximately 80 percent of average salaries[5] and will slowly decline over time (this is mostly because current benefits have increased beyond their expected value due to indexation rules applied in 2008-2016). Figure 15a presents the expected trend of this ratio over time, by gender. Monotributo benefits are much more generous, as the implicit income defined by the set contributions is low in comparison to the minimum pension that these beneficiaries will receive (Figure 15b).

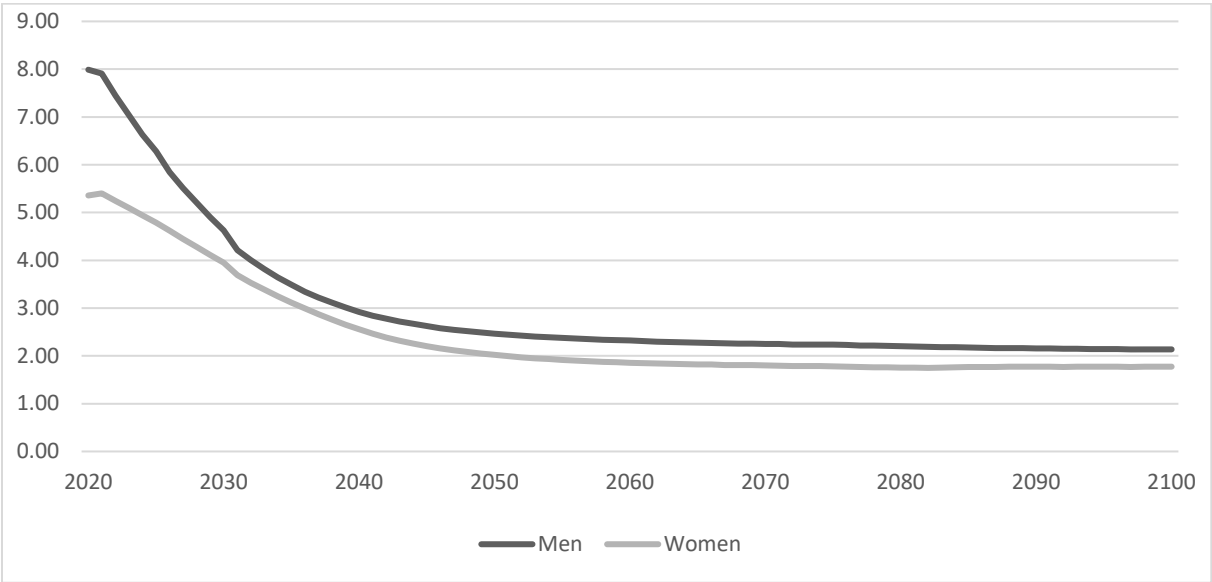
[5] It should be noted that while the replacement rates is close to 80%, this is in relation to the average wage, but the ratio is lower when considering the pre-retirement income, at around 55%.

Figure 15a. Replacement Rates, Salaried Workers, 2020-2100
(Average pension over average salary of salaried workers)



Source: Authors' calculations based on the IDB's Pension Projection Model.

Figure 15b. Replacement Rates of Monotributo, 2020-2100 Projection
(Average pension over average implicit salary of monotributo)

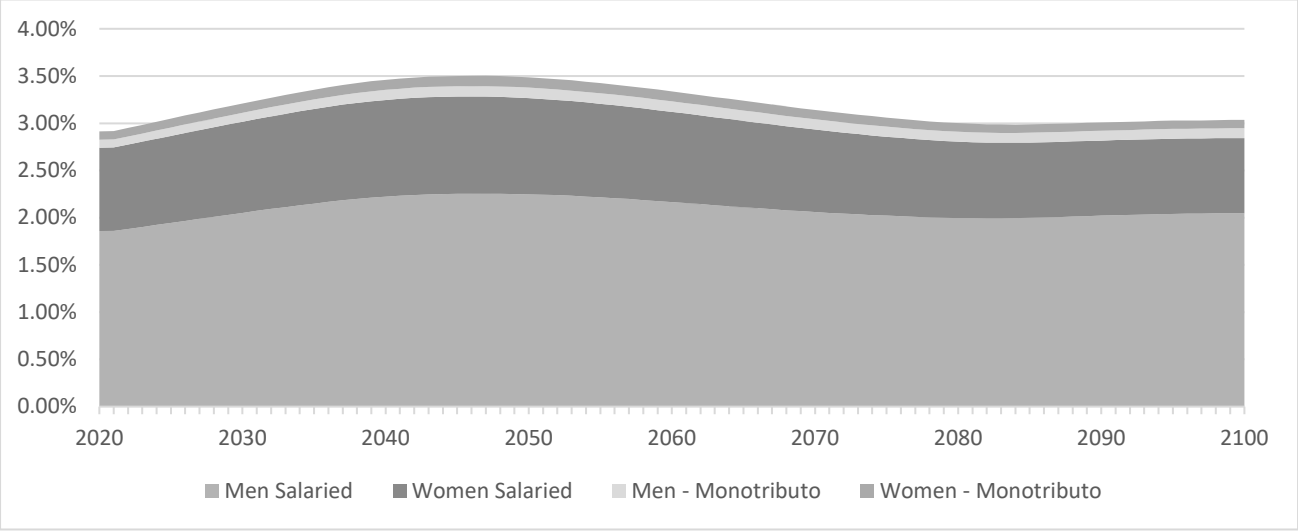


Source: Authors' calculations based on the IDB's Pension Projection Model.

Sustainability

Figure 16 shows the evolution of revenues generated by salaried workers and monotributo contributors. Given the large gap between actual wages of salaried workers and the implicit income of monotributo, most contributions come from the first group: whereas monotributo contributes 0.18 percent of GDP, salaried workers contribute 2.83 percent (67 percent of that figure by men and 33 percent by women). Revenues are expected to increase up to 3.6 percent of GDP by 2050 and then decline, following the path of the demographic bonus.

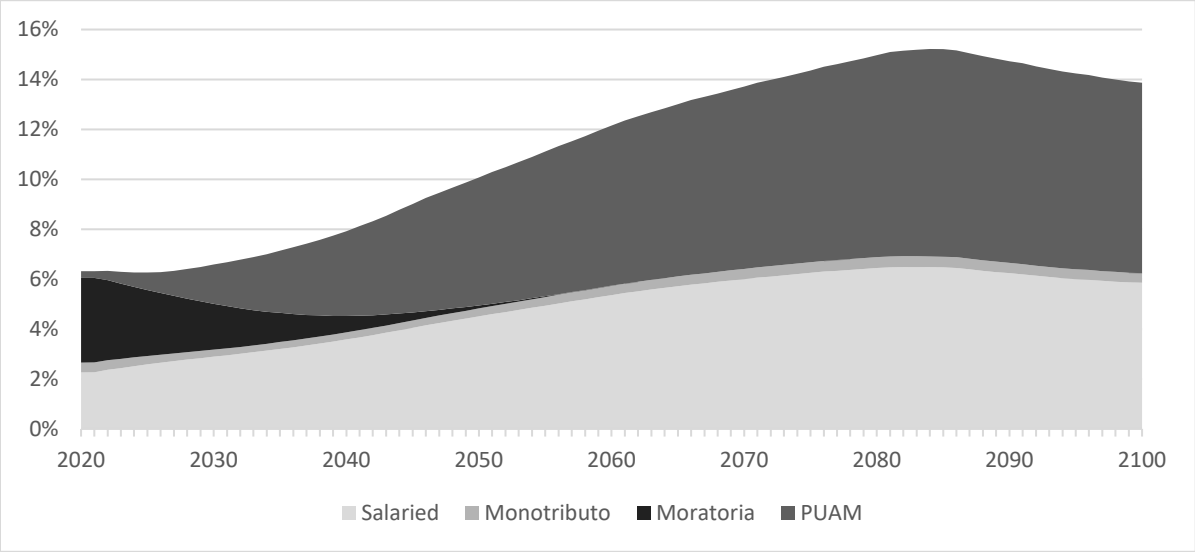
Figure 16. Contribution Revenues, 2020-2100
(Percentage of GDP)



Source: Authors' calculations based on the IDB's Pension Projection Model.

In the case of expenditures, total spending was 6.2 percent of GDP in 2021 (with moratoria representing half of this). As seen in Figure 17, spending in monotributo benefits is not expected to become relevant, as the number of beneficiaries under this scheme will be small (due to their low contribution density). Spending in PUAM, on the other hand, should gradually grow as the program becomes more important, replacing moratoria as the default option for those who have no access to contributory pensions.

Figure 17. Pensions Expenditures, 2020-2100 Projection
(Percentage of GDP)

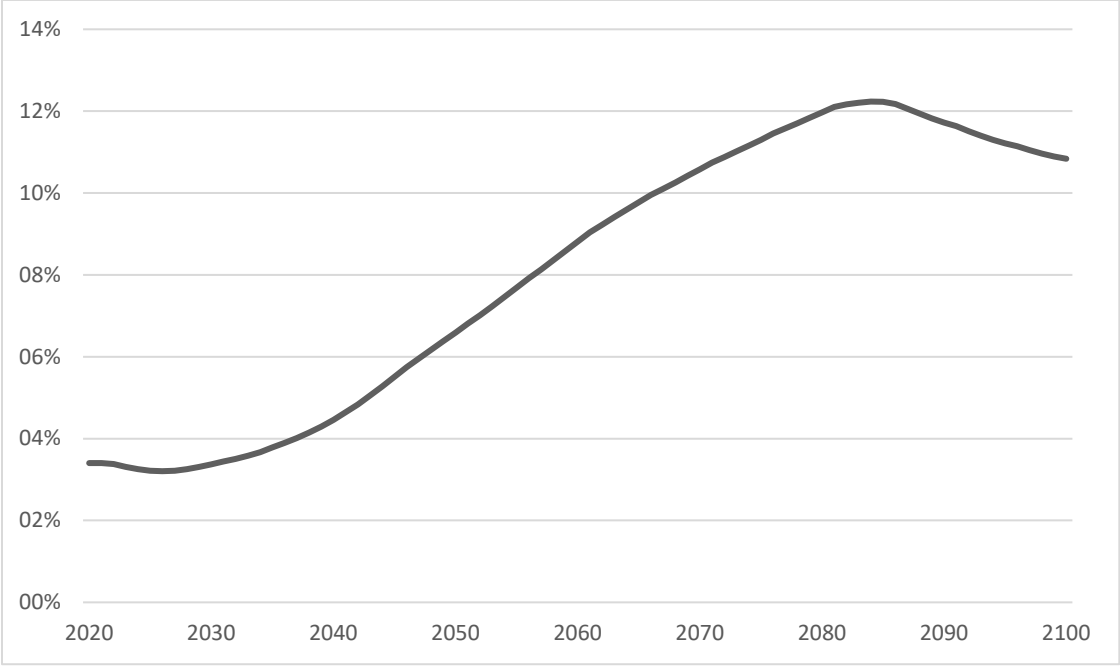


Source: Authors' calculations based on the IDB's Pension Projection Model.

Given these expected trends, the financial result of the model (that is, the difference between revenue and expenditures) is expected to deteriorate over time, with a growing deficit. Figure 18 shows it is expected to go from the current 3 percent of GDP to almost 10 percent in 60 years, with an improvement afterwards due to the impact of demographic changes.

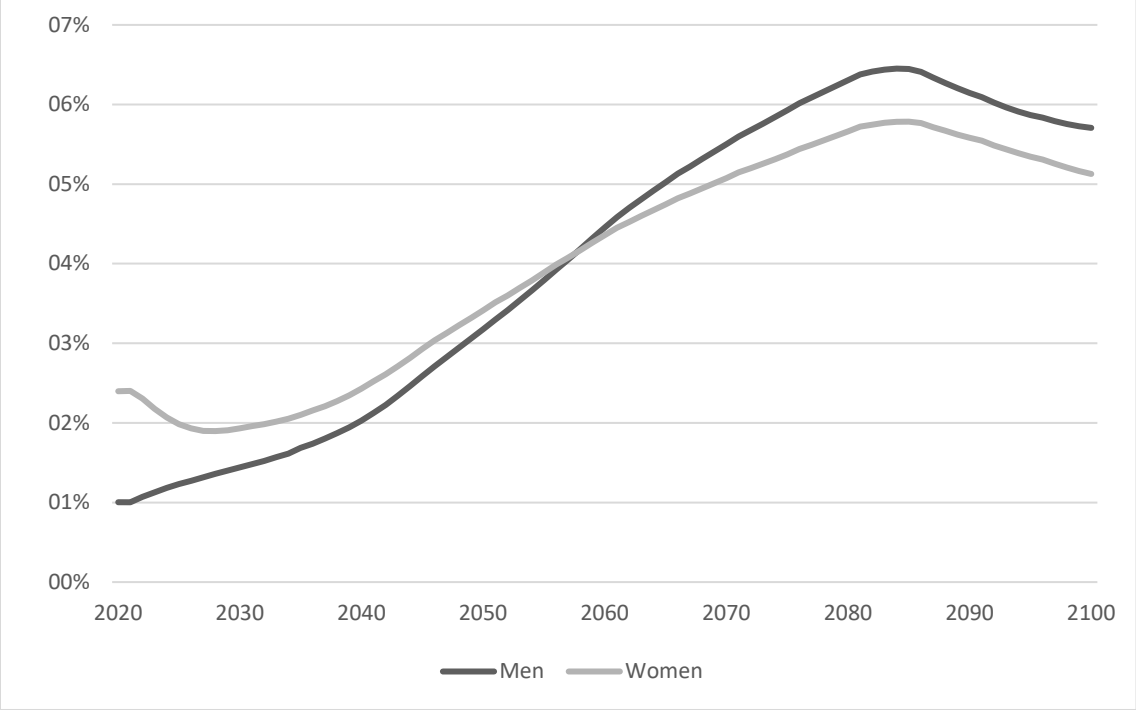
In terms of gender, Figure 19 shows that, while men contribute more to the deficit now, the situation will reverse as the deficit generated by women will grow faster and overcome it by 2060. This is caused by the higher incidence of PUAM among women, which is in turn caused by the gender gap in the labor market. The traditional distinction of productive and reproductive labor between men and women derives in more stable professional trajectories for men, while professional trajectories among women tend to be unstable and interrupted, as they often end up leaving formal employment to take on caregiving tasks. Consequently, differences in terms of coverage, adequacy and sustainability among men and women are a reflection of inequalities originating in the labor market (Petrone and Baliña, 2022).

Figure 18. Pension Deficit, 2020-2100
(Percentage of GDP)



Source: Authors' calculations based on the IDB's Pension Projection Model.

Figure 19. Pension Deficit by Gender
(Percentage of GDP)



Source: Authors' calculations based on the IDB's Pension Projection Model.

3.3 Alternative Scenarios

To assess the possible impacts of COVID-19, we defined three alternative scenarios, based on long-term effects that the pandemic might have had on social and economic indicators. Each scenario is presented under two variants. First, we assume that impacts are immediate, in the form of a shock, while in a second approach we consider the effects of a gradual impact of COVID-19.[6] The following table summarizes the main features of each scenario, which are further developed in each specific section.

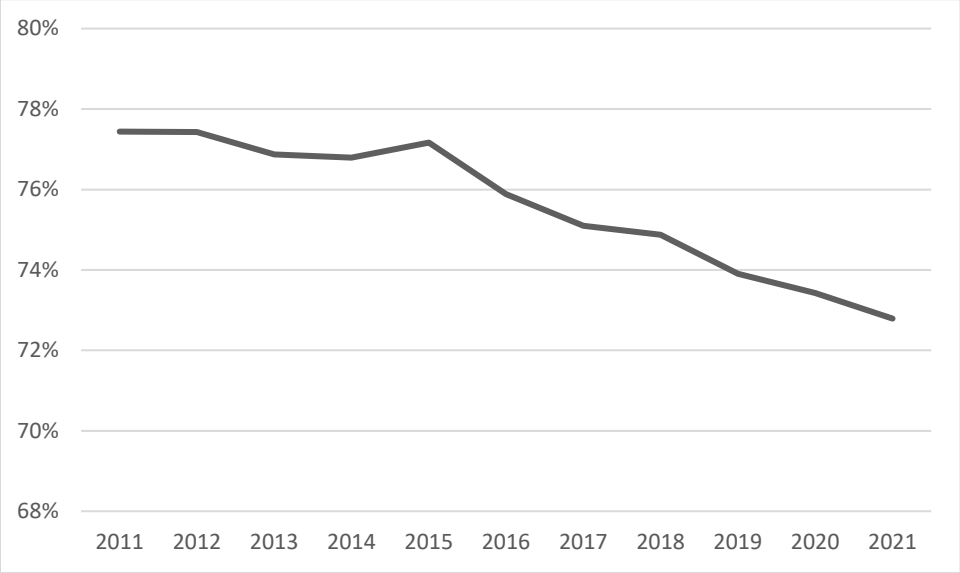
Table 2. Alternative Scenarios of COVID-19 Impacts

Scenario	*Features*	*Variables*	*Periodization*
Labor market degradation	- Permanent negative impact on labor markets. - Long-term decline of formality. - Shift in labor force participation from salaried work to self-employment.	- Formality declines by 10%. - Retirement rates decline by 10%. - Rates of access to PUAM increase by 10%. - Percentage of "monotributo" among formal workers increase to 25%.	- Shock: changes take place as of 2023 - Gradual: changes take place over a 20-year period, starting in 2020
Productive transformation/ education loss	- Acceleration of shift from manufacturing to services in employment - Formality and salaries decline	- Formality declines by 10%. - Retirement rates decline by 10%. - Rates of access to PUAM increase 10%. - Real salaries decline by 10%	- By shock: changes take place as of 2023 - Gradual: changes take place over a 20-year period, starting in 2020
Creative destruction	- "Creative destruction" process in the economy: replacement of traditional manufacturing jobs with high-productivity services	- Salaried work declines by 10%, fully replaced by independent (monotributo) jobs. - Real salaries increase by 10%	- By shock: changes take place as of 2023 - Gradual: changes take place over a 20-year period, starting in 2020

The impacts of each scenario on variables is assumed considering past experience in Argentina. For example, salaried work has declined nearly five percentage points between 2015 and 2021 (Figure 20) and informality grew by 10 percentage points during the 2001-2002 crisis (Figure 21). Still, these scenarios are not predictions, but an attempt to assess how significant impacts might be if they occur.

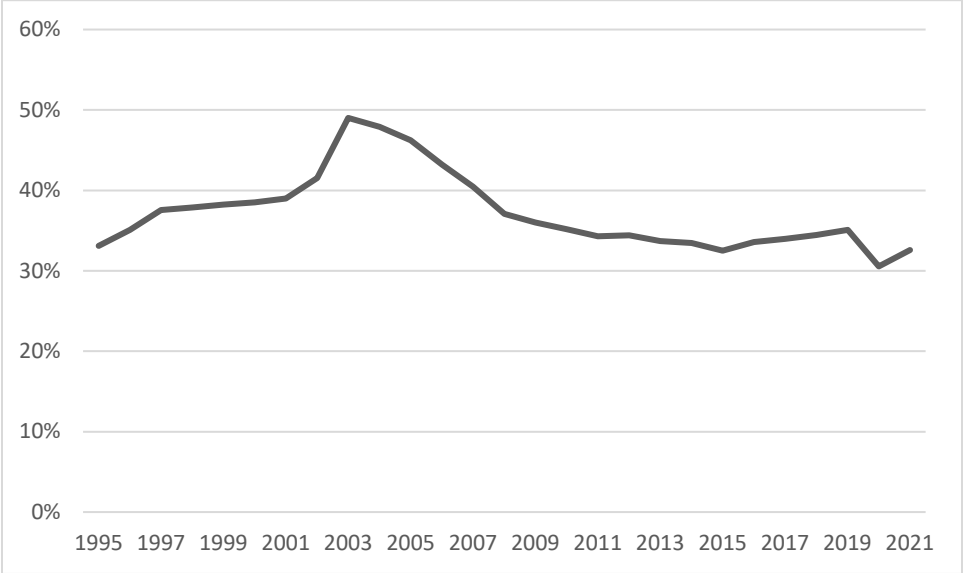
[6] Even though these scenarios take in consideration real and feasible impacts of COVID-19 in the social and economic structure, we did not model general equilibrium consequences of such changes.

Figure 20. Salaried Workers, 2011-2021
(Percentage of employees)



Source: Authors' calculations based on EPH-INDEC.

Figure 21. Informality in Salaried Workers, 1995-2021
(Percentage of salaried workers)



Source: Authors' calculations based on EPH-INDEC.

3.3.1 First Scenario: Labor Market Degradation

This scenario assumes that COVID-19 has a permanent negative impact on labor markets, resulting in a long-term decline of formality and salaried work. This does not affect wages directly, since only salaried workers´ wages are taken into account, but the shift in labor market variable results in a change of GDP growth that, in turn, affects wages. However, it does affect general income of families, as they fall because labor relations shift towards other forms of contracting, such as self-employment (monotributo). As a consequence, GDP shrinks. The scenario includes impacts on labor formality and a shift in labor force participation from salaried work to self-employment. To model this scenario, we adopted the following assumptions:

- *Shock scenario*: Formality declines by 10 percent as of 2023. As a result, the rates at which individuals retire decline by 10 percent at all ages, and rates of access to PUAM (noncontributory pension) increases accordingly. The percentage of "monotributo" in relation to all formal workers increase from 15 percent in 2019 to 25 percent as of 2023, and from that moment on remains stable.
- *Gradual scenario*: This combines the same long-term situation presented for the above-mentioned scenario, but the changes occur progressively over a 20-year period beginning in 2020.

3.3.2 Second Scenario: Productive Transformation-Education Loss

This scenario assumes that COVID-19 accelerated a pre-existing trend of change in the productive matrix and, at the same time, the long-term effect on human capital that resulted from loss of education access during the pandemic will be significant, as discussed in Section 3.1.2. Because of the productive transformation, labor demand will shift from manufacturing, with relatively higher paid jobs, to services, with lower salaries. At the same time, lower human capital will result in lower salaries. Hence, in this scenario both formality and salaries decline, which also affects GDP growth, resulting in a contraction of 10 percent. Given this, the scenario projects what would happen in terms of population, type of pension, incomes, pension budget and GDP. To model this scenario, we adopted the following assumptions:

- *Shock scenario*: Formality declines by 10 percent as of 2023. As a result, the rates at which individuals retire decline by 10 percent at all ages, and rates of access to PUAM (noncontributory pension) increase accordingly. Additionally, real salaries decline by 10 percent as of 2023.
- *Gradual scenario*: This combines the same long-term situation presented for the above-mentioned scenario, but the changes occur progressively over a 20-year period beginning in 2020.

3.3.3 Third Scenario: Creative Destruction

In this scenario, COVID-19 accelerates the "creative destruction" process in the economy, forcing a replacement of traditional jobs (salaried workers in manufacturing) with more dynamic, better paid (but less stable) jobs in high-productivity services. This supposes both a decline in salaried workers and an increase in their real salaries. Furthermore, even though the number salaried workers decline, given the rise of productivity, GDP remains the same. Given this, the scenario projects what would happen in terms of population, type of pension, incomes, pension budget and GDP. To model this scenario, we adopted the following assumptions:

- *Shock scenario*: Salaried work declines by 10 percent as of 2023 and is fully replaced by self-employed (monotributo) jobs. On the other hand, real salaries of salaried workers increase by 10% as of 2023.
- *Gradual scenario*: This includes the same long-term situation presented in the above-mentioned scenario, but the changes occur progressively over a 20-year period beginning in 2020.

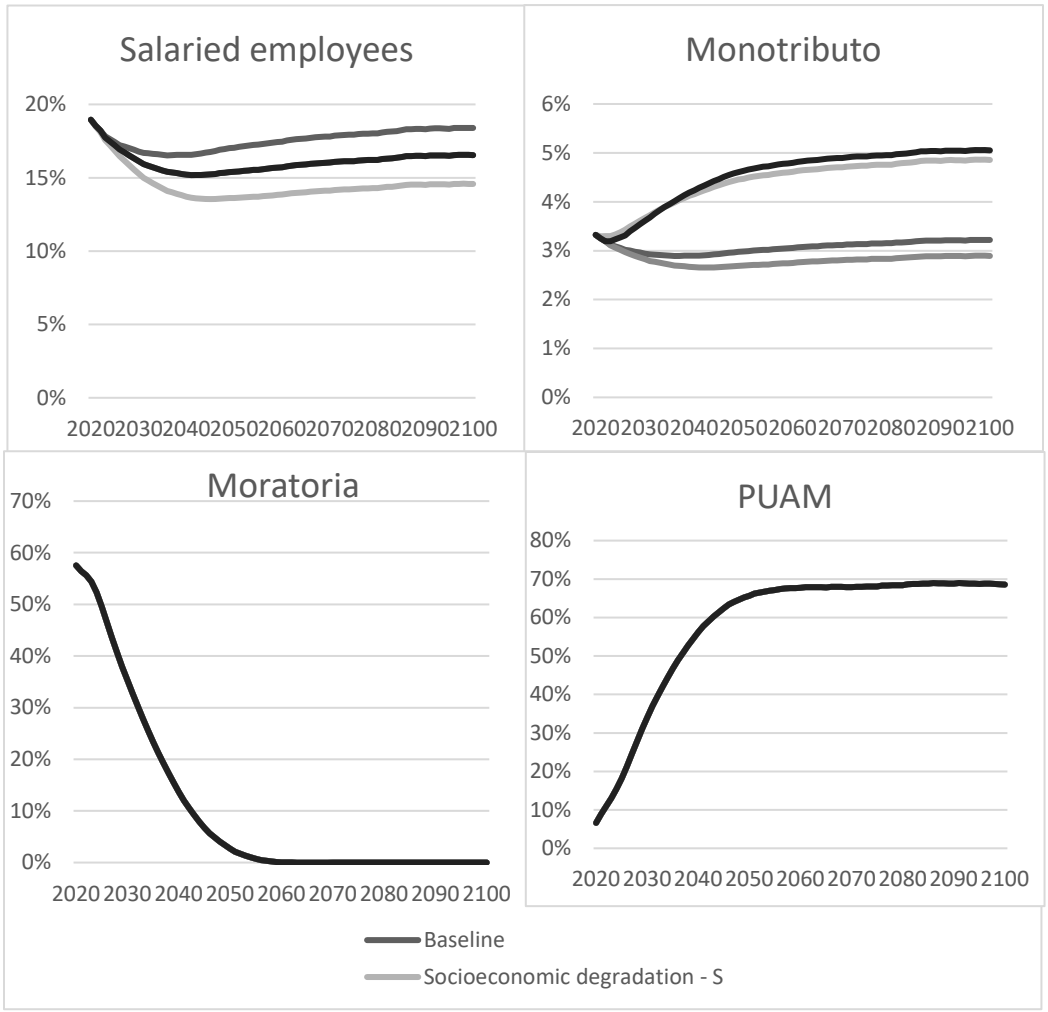
3.3.4 Compared Scenarios

Coverage

As previously discussed, total coverage of elderly residents was over 80 percentage in 2020, considering the four schemes analyzed. The proposed scenarios show differences in the distribution of this coverage in the future, as weight shifts towards salaried, monotributo or PUAM schemes. Salaried work is highly relevant for the system because it represent the main revenue source and the main determinant of benefits. The proportion of pensioners under this scheme starts at 19 percent in 2020.

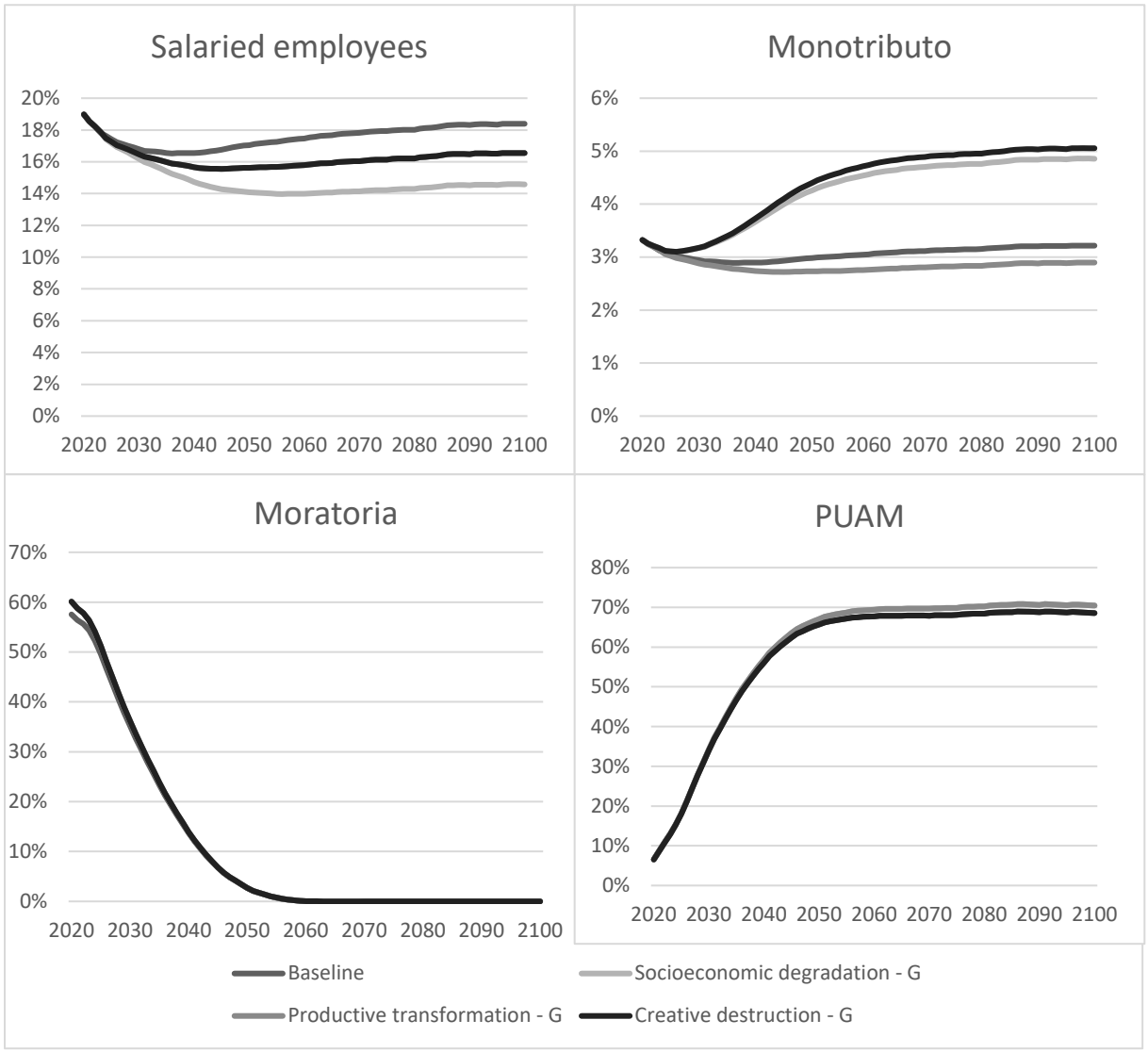
As expected, coverage in the long term converges to the same level, regardless of whether we consider the shock or gradual variants, but changes under the shock variant are faster. We can expect a decline in coverage for salaried workers in all cases (linked to stricter access criteria than in the past), but the effect of lower coverage among active salaried workers that we simulate in the alternative scenarios results in lower coverage in old age. On the other hand, coverage of monotributo improves in scenarios 1 and 3, as the proportion of the labor force in this category increases. Of course, there is no impact on moratoria beneficiaries (since it is assumed that the scheme is closed) and increases in PUAM to compensate losses in the other schemes.

Figure 22. Old Age Coverage by Scheme in Baseline and Shock Scenarios, 2020-2100 Projection
(Percentage of population older than 65)



Source: Authors' calculations based on the IDB's Pension Projection Model.
Notes: Some scenarios are not shown because they overlap with other, given that the simulated changes do not affect coverage for all schemes.

Figure 23. Salaried Workers' Coverage in Baseline and Gradual Scenarios, 2020-2100
(Percentage of population older than 65)

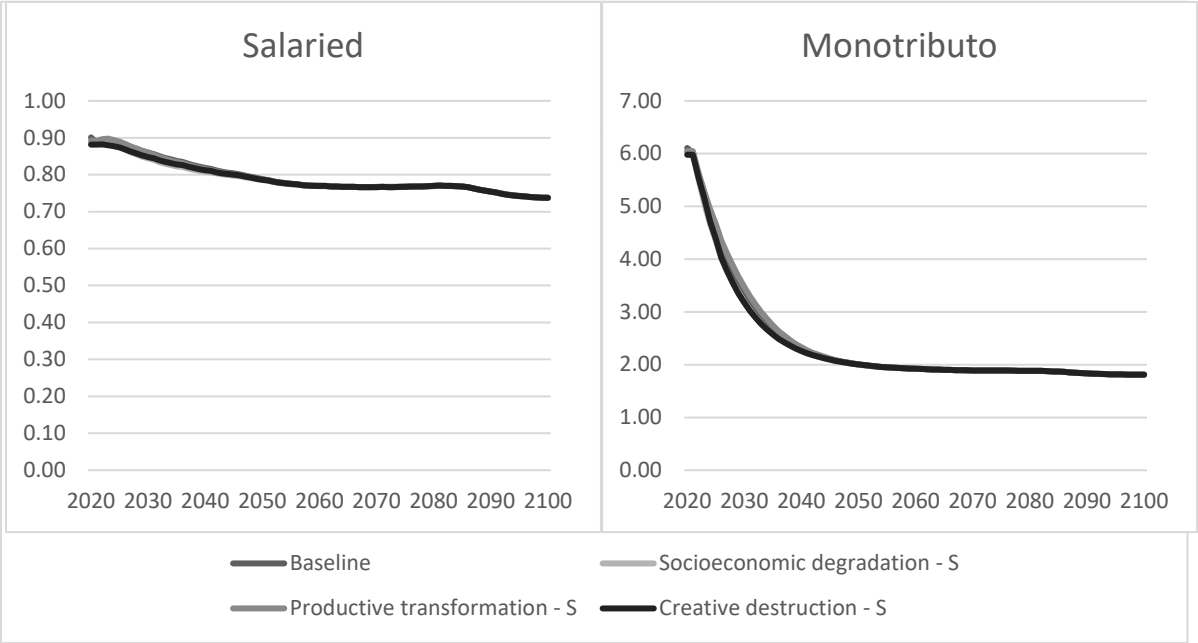


Source: Authors' calculations based on the IDB's Pension Projection Model.
Note: not every scenario is shown, as they overlap with other (simulated changes do not affect coverage for all schemes).

Adequacy

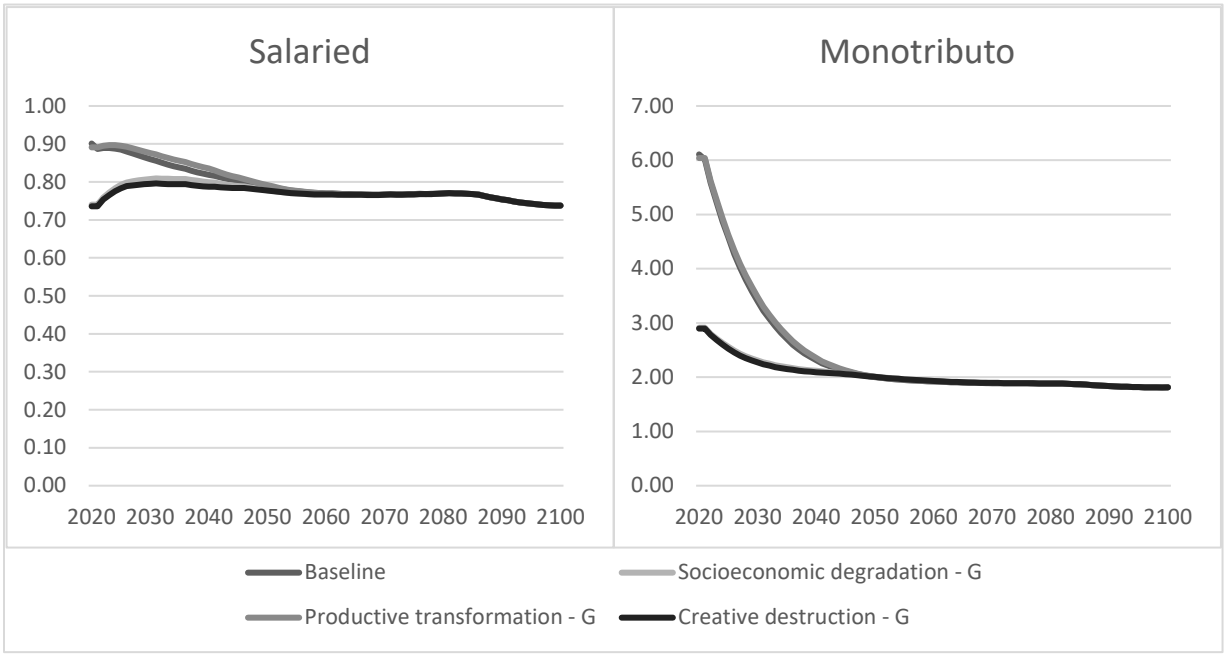
Figure 24 and Figure 25 discuss adequacy by showing the value of average pensions in relation to average income of salaried workers and monotributo. Pension benefits start our simulation period at 70-80 percent of wages for salaried workers and close to 300 percent of assumed income for monotributo. In both the shock and gradual scenarios, salaried workers see a period of increase in replacement rates (that is shorter if changes are rapid). A similar effect is found among monotributo beneficiaries.

Figure 24. Replacement Rates in Shock Scenarios for Salaried Workers and Monotributo, 2020-2100
(Average pension over average salary or income)



Source: Authors' calculations based on the IDB's Pension Projection Model.

Figure 25. Replacement Rates in Gradual Scenarios in Salaried Workers and Monotributo, 2020-2100
(Average pension over average salary or income)

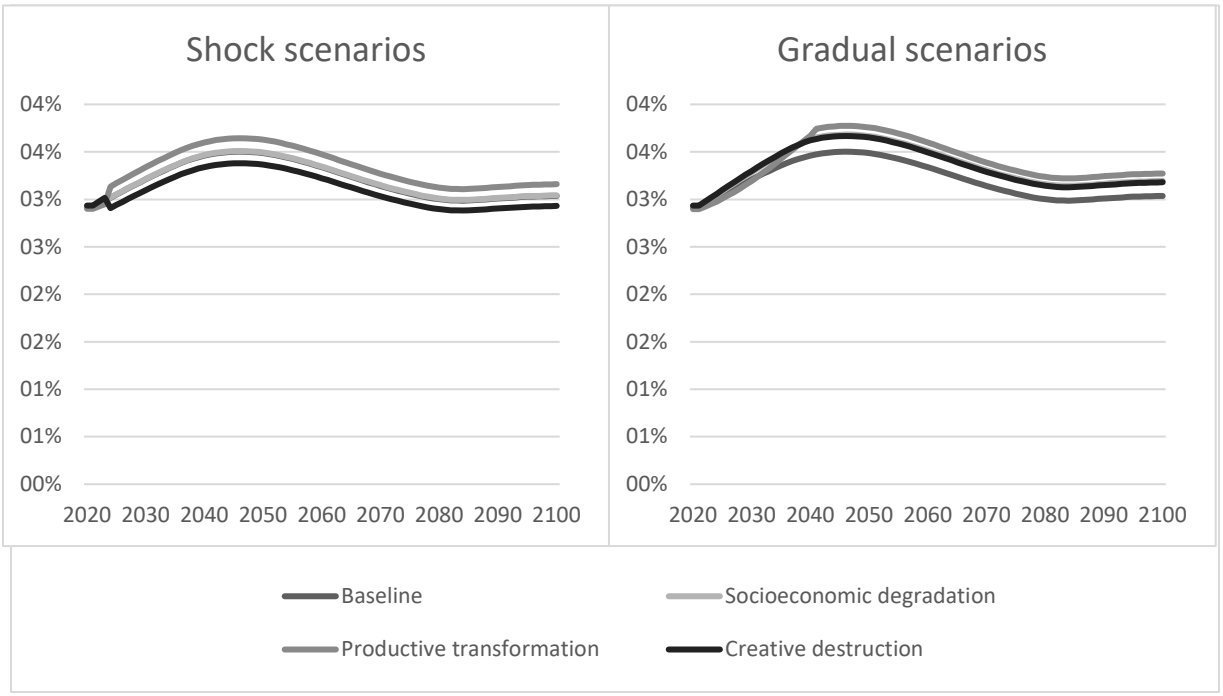


Source: Authors' calculations based on the IDB's Pension Projection Model.

Sustainability

Figure 26 presents the expected revenue of the system under different scenarios. Starting from slightly below 3 percent of GDP, revenue is expected to increase faster under the "creative destruction" scenario than under the alternative ones. Still, in all cases demographic trends will likely dominate the trend, resulting in a cyclical dynamic related to changes in the number of active age individuals.

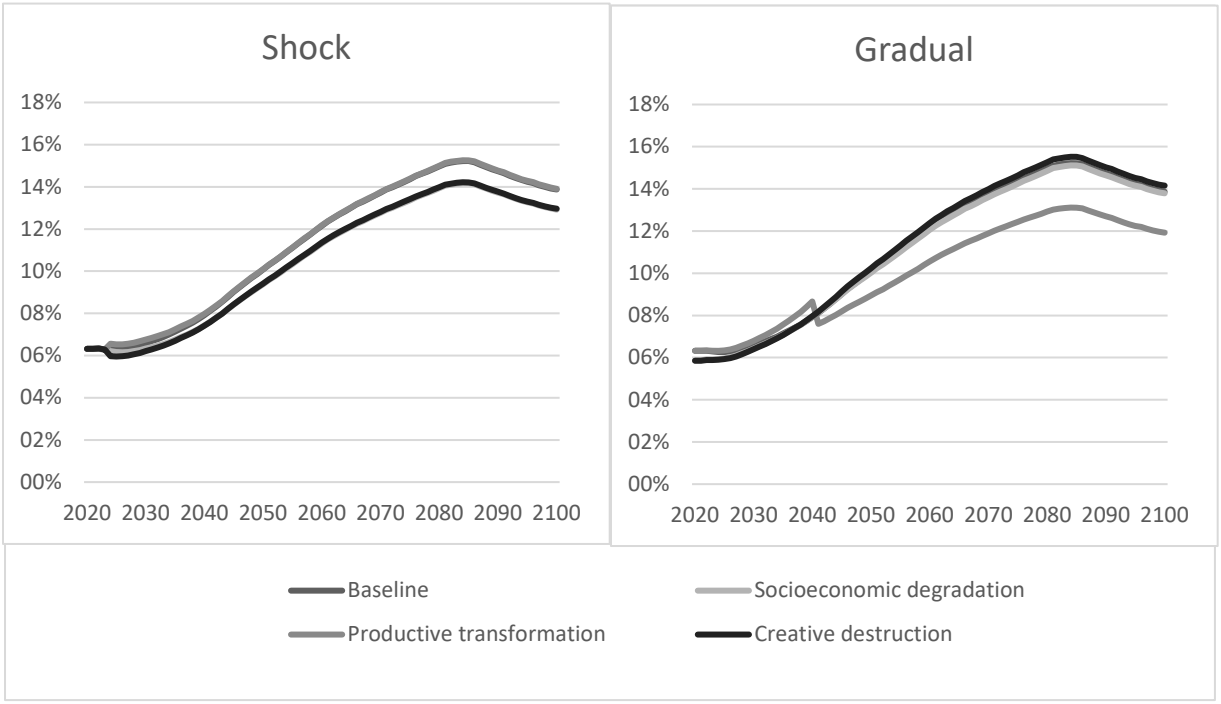
Figure 26. System Revenues in Shock and Gradual Scenarios, 2020-2100
(Percentage of GDP)



Source: Authors' calculation based on the IDB's Pension Projection Model.

Figure 27 shows the expected trend in expenditures, which would be similar under the different scenarios, except for the "productive transformation" one, where the declining trend in GDP would result in a faster increase in spending until lower salaries and coverage affect most retired workers a few decades from now.

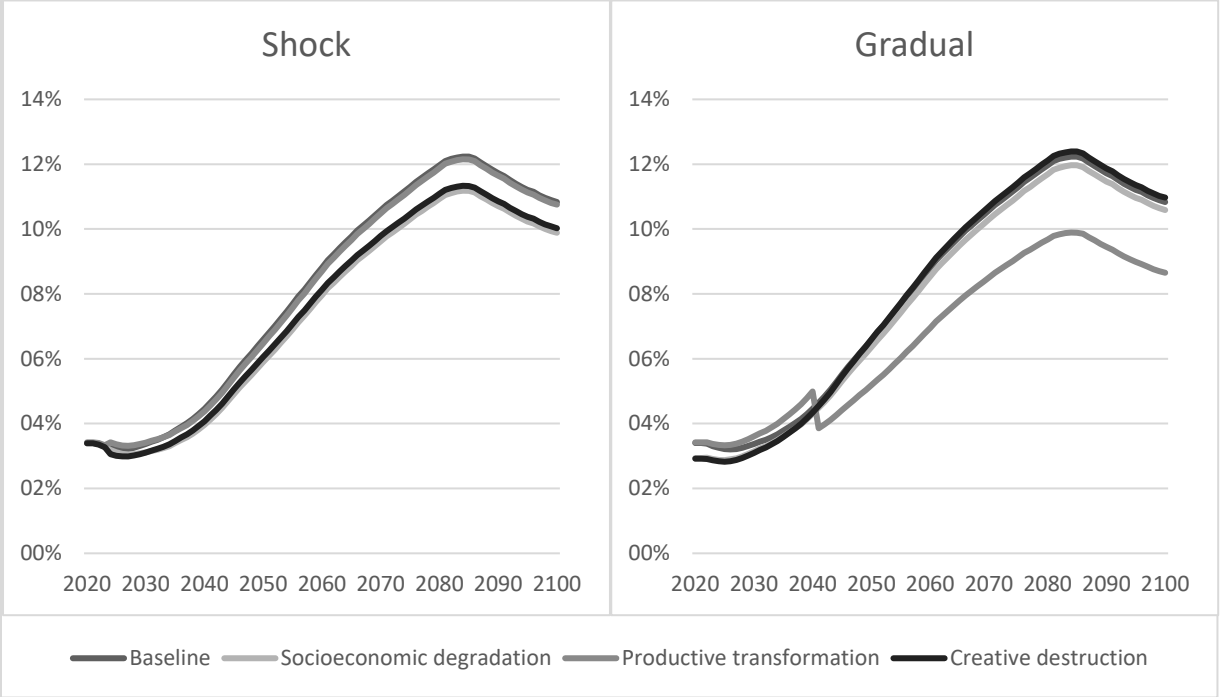
Figure 27. System Expenditures in Shock and Gradual Scenarios, 2020-2100



Source: Authors' calculations based on the IDB's Pension Projection Model.

The resulting fiscal situation can be appreciated in Figure 28, which shows the running deficits of the system. The "creative destruction" scenario does not differ significantly from the baseline, but the other two present different behavior, with larger deficits in the short and medium term (significantly higher in the gradual scenarios), which could have a serious impact on the macroeconomic stability of the country and, consequently, the fiscal and political sustainability of the system.

Figure 28. System Deficit in Shock and Gradual Scenarios, 2020-2100



Source: Authors' calculations based on the IDB's Pension Projection Model.

4. Conclusions

Pension systems are deeply linked to labor markets. Hence, any significant impact of COVID-19 on pensions would most likely happen through labor market effects. In this regard, the most relevant result of the analysis presented in this document is that the impacts of COVID-19 on the formal labor market in Argentina were limited, making the indirect effects on pensions also limited. Even though economic activity was severely hit, by the third quarter of 2020 the most relevant indicators were already recovering, with economic activity and labor force participation growing and unemployment declining. This trend continued and, by the end of 2021, most effects of COVID had been compensated. Even though there may be additional unexpected consequences of the crises, it seems that in the short-term the social and economic impacts of COVID-19 are in the past. These results were partly related to several measures adopted to mitigate the consequences of the pandemic. Some of them were focused on the productive system, others on social protection and others on public health, such as the strengthening of health systems or the national vaccination campaign. On the other hand, mobility restrictions and closure of public spaces had a very negative

impact on economic and social indicators, as they caused a sudden stop in activity in many sectors, including still-to-be-assessed effects on educational quality and attainment.

The pension system in Argentina offers very high coverage, with basic income for nearly all residents older than 65 years, regardless of their work history, resulting in a very expensive scheme (total pension expenditures reach around 11-12 percent of GDP). Furthermore, the system is highly fragmented, as it comprises many different and special regimes, which in some cases end up in duplication of benefits. This represents a serious structural challenge in terms of fiscal and social policy. However, these same characteristics protected the system from serious impacts from COVID-19. In contrast to fully funded schemes, PAYG are more effective in spreading costs of a crisis across social groups and time, hence softening short-term effects (although, of course, this same characteristic creates hidden costs that may hamper economic growth in the medium term.) This has been proven true for Argentina when analyzing the short-term impacts of the crisis.

One mechanism that authorities used to ease the fiscal burden generated by this wide protection network was to reduce pension indexation in a context of sustained inflation, hence reducing (permanently) benefits for all participants. Still, this was partly compensated with extraordinary cash bonuses, in a seemingly contradictory policy approach that resulted in lower spending without political unrest.

It could be argued that the main impact of COVID-19 on the pension system in Argentina was on its sustainability. As discussed, revenue declined in 2020 (and more importantly, the Government distributed generous subsidies for firms to pay salaries and contributions), but this risk was compensated by the reduction in indexation mentioned above.

Long-term impacts are more difficult to assess, partly because it is not clear what the effects of COVID-19 will be on the labor market over the medium and long-term, and partly because the high complexity and heterogeneity of Argentina's pension system makes it very difficult to model. By using the IDB's pension projection model, we built a baseline scenario considering four schemes that comprise most (but not all) pension beneficiaries in Argentina, assuming that the most relevant variables would maintain in the long term the trends and levels observed up to 2019. The baseline model predicts a decline in coverage among older women (mostly because PUAM benefits are not enough to replace moratoria) and a more stable trend among men. In fiscal terms, we should expect a gradual worsening of the deficit (from the current 3 percent of GDP to nearly 10 percent by 2085), reflecting the population aging process.

Considering this base scenario, three alternative scenarios were defined in order to reflect potential long-term impacts of COVID-19. The first assumes a process of deterioration in the labor market, with a decline in formality and the proportion of salaried workers; a second one assumes an acceleration in the existing trend of the labor force shifting from traditional manufacturing jobs to service activities accelerates and that, combined with the loss of human capital occurred during the pandemic, resulted in a reduction of salaries. Finally, the third adopts a "creative destruction" approach, assuming that there will be a rapid process where salaried work is replaced by independent jobs, but at the same time productivity grows and, consequently, wages increase. For each scenario, there is a shock (with immediate effects) and a gradual (with effects spread over a 20-year period) variant.

The most relevant result from this exercise is that the two first scenarios would have a negative fiscal impact in the short and medium term (particularly when considering the gradual variants), but they would produce better results in the long term. Inversely, the "creative destruction" scenario has no significant impacts in the short term but will render the pension system consistently less sustainable in the long term.

In conclusion, the impact of COVID-19 on Argentina´s pension system seems to have been limited in the short term. In the longer term is harder to predict, because the macroeconomic effects of the efforts that the authorities made to protect the system and their participants during the pandemic are still to be fully known, and besides the effects of COVID-19 on the labor market over the long term are also unknown.

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Appendix

Methodological Considerations

The IDB's Pension Projection Model is a tool that allows us to simulate the impact of different variables on a pension system's financial results, as well as several additional indicators. The model was designed to model both PAYG and fully funded schemes, as well as hybrid systems. Adapting the model to reflect the case of Argentina is a complex task, as the pension system in Argentina is itself complex, with many different rules (that are not always applied), and high heterogeneity. In this sense, the model baseline was done with 2019 information on coverage and formality, in order to simulate the situation assuming a pre-pandemic scenario, as well as 2020 data for some financial variables that were not affected by the pandemic. This baseline scenario will be used to assess the possible impacts of COVID-19, but also used are alternative scenarios in which the pandemic had an effect on labor force participation and composition, as well as income trends and heterogeneity.

The model was designed considering four groups of workers according to their interaction with the pension system. Hence, parallel scenarios were built for salaried workers (formal employees in the public and private sectors), monotributistas (formal self-employed workers), PUAM (individuals who would not receive a contributory pension benefit according to the current rules but can access a universal basic benefit at age 65), and moratorias (including those who obtained their benefits through the exceptional rule that expired in 2022). Rules, income and contribution profiles are different for each of these groups, as well as benefits, thus justifying the decision to model them independently.

Table 2 shows the input variables used in the model for each Argentina's pensions system along with their definition and data source. Most of the data for 2019 and the model projects from 2020 to 2100 are disaggregated by gender and age, while the rates remain constant through the period.

Variable	Definition and source
Population projections. 2019-2100	Population, by age and gender, projected from 2020 to 2100. Authors' calculations based on UN Population Prospects 2019.
Active scheme members	Population registered in the Social Security system. Considering that in Argentina everyone is registered at birth or soon thereafter, for the purpose of the model we consider that everyone registers by the time they are 14 years old. Authors' calculations based on UN Population Prospects 2019.
Stock of retirees and new retirees	By age and gender for 2019. This creates four groups of projections (salaried, monotributo, moratoria, PUAM). Source: Boletín Estadístico de la Seguridad Social
Mortality rate	Active and passive scheme members adjust each year by the gender and age corresponding mortality. Authors' calculations based on UN Population Prospects 2019.
Invalidity rates	By age and gender. Based in 2019 new disability benefits over total population. Source: Boletín Estadístico de la Seguridad Social
Retirement rates	By age and gender. Based in 2019 new retirements over total population. Source: Boletín Estadístico de la Seguridad Social.
Proportion that generates widowhood	By age. On the assumption that both spouses have the same age. Source: EPH
Formality rate	By age. Used to calculate the eligibility for widowhood pension. Source: Boletín Estadístico de la Seguridad Social.
Mean salary	By age, gender and category. Source: Boletín Estadístico de la Seguridad Social.
Contribution rate	Proportion of the salary contributed to the pension system (including employer and employees). Source: legislation.
Annual Salary Growth rate	On the assumption that is constant for all age and gender. Source: Assumed to be 3% for the baseline scenario.
Density profile	By age. Proportion of months contributed to the pension system over the mean months contributed to the pension system. We provisionally use the profile provided in the example model. Source: Inter-American Development Bank's Pension Projection Model
Salary profile	Mean salary by age over the mean salary. We provisionally use the profile provided in the example model. Source: Inter-American Development Bank's Pension Projection Model
Mean pension	By age, gender and category Source: Boletín Estadístico de la Seguridad Social.
Annual PIB growth rate	World Bank

COVID-19 in Argentina: Public Health and Economic Impacts

During the COVID-19 outbreak, the Argentinian national government implemented a series of diverse measures designed to tackle the possible consequences of the pandemic.[7] Considering this, the most relevant policies can be divided into two main groups: on the one hand, public health measures to reduce infections and deaths; and on the other hand, socio-economic measures aimed to reduce the economic consequences.

Public Health Impacts and Responses

In terms of public health responses, several measures were implemented. One of the most relevant was related to the population's mobility. During the outbreak the national government implemented a quarantine scheme based on five phases, phase one being the most restrictive and phase five the least restrictive. Phases one to three involved mandatory and preventive social isolation (ASPO, in Spanish), and phases four and five involved mandatory and preventive social distancing (DISPO, in Spanish). Each phase was designed considering public health criteria, with the goal of preventing the health system's saturation and a consequent increase in the death toll. Regarding this point, it is relevant to state that the health system in Argentina is characterized by the existence of three different systems: a public system, a private system, and the social security system. In addition, the health system is territorially fragmented, since many services are designed and managed at the provincial level. The national government is responsible for design and control, while provincial and local governments are responsible for the administration of most public health facilities. This has resulted in a complex healthcare network made up of a variety of several actors, which tends to have negative results in terms of access and equity (Maceira, 2008; 2009).

For each phase specific population mobility criteria were established, which had an impact on various activities. Some restrictions remained in place during most of 2020 and 2021, such as limitations on international travel, and the virtualization of education at all levels. The ASPO was established on March 19, 2020 through Decree 297/20 and was successively extended. In accordance with the regulations, the ASPO established that in areas of community transmission of the virus, people should remain in their homes except for basic needs, such as basic purchases, urgent assistance and health-related issues. The ASPO excluded all those people who performed

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For a detailed description of the measures adopted by National Governments, please consult the website "government measures" through the following link: https://www.argentina.gob.ar/coronavirus/medidas-gobierno

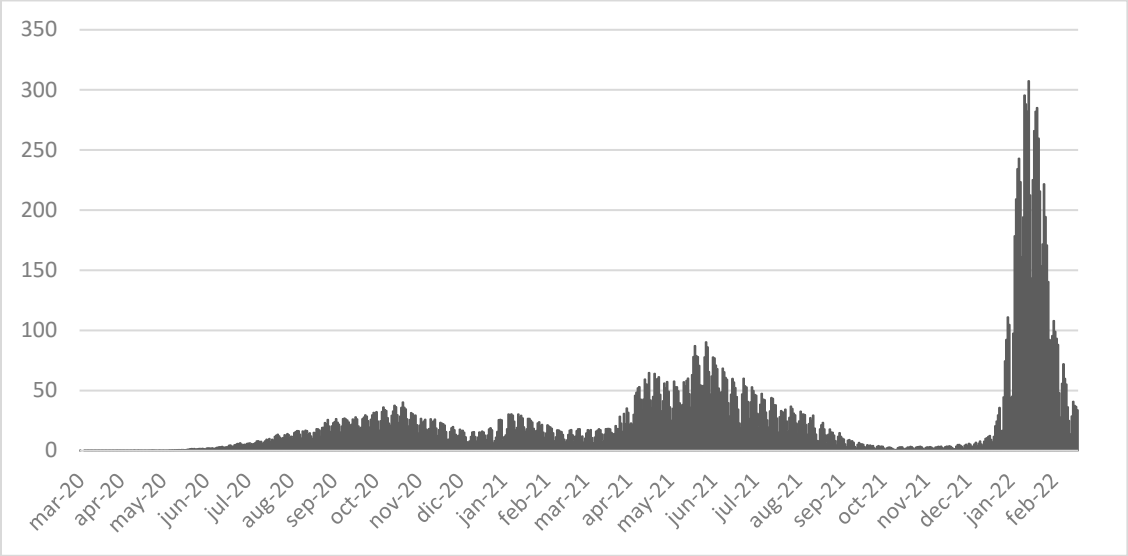
essential or excepted activities. Those who were not within these categories had to obtain a short-term circulation permit to carry out a specific task, issued on a case-by-case basis by the National Government.

Throughout 2020 and the first months of 2021 the Argentinian territory went through various stages of ASPO and DISPO. This was not homogeneous, as restrictions varied among regions. The impact was higher within major urban agglomerates, such as the Metropolitan Area of Buenos Aires, which according to the 2010 census accounts for almost 32 percent of the total population.

Various measures were taken to increase the response capacity of health systems. These included the purchase and development of antigen and polymerase chain reaction (PCR) tests; developing protocols to organize patient care and referrals; building low and medium complexity modular hospitals to decentralize care in high complexity centers; acquiring complex equipment, including intensive care beds and respirators; assigning and training health personnel to intensive care management; and paying bonuses to health care workers.

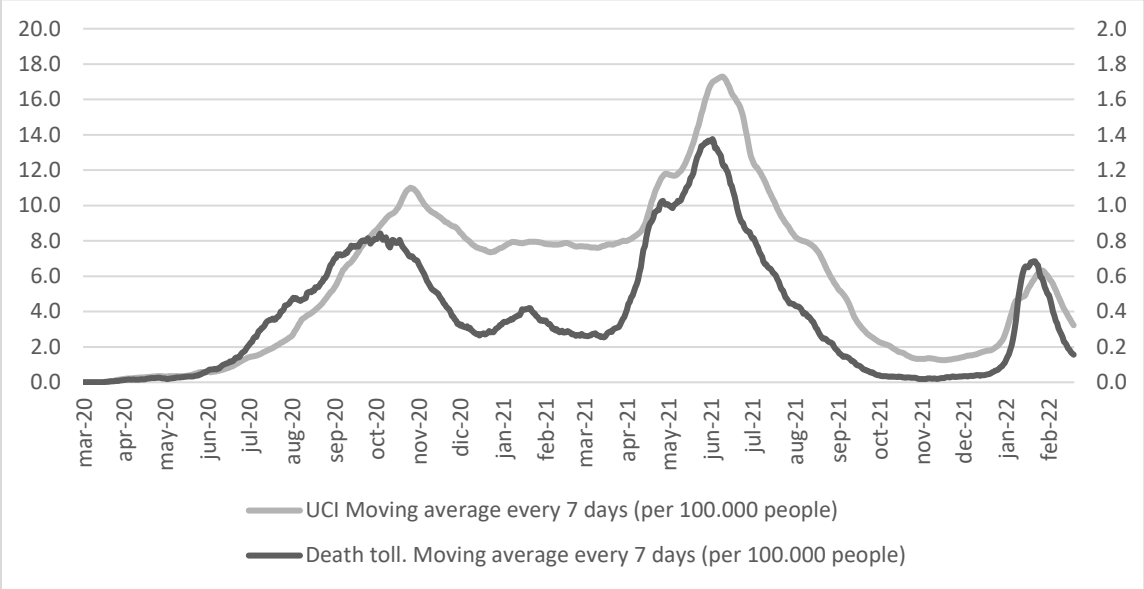
In order to monitor the epidemiological crisis, the national government summoned a council of experts to analyze the situation and suggest strategies to control it, in cooperation with provincial governments. Additionally, the government published an open dataset related to the pandemic and a monitoring dashboard that presented the number of cases, deaths and occupation of intensive-care unit beds, on a daily basis. According to official data, until February 2022 there had been over 8.8 million COVID-19 cases, of which 125,451 resulted in deaths.

Figure 29. Number of Confirmed COVID-19, March 2020 – February 2022
(Cases per 100,000 People)



Source: Authors' calculations based on Health Ministry dataset.
Note: Calculation based on demographic projections by the National Institute of Census *and Statistics (INDEC, in Spanish),* estimated at about 45,500,000 people on average for the period 2020/2021.

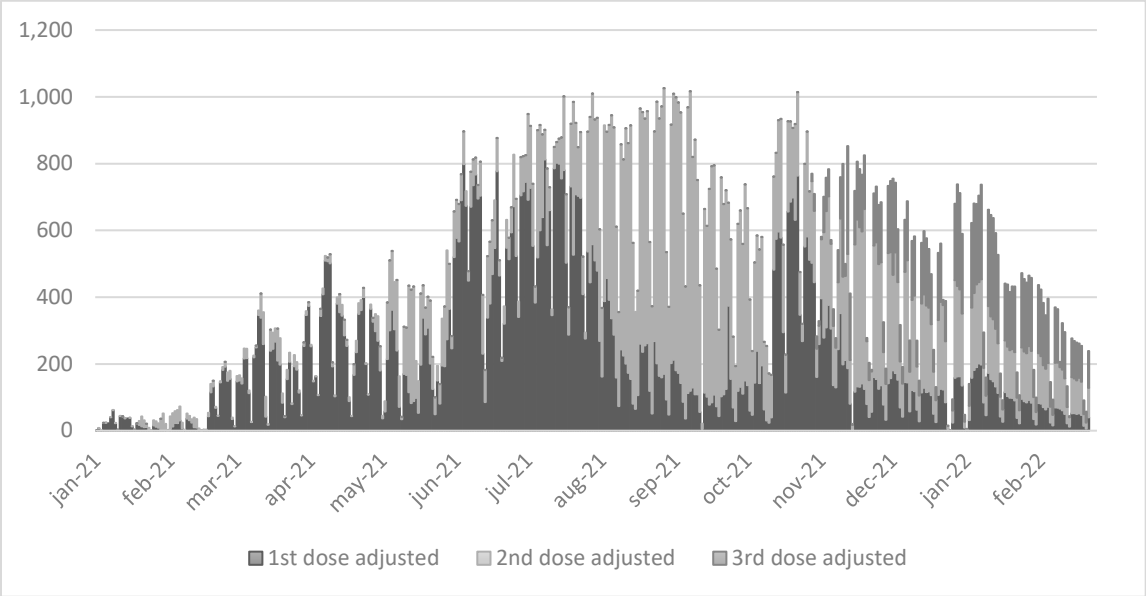
Figure 30. Number of Confirmed COVID-19 Deaths and Intensive Care Unit (UCI) Patients, March 2020 – February 2022
(Number per 100,000 people)



Source: Authors' calculations based on Health Ministry dataset.
Note: Calculation based on demographic projections by the National Institute of Census and Statistics (INDEC, in Spanish), estimated at about 45,5000,000 people on average for the period 2020/2021.

The most relevant measure for tackling the pandemic was the Strategic Vaccination Plan, which started in January 2021 and continues to the present. This plan was designed and carried out by the national authorities, who purchased and distributed the vaccines to provincial governments for their application. In order to provide updated information, the national government developed the Public Vaccination Monitor,[8] which shows on real time the distribution of vaccines by province and type of vaccine. Up to February 2022, there were more than 91 million vaccines administered: over 40 million people with at least 1 dose; 36 million people with 2 doses; and over 16 million people with an additional booster (third dose). Figure 31 shows the temporal distribution of first and second doses, administered between January 2021 and February 2022.

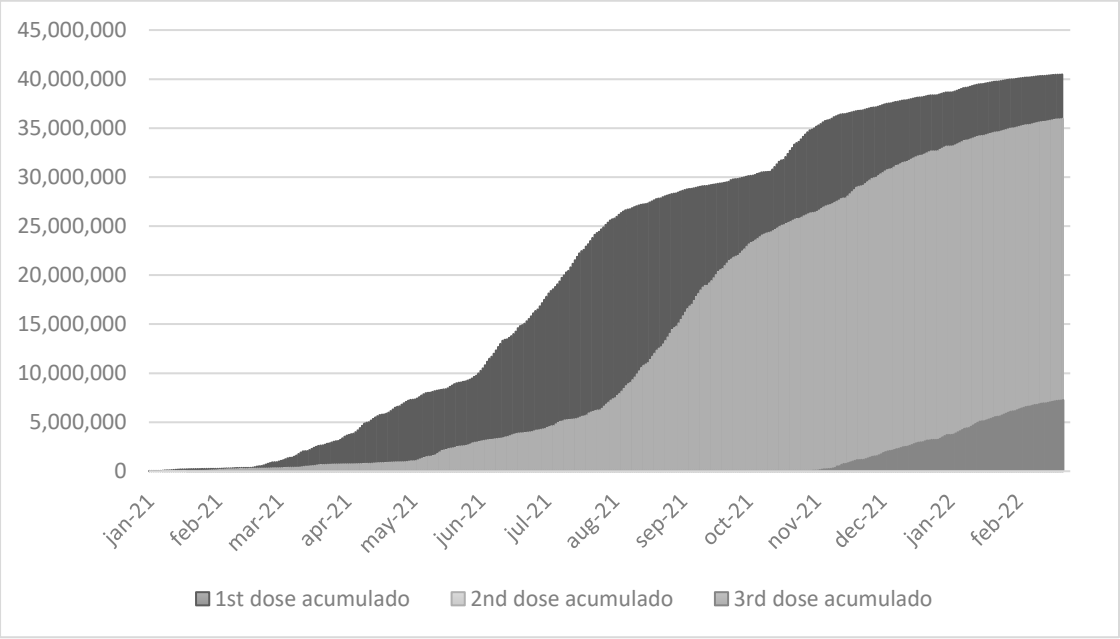
Figure 31. Vaccines Administered Nationally, January 2021 – February 2022
(Number and dose administered per day)



Source: Authors' calculations based on Health Ministry dataset.

[8] Website: https://www.argentina.gob.ar/coronavirus/vacuna/aplicadas

Figure 32. Vaccines Administered Nationally, January 2021 – February 2022
(Cumulative number and doses)

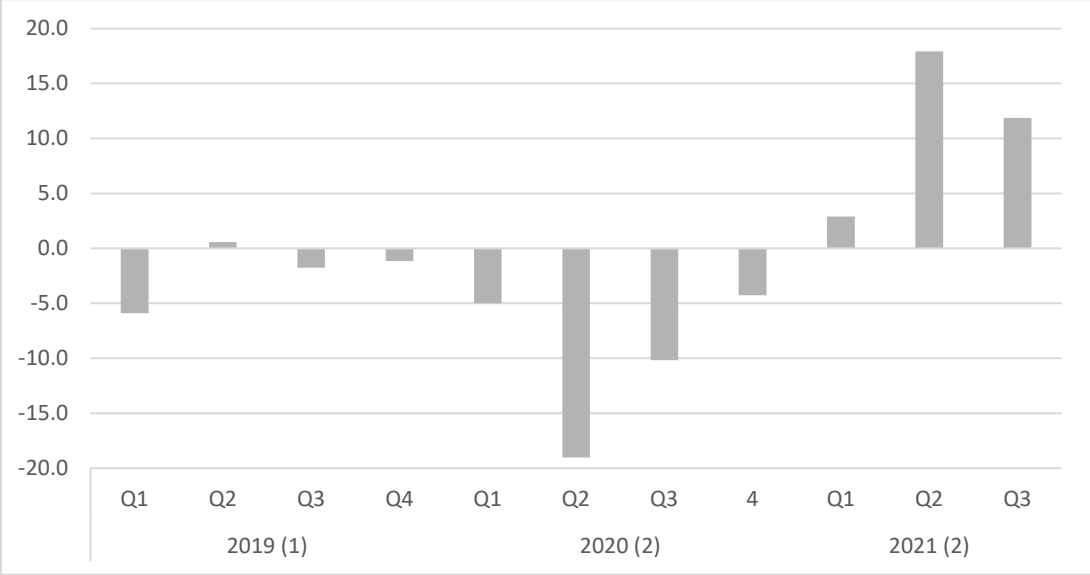


Source: Authors' calculations based on Health Ministry dataset.

Socioeconomic Impact and Responses

Considering the abovementioned measures, the economy and the labor market suffered large shocks during 2020. GDP declined by -19 percent in the second quarter of 2020, as compared to one year earlier (which, in turn, was lower than in 2018 due to the macroeconomic crisis).

Figure 33. GDP Quarterly Values, 2019-2021
(Annual percentage change)



Source: Authors' calculations based on INDEC preliminary data

The labor market impact was also extensive, with a particular effect on low-income, informal, and young workers. The sectors most affected were transportation, trading, manufacturing industries, hotels and restaurants, and real estate/business activities. Given their characteristics, these activities were unable to shift to a remote work model, and most firms suspended their activities (Mera, Karczmarczyk and Petrone, 2020).

There were several measures adopted to reduce the impact of the outbreak. The pandemic aggravated the challenges that the social protection system had already been facing since 2010 at a national level, as a result of the stratification that characterized the design and implementation of social policies (Langou, della Paolera and Echandi 2021). The responses to the pandemic replicated the stratified logic of the system, and the pandemic significantly worsened the system's risks, with uneven effects.

Some of the responses to the social and economic impact of the pandemic were a reinforcement of existing social protection policies. These included cash transfers, such as pensions, the universal child/pregnancy benefits (AUH and AUE, in Spanish) and the food card program (TAR, in Spanish). The first measures were implemented in March 2020, including grant increases and one-time payments, as well as the suspension of conditionalities for AUH and AUE beneficiaries. There was also additional financial support for community and social organizations.

Authorities additionally implemented several new programs in response to the pandemic. The Emergency Household Income (IFE, in Spanish) was created on March 23, 2020 through Decree 310/2020 as an "exceptional non-contributory monetary benefit intended to compensate for the loss or serious decrease in income of people affected by the health emergency situation declared by Decree No. 260/20, and other amending and complementary regulations" (Decree 310/2020). It was intended for unemployed, informal and registered low-income independent workers (including those in domestic work). The program was designed to pay a one-time AR$10,000 benefit (equivalent to 60 percent of a minimum wage at that time) to each eligible household and was expected to protect approximately 3.6 million families. However, the final number of benefits was close to 9 million (mostly because social registries were unable to associate individuals as household members and the program became, de facto, an individual benefit scheme), and payments were made on three separate occasions (March, June and July 2020).

The TAR program had been created a few months before the onset of the pandemic and became an important tool to protect the most vulnerable. Targeted to a subgroup of families already in the AUH program (families with young children), it provided additional income on a monthly basis to finance basic food consumption, reaching nearly 2 million beneficiaries.

In order to protect formal workers, three major policies were implemented. First, the government prohibited dismissals without cause of salaried workers. A second measure was the introduction of the Emergency Assistance Program for Work and Production (ATP, in Spanish), which postponed or reduced social security contributions, financed part of workers' wages and provided financial assistance to small businesses and independent workers. A third measure was an increase in unemployment benefits.

Table 3. List of Most Relevant Social Protection Measures, 2020-2021

Measure	Type of measure	Duration	Target population	Approximated coverage
Bonuses	Additional cash transfer	2020	AUH/E, pensioners and TAR beneficiaries	9 million people
IFE	Direct cash transfer	2020	Unemployed & informal workers	8.9 million people
TAR	Direct cash transfer	2020 – present	AUH/E and pensions beneficiaries	3 million people
ATP	Salary and contributions assistance	2020	Private sector firms	3 million people

Source: own, based on Social Development and Production Ministries open datasets

To strengthen the government's fiscal capacity, a one-time wealth tax was approved in December 2020 (law 27605), totaling a collection of AR$307,000 million. According to the law, 20 percent of the collection would be destined to the purchase and/or production of health care equipment and supplies; 20 percent would be utilized to subsidize micro, small and medium-sized companies; 20 percent was designated for PROGRESAR scholarships; 15 percent was designated for the Socio-Urban Integration Fund (FISU); and 25 was designated for programs and projects approved by the National Energy Secretariat.