



upB. ufficio
parlamentare
di bilancio

INPS

Istituto Nazionale Previdenza Sociale



The *Quota 100* mechanism three years after its launch

A joint INPS-PBO analysis examines how many and which workers have taken advantage of the early retirement programme

M. Rosaria Marino

Parliamentary Budget Office

22 June 2022 – Palazzo Wedekind

Contents

- Econometric analysis of the determinants of the decision to retire using the *Quota 100* mechanism
- Comparison of actual and expected expenditure
- General remarks on the medium/long-term sustainability of pension expenditure

Econometric analysis

Econometric analysis

Which variables had the greatest impact on take-up of the pension programme?

Pool: sample of people who became eligible for the *Quota 100* mechanism in 2019 supplemented using individual ID with information from monitoring of *Quota 100* programme in 2019-2021 (about 37,000 individuals).

Individual characteristics: gender, age and contribution history at the earliest moment of eligibility for *Quota 100*, region of residence, employment status, pension fund, last annual income from employment, decision on opting for *Quota 100* in 2019-2021.

	Variable	Composition
Gender	Male	71%
	Female	29%
Age	62	33%
	63	25%
	64	19%
	65	15%
	66	8%
	38	26%
Years of contributions	39	20%
	40	21%
	41	20%
	42	13%
Geographical area	North	42%
	Centre	23%
	South	35%
Status	Active	93%
	Unemployed	4%
	Voluntary contributors	0%
	Inactive but not retired	2%
INPS pension fund	Private sector employees	33%
	Agricultural workers	3%
	Artisans	13%
	Retail traders	14%
	Cen. govt. employees (excluding schools)	6%
	Local govt. employees	19%
	Public school employees	13%
Income decile	1° - 10°	-
Early exit decile	1° - 10°	-

Econometric analysis

Logistic regression model (*logit*)

$$p = \frac{e^{x'\beta}}{1 + e^{x'\beta}}$$

Five different specifications of the probability function:

Baseline: age, gender, contribution history, activity status, pension fund and income

1st variant: Baseline + deciles of early exit compared with ordinary requirements

2nd variant: 1st variant without age + geographical area of residence

3rd variant: 2nd variant without geographical area + interaction of gender/INPS pension fund, per capita GDP and household relative poverty rate at regional level

4th variant: 3rd variant without per capita GDP and poverty + interaction of income deciles/contribution history

Findings: marginal probabilities

To understand which variables most impact take-up for the *Quota 100* programme, we need to look at **marginal probabilities**:

How does the probability of opting for *Quota 100* change as specific variables change?

		Baseline		1st variant		2nd variant		3rd variant		4th variant	
Status	Age	-0.042	***	0.002							
	Contribution history	-0.026	***	0.034	***	0.032	***	0.031	***	0.032	***
	Unemployed	0.212	***	0.218	***	0.220	***	0.217	***	0.213	***
	Voluntary contributors	0.378	***	0.391	***	0.389	***	0.387	***	0.399	***
	Inactive but not retired	0.185	***	0.135	***	0.137	***	0.136	***	0.142	***
Gender	Women	-0.066	***	-0.019	***	-0.022	***	-0.031	***	-0.025	***
INPS pension fund	Agricultural workers	-0.219	***	-0.216	***	-0.217	***	-0.213	***	-0.217	***
	Artisans	-0.161	***	-0.159	***	-0.163	***	-0.154	***	-0.153	***
	Retail traders	-0.169	***	-0.169	***	-0.173	***	-0.167	***	-0.166	***
	Gen. govt. employees (excluding schools)	-0.212	***	-0.228	***	-0.225	***	-0.227	***	-0.235	***
	Local govt. employees	-0.090	***	-0.108	***	-0.104	***	-0.096	***	-0.105	***
	Public school employees	-0.106	***	-0.109	***	-0.107	***	-0.122	***	-0.136	***
Income deciles	2°	0.070	***	0.069	***	0.068	***	0.071	***	0.070	***
	3°	0.132	***	0.134	***	0.132	***	0.130	***	0.136	***
	4°	0.123	***	0.127	***	0.124	***	0.121	***	0.127	***
	5°	0.141	***	0.145	***	0.141	***	0.135	***	0.143	***
	6°	0.136	***	0.141	***	0.138	***	0.128	***	0.137	***
	7°	0.160	***	0.165	***	0.162	***	0.149	***	0.156	***
	8°	0.134	***	0.136	***	0.132	***	0.127	***	0.131	***
	9°	0.036	***	0.041	***	0.037	***	0.030	***	0.048	***
	10°	-0.085	***	-0.078	***	-0.083	***	-0.093	***	-0.080	***
Deciles of early exit compared with ordinary requirements	2°			0.089	***	0.089	***	0.087	***	0.087	***
	3°			0.134	***	0.133	***	0.131	***	0.135	***
	4°			0.217	***	0.217	***	0.214	***	0.218	***
	5°			0.252	***	0.251	***	0.247	***	0.252	***
	6°			0.292	***	0.290	***	0.287	***	0.290	***
	7°			0.330	***	0.327	***	0.323	***	0.327	***
	8°			0.352	***	0.348	***	0.345	***	0.349	***
	9°			0.360	***	0.354	***	0.351	***	0.356	***
	10°			0.361	***	0.354	***	0.349	***	0.355	***
Area	South					-0.009					
	North					0.010					
Regional per capita GDP								-0.00000361	***		
Regional relative poverty rate								-0.005	***		

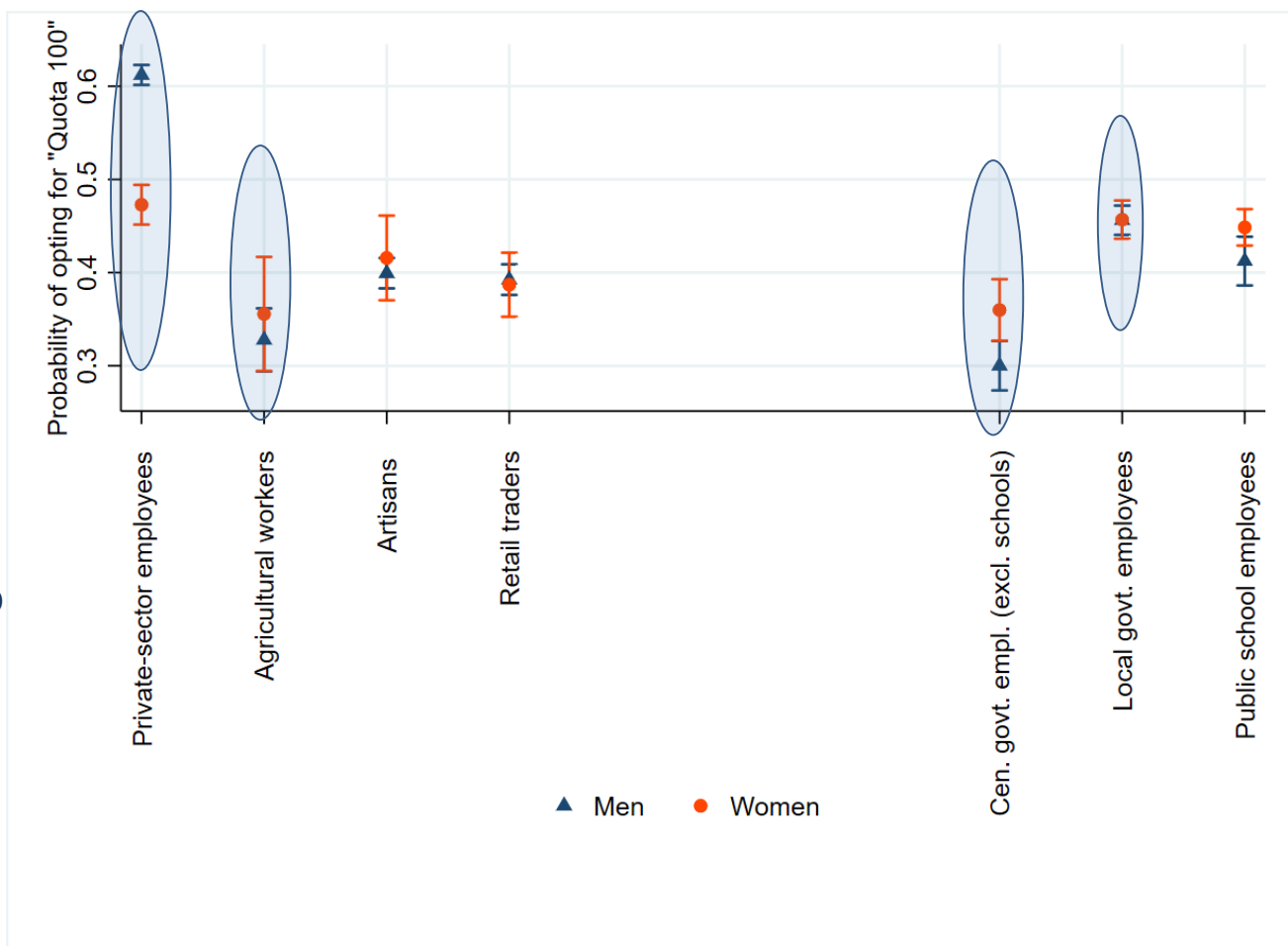
Findings:

probabilities by segment and gender

Highest probabilities:
private-sector employees

Lowest probabilities:
central government
employees and agricultural
workers.

Only **male private-sector employees** (the largest category) are **more likely to retire than women**; in the other categories the probabilities of retirement are similar, with women being slightly more likely to retire.

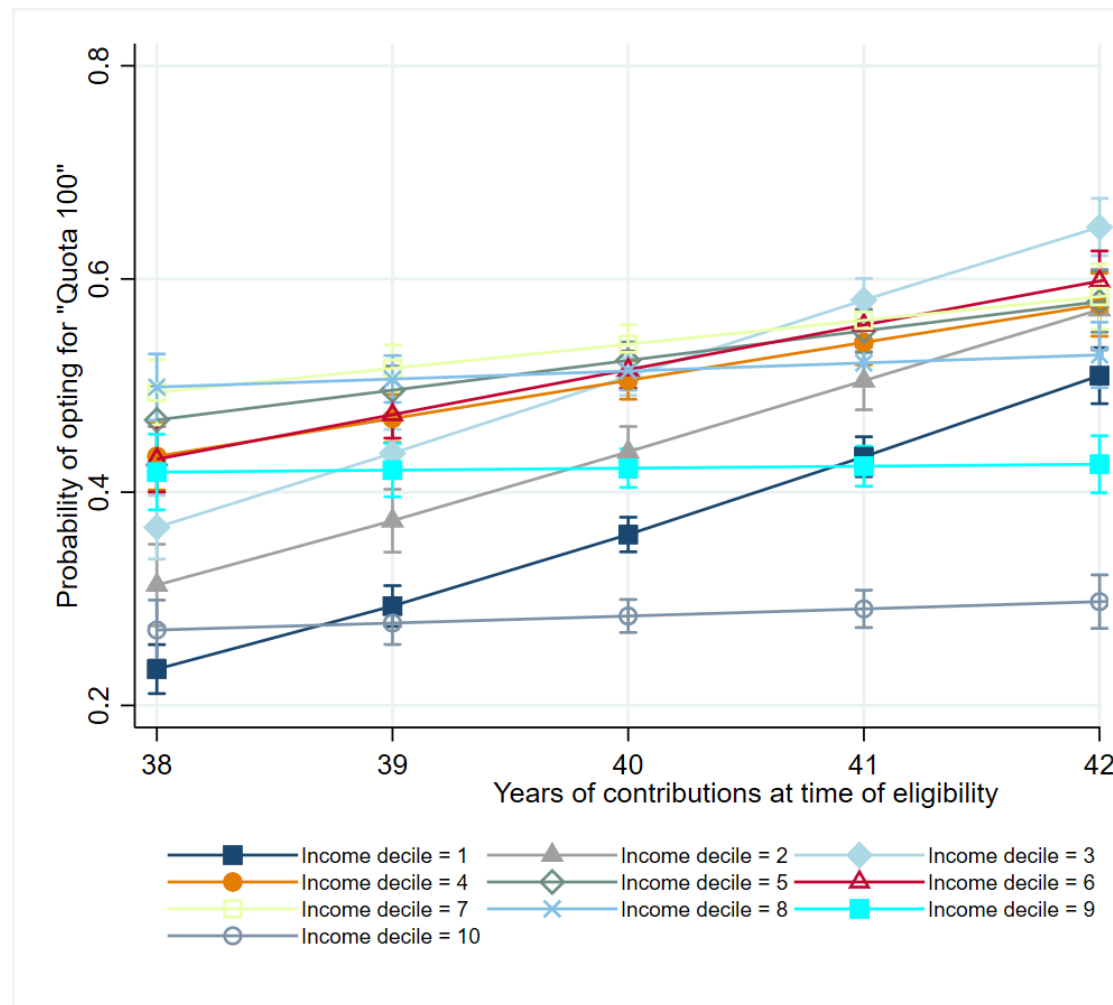


Findings:

probabilities by income decile and contribution history

The **probability** increases as the **number of years of contributions** increases (effect attributable to short careers impacting benefits) ...

... **except for high-income workers** (less concerned about the amount of benefits).

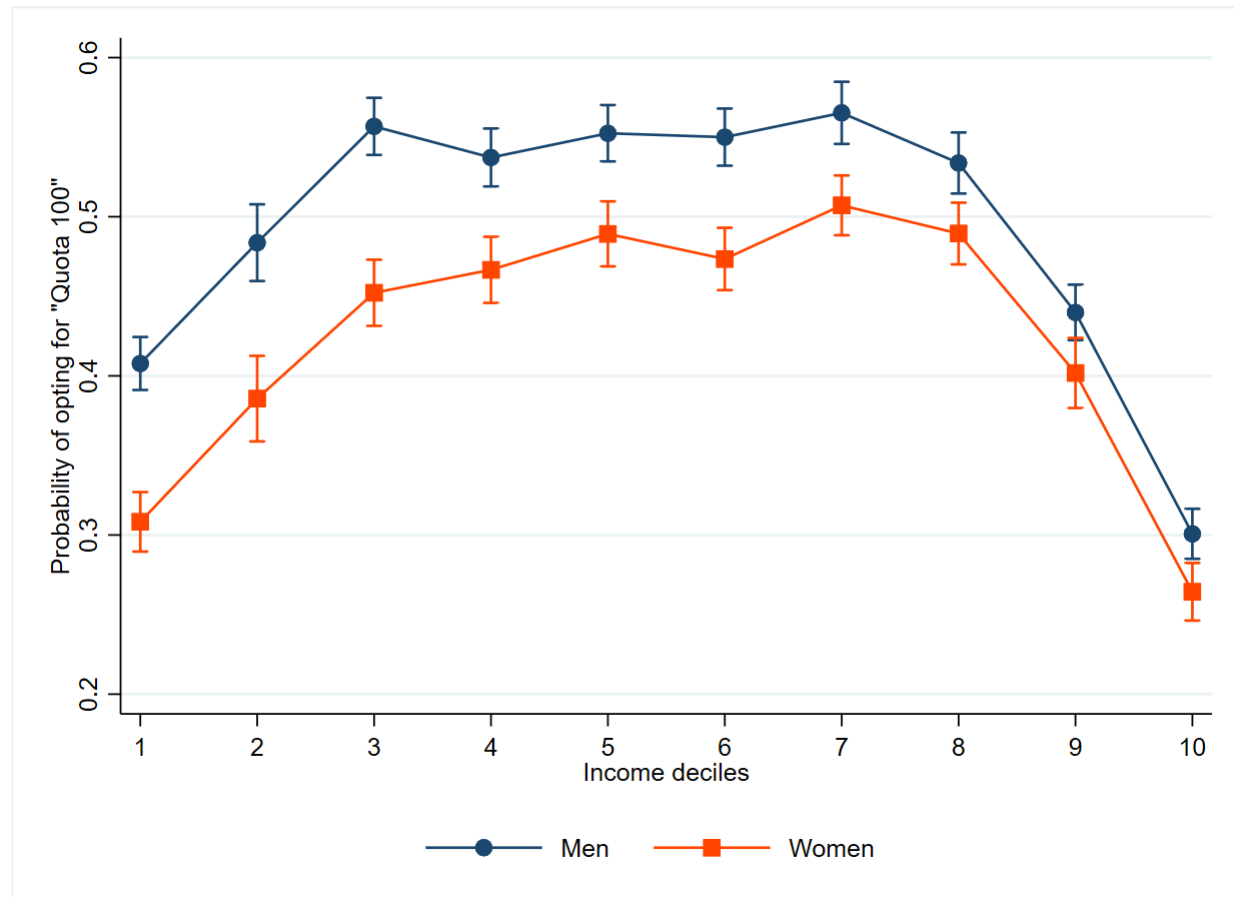


Findings:

probabilities by income decile and gender

The probability curve is **hump-shaped**: it rises until the third decile, levels off and then declines for the last two deciles, falling below that for the first decile:

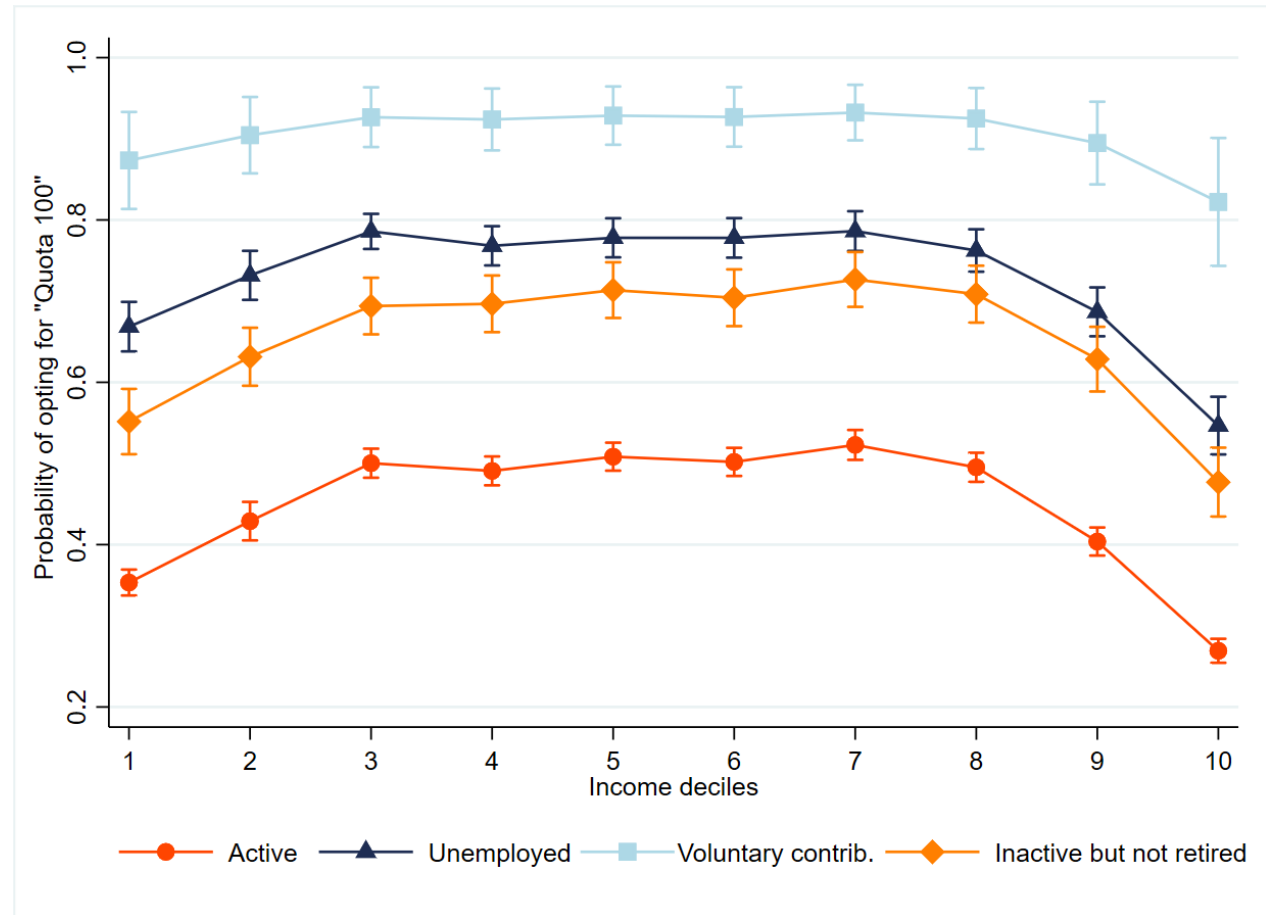
- growing incomes produce larger pensions
- higher incomes are associated with less arduous, better paying jobs that encourage continued employment.



Findings:

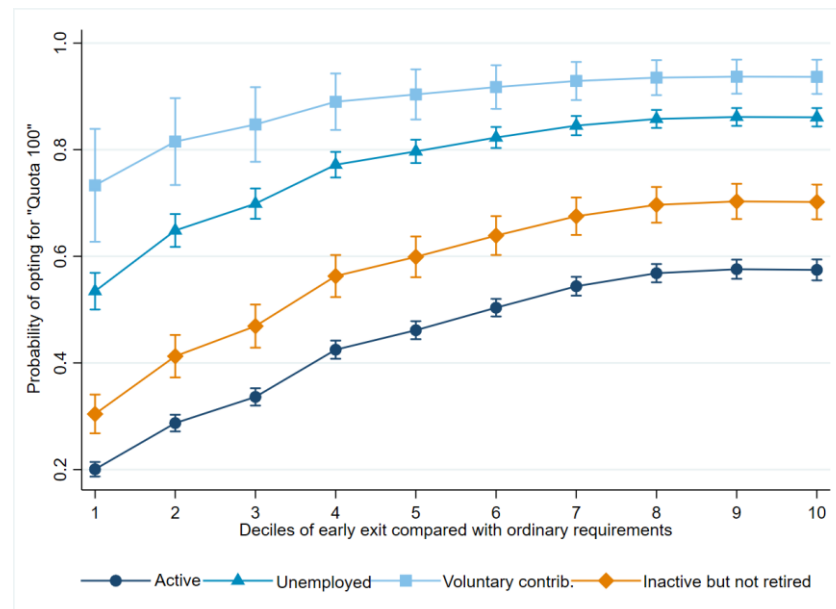
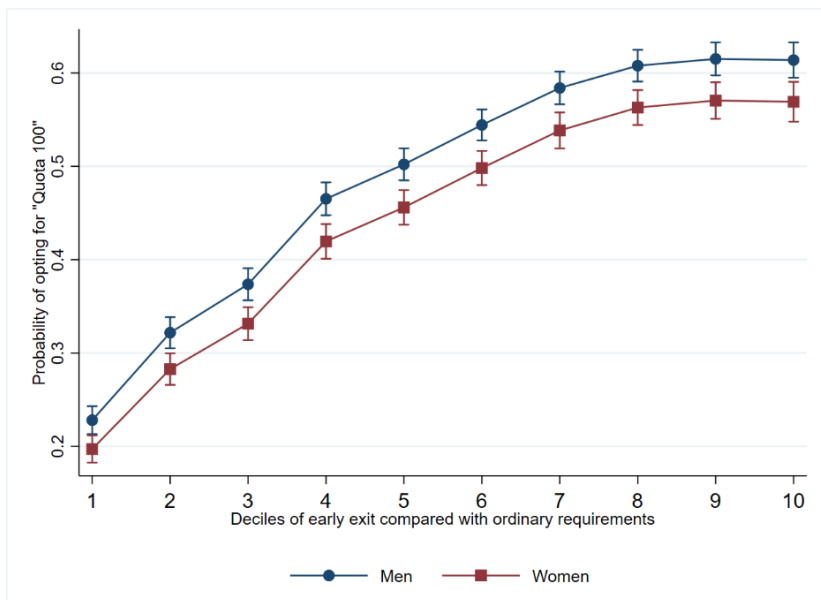
probabilities by income decile and employment status

Compared with the active population, **voluntary contributors, the unemployed and the inactive but not retired are more likely to retire under the *Quota 100* programme** → possibility of acquiring an income.

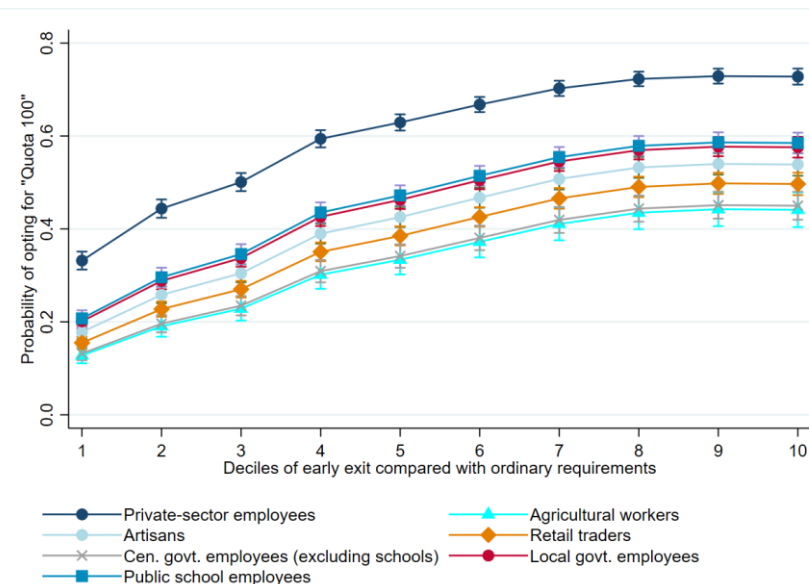


Findings:

probabilities by early exit decile



Probability of retirement increases as the maximum theoretical early exit increases (time difference between eligibility for *Quota 100* and ordinary requirements) → value of the option to choose when to retire under the *Quota 100* programme over a relatively long period of time.



Comparison with expected expenditure

Comparison with Technical Report accompanying DL 4/2019

- Take-up less than forecast

Comparison of take-up rates

	TR DL 4/2019	INPS monitoring (1)
<i>In year eligibility requirements are met</i>		
Inactive but not retired	100	40
Active - private sector	85	
Active - public sector	70	36
<i>In second year</i>		
Inactive but not retired	0	13
Active - private sector	40	
Active - public sector	45	18
<i>In third year</i>		
Inactive but not retired	0	3
Active - private sector	40	
Active - public sector	45	6

(1) Take-up rates for those meeting eligibility requirements in 2019.

Comparison with Technical Report accompanying DL 4/2019

- Take-up less than forecast
- Pension benefits in line with forecasts

Comparison of average amounts

Start year	Self-employed		Private-sector employees		Public employees	
	Tech Report	Monitoring	Tech Report	Monitoring	Tech Report	Monitoring
2019	1,415	1,415	2,177	2,132	2,323	2,171
2020	1,323	1,341	2,092	2,067	2,277	2,163
2021	1,300	1,347	2,069	2,044	2,238	2,145

Source: based on monitoring data for *Quota 100* programme and Technical Report accompanying DL 4/2019.

Comparison with Technical Report accompanying DL 4/2019

- Take-up less than forecast
- Pension benefits in line with forecasts
- Duration of benefits greater than expected

In the TR, the take-up rate is not broken down by duration of maximum early exit possible, while actual data show a take-up rate of **4** per cent for people retiring **one month** early, rising steadily to a peak of **74** per cent for people retiring **between 20 and 25 months** early

Comparison with Technical Report accompanying DL 4/2019

- Take-up less than forecast
- Pension benefits in line with forecasts
- Duration of benefits greater than expected

In the TR, the take-up rate is not broken down by duration of maximum early exit possible, while actual data show a take-up rate of **4** per cent for people retiring **one month** early, rising steadily to a peak of **74** per cent for people retiring **between 20 and 25 months** early

→ In 2019-2021, expenditure was just over €2 billion lower than the estimates presented in the TR as corrected with the 2019 Update and the 2020 Budget Act (€14 billion compared with €11.8 billion)

Forecast expenditure and expenditure registered at 31 December 2021 projected to 2025

The projection includes the application backlog and prudentially uses the growth rates set out in the TR (they take account of the continuation of the accumulated stock of *Quota 100* pensions, their gradual transformation into ordinary old-age or early retirement pensions, the lower value of the latter as a result of opting for *Quota 100* and new *Quota 100* pensions).

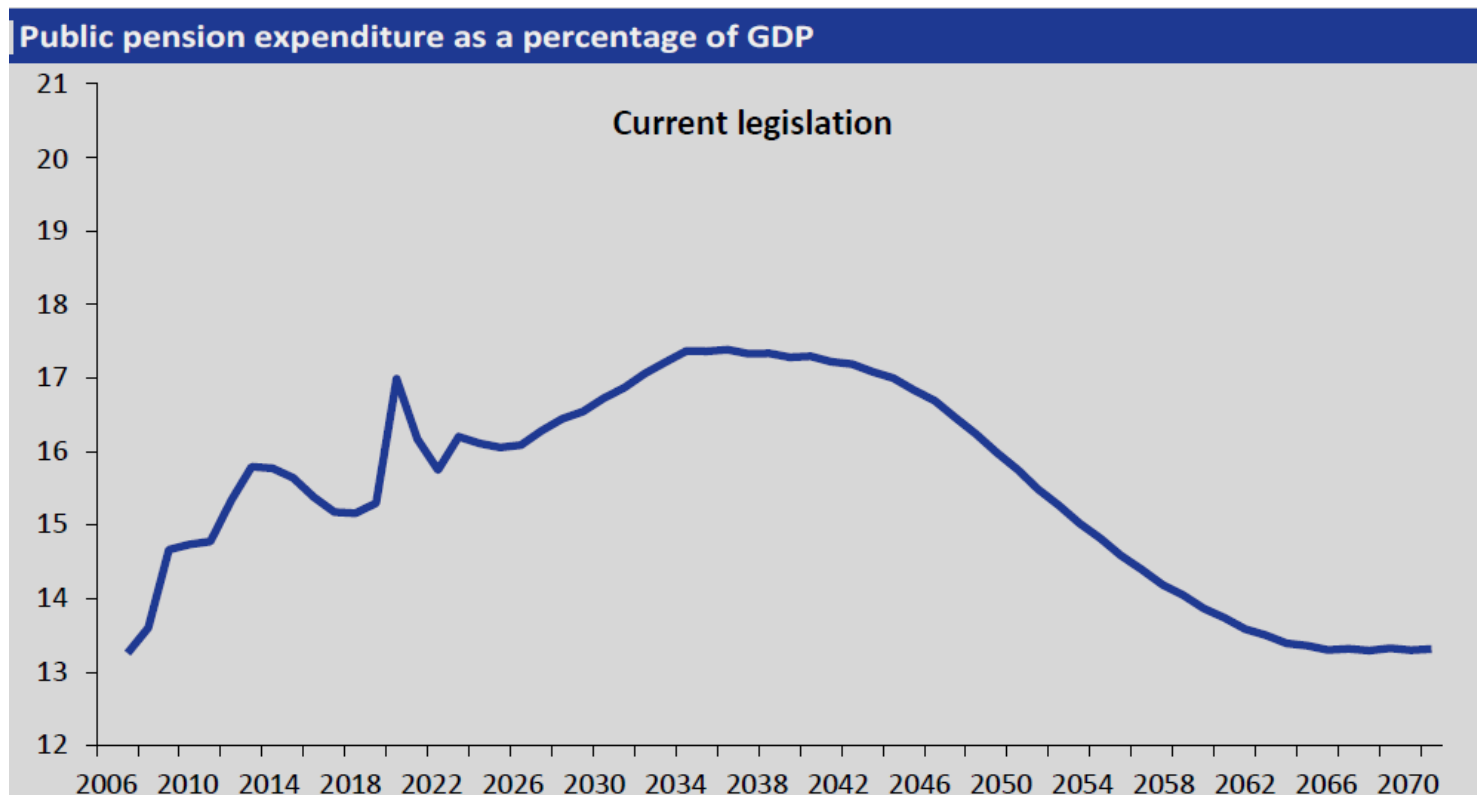
	Technical Report DL 4/2019	2019 Update	2020 Budget Act	TR adjusted for Update and BA	INPS monitoring data	Expenditure (column (e) plus application backlog and projection to 2025)	Difference with TR DL 4/2019	Difference with 2020 BA
	(a)	(b)	(c)	(d) = (a) + (b) + (c)	(e)	(f)	(g) = (a) - (f)	(h) = (d) - (f)
2019	3,453	-1,200		2,253	1,794	1,794	1,659	459
2020	7,334	-1,700	-300	5,334	4,901	4,901	2,433	433
2021	7,763	-400	-900	6,463	5,148	5,648	2,115	815
2022	7,310			7,310	n.d.	5,318	1,992	1,992
2023	5,034			5,034	n.d.	3,663	1,372	1,372
2024	2,324			2,324	n.d.	1,691	633	633
2025	251			251	n.d.	183	68	68
Total	33,469	-3,300	-1,200	28,969	11,843	23,198	10,272	5,772

Two major considerations:

- The take-up rate assumptions in the TR are appropriately conservative (there were no precedents);
- We cannot rule out a priori the possibility that in coming years the take-up rates could be higher than those seen so far (both those for the first year of eligibility and those deferred for one or more years).

General remarks

Medium/long-term projections of pension expenditure



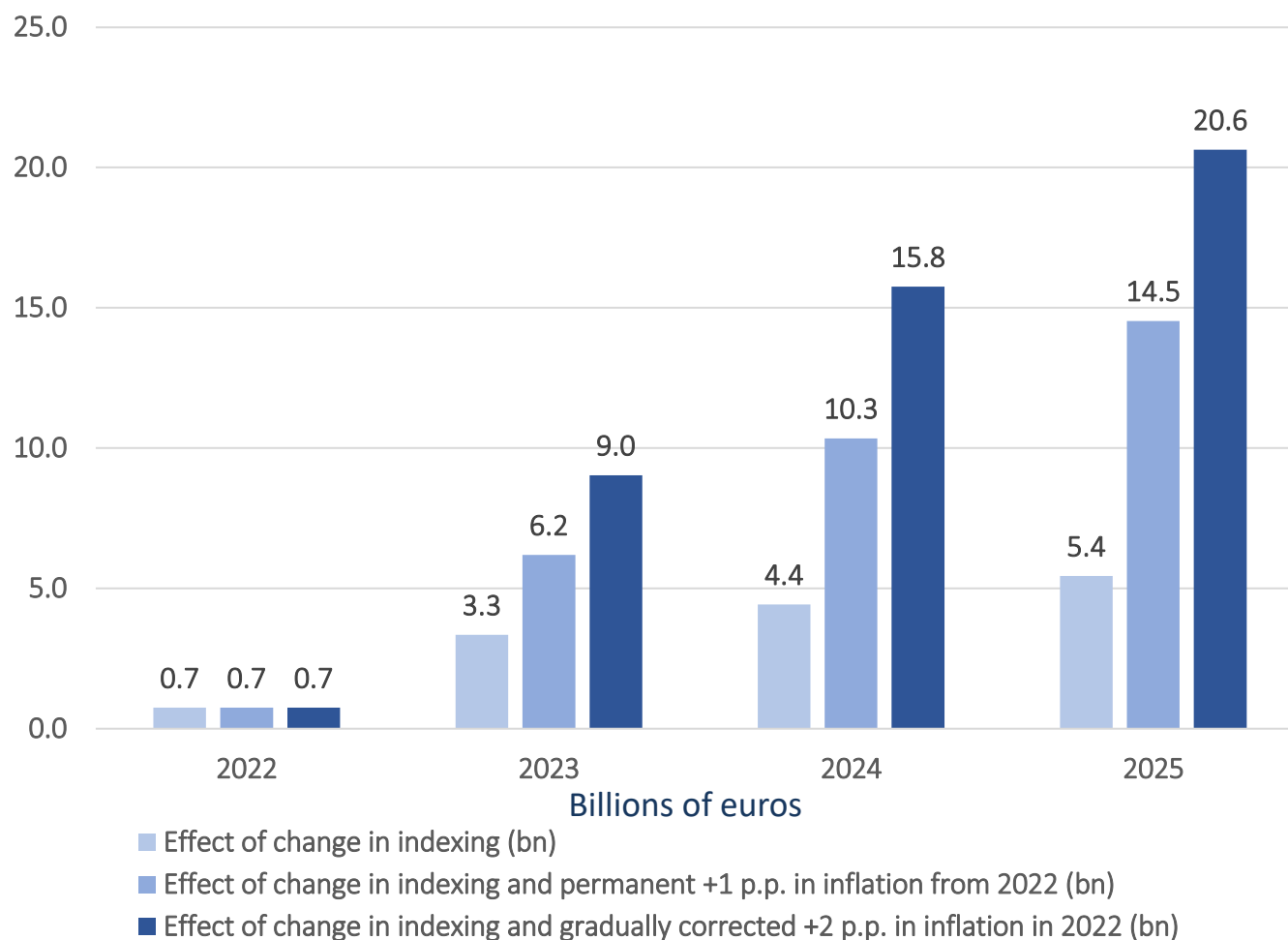
Source: Stability Programme (2022 EFD, vol. I), Box "Le tendenze di medio-lungo periodo del sistema pensionistico italiano", pages 104-109.

- The **macroeconomic assumptions** underlying the projections include: the trend scenario in the 2022 EFD (2022-2025) and the EPC-WGA 2021 baseline scenario.
- The **demographic assumptions** are those of the central Eurostat scenario (base 2019), adjusted to take account of Istat data at 1 January 2022.

General remarks

- **Demografic developments** (increase in life expectancy, low birth rate, inversion of the ratio between number of pensioners and number of workers) will increase pension expenditure as a ratio to GDP in the coming years.
- The pension expenditure **projections** will be **updated on the basis of macroeconomic developments** (greater inflation and consequences of continuation of Russia-Ukraine conflict).

Impact of change in indexation and inflation rate on pension expenditure in the 2022 EFD



Consumption deflator
in EFD in 2022: **5.8%**
Istat harmonised
consumer price index:
7.3% and rising

It considers disability, old-age and survivors pensions and INAIL annuities, a slightly different aggregate than that adopted by the State Accountant General. Does not consider indexing of other recurrent social benefits in cash.

General remarks

- **Demografic developments** (increase in life expectancy, low birth rate, inversion of the ratio between number of pensioners and number of workers) will increase pension expenditure as a ratio to GDP in the coming years.
- The pension expenditure **projections** will be **updated on the basis of macroeconomic developments** (greater inflation and consequences of continuation of Russia-Ukraine conflict).
- The 2022 Budget Act **defunded** the “Fund for the reform of the pension system with the introduction of additional early-retirement options and measures to encourage the hiring of young people” (2019 BA, Art. 1, para. 256), **eliminating the resources available for new flexible retirement measures**.
- The current state of the public finances and the macroeconomic environment **require extreme caution in using new borrowing and debt → any new easing of retirement requirements** will have to be covered by revenue increases or benefit cuts (e.g. recalculating pensions on a defined-contribution basis for all new pensioners).
- Resources are limited → plans that, on the one hand, meet the real needs of benefit recipients and, on the other, **ensures intergenerational equity and the medium/long-term sustainability of the public finances**.

***Thank you for your
attention!***