Measuring intra-generational and intergenerational redistribution in the Italian social security system

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Outline

1. The Italian pension system and its reforms;
2. Overview of the model: CAPP_DYN
3. Results:
   1. Inter-generational effects;
   2. Intra-generational effects;
   3. Adequacy in the medium and the long run.

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The reform process

Reforms in the Italian pension system necessary to:

- ensure sustainability to the public finance, stressed by the ageing of the population;
- reduce perverse redistributive effects

Characteristics of the system:

- Generous Earnings-related/PAYGO
- Strong incentive to retire earlier
- Redistribution to (white collar in the public sector, self-employed, ...)
- Low participation rate among women age after 55

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The (main) reforms in the Italian pension system

- 1992: standard parametric reform
  - Increases legal retirement age;
  - Reduces accrual factors;
  - Modifies indexation of pension benefits
- 1995:Notional Defined Contribution (NDC) system
  - Sustainable and homogeneous internal rate of return in the PAYGO system;
  - Reduces incentive to retire earlier
- 1997: (slight) acceleration of the transition process to the NDC system
- 2004 and 2007: further increase in retirement age (seniority pensions)

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The slow transition phase

However …

… reforms splitted into **three groups** current and future workers according their seniority at work:

- More than 18 years in 1995: (generous) earnings-related system
- Between 1 and 18 years in 1995: mixed regime
- New entrants (after 1995): (N)DC system

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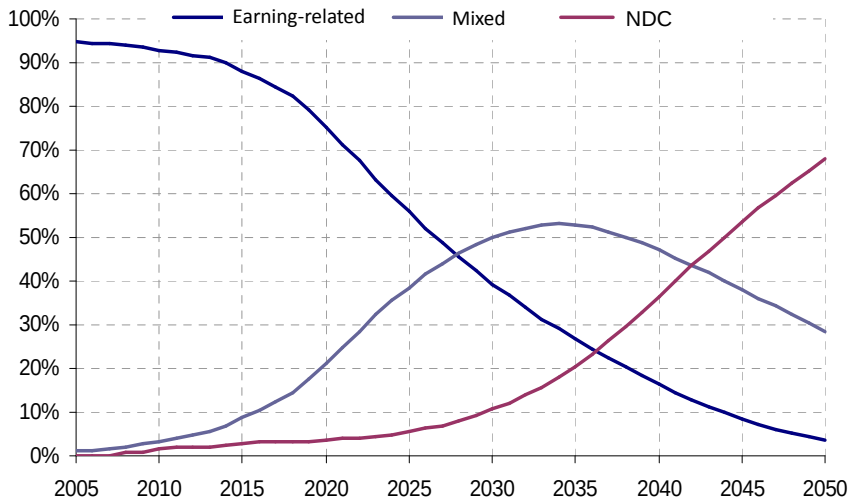
Share of pensioners by regime. 2005-2050, CAPP_DYN



- Completely different expectations with respect to the level of the public pension.
- Replacement ratio (with identical lifetime profile and retirement age) decreases dramatically as the NDC system will be phased in
- Incentive to retire earlier are much more strong under the earning-related system

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Gross replacement rate at different retirement age and for different pension regimes

- Representative individuals -

Age at retirement	Earnings related	Mixed	NDC
60	67.3	54.3	46.0
62	71.2	59.5	51.5
65	76.9	68.3	60.1

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How evaluate the distributive impact of the reforms and of the slow transition to the NDC system?

- Considering representative individuals (as the official figures of Italian government does)
- With a cohort based DMM (Borella and Coda Moscarola 2006)
- With a population based DMM

much more complex way
but...
allows to consider jointly the intra-generational and the inter-generational redistribution of resources operated by the reforms.

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CAPP_DYN

Simulates the future evolution (2005 – 2050) of the life-cycle events for a representative sample of the Italian population

Characteristics:

- ✓ Population based;
- ✓ Closed;
- ✓ Dynamic ageing process;
- ✓ Discrete time;
- ✓ Probabilistic;
- ✓ Individual or household simulation unit.

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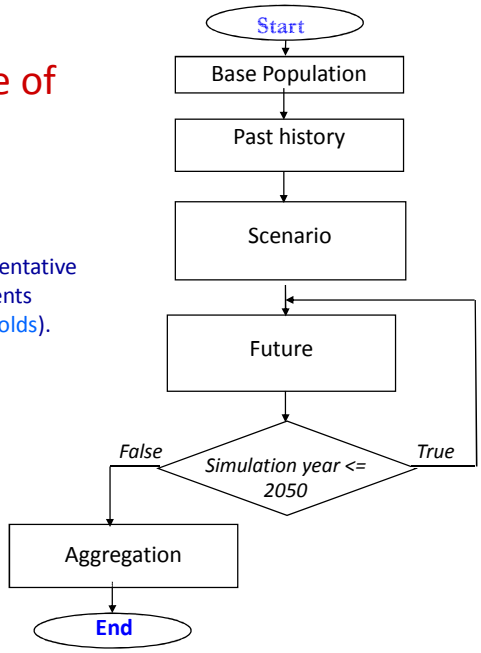
The structure of CAPP_DYN

We use a large & representative sample of economic agents (individuals and households).



The main modules of CAPP_DYN

Demography
- Mortality
- Fertility
- Net Migration
- Children leaving parental house
- (re)Marriage
- Separation/Divorce

Education and labour
- Education (three levels)
- Transition to the labour market
- Occupational status (employed PT/employed FT/ unemployed/Inactive)
- Sector of employment (dependent / self employed)
- Income generation (earnings)

Social Security
- Retirement decision
- Old age pension
- Survival pension
- Disability
- Social Assistance Pension

Modelling Population at time t

Next year (t = t+1)

Modelling Population at time (t+1)

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How CAPP_DYN simulates future trends

- Mainly with a cohort based approach.
- Current (and future) cohorts (will) have:
  - lower fertility and mortality
  - higher educational level
  - higher participation rate (expecially women)
  - higher retirement age

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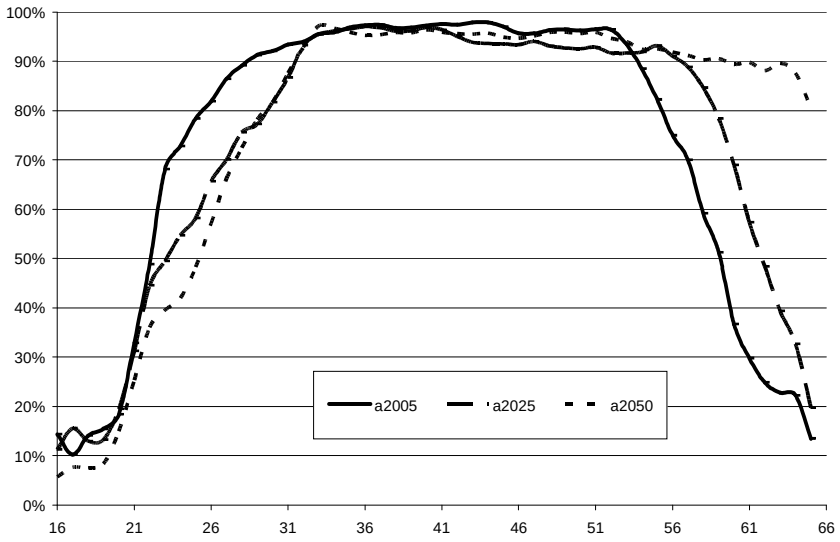
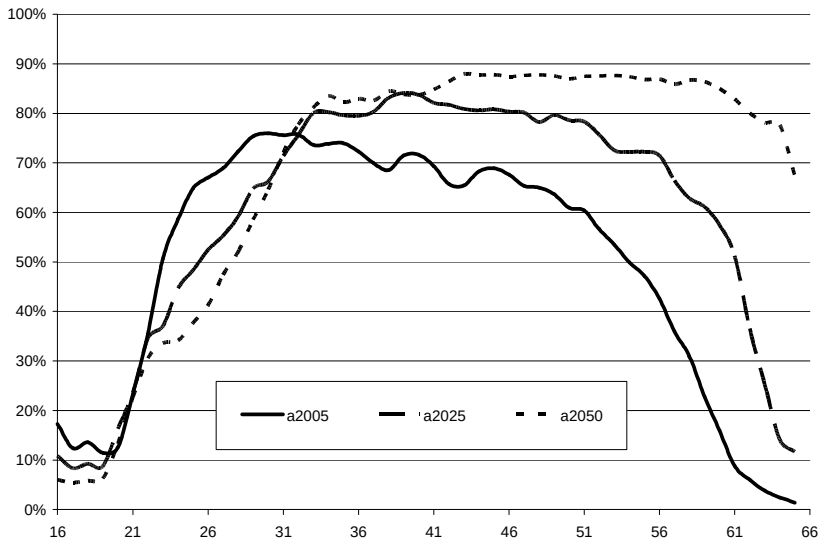
Participation rates MEN: age profile in 2008, 2025, 2050



Participation rates WOMEN: age profile in 2008, 2025, 2050



Intergenerational distribution

Looking at differences between:

1. workers and pensioners
2. Cohorts of future pensioners

Using :

- Average old age pension / average earning by year
- Net present value ratio

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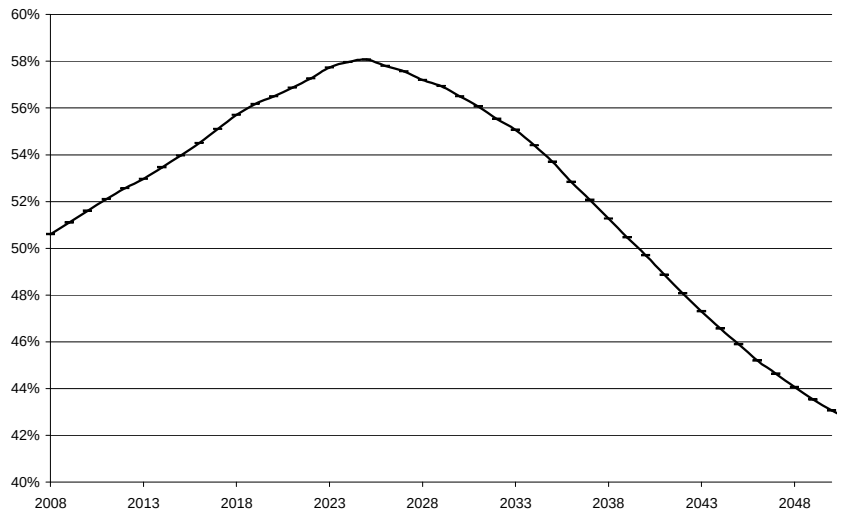
Average old age pension / average earning by year



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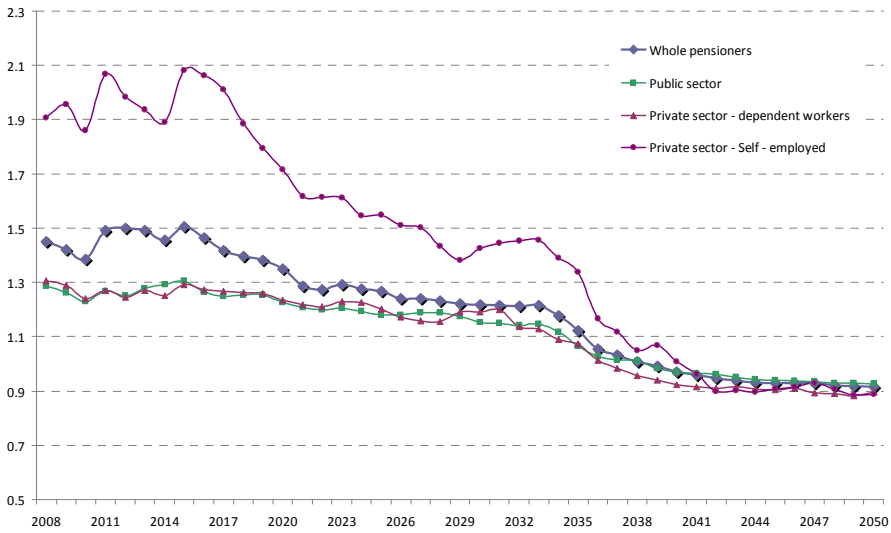
Net Present Value Ratio. 2008 - 2050



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Adequacy of the PAYGO system

- Looking at distribution of:

  Gross of tax Replacement Rate (RR) between pension and final earning

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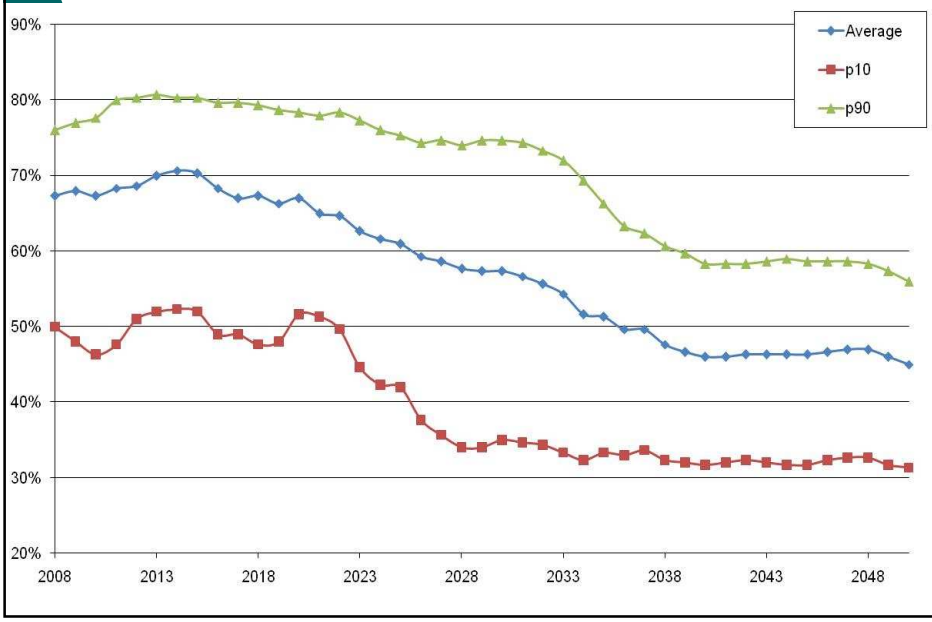
Gross replacement ratio



Intragenerational redistribution

Measures used:

1. Gini index among earnings and old age pensions
2. Coefficient of variation of the gross replacement rate

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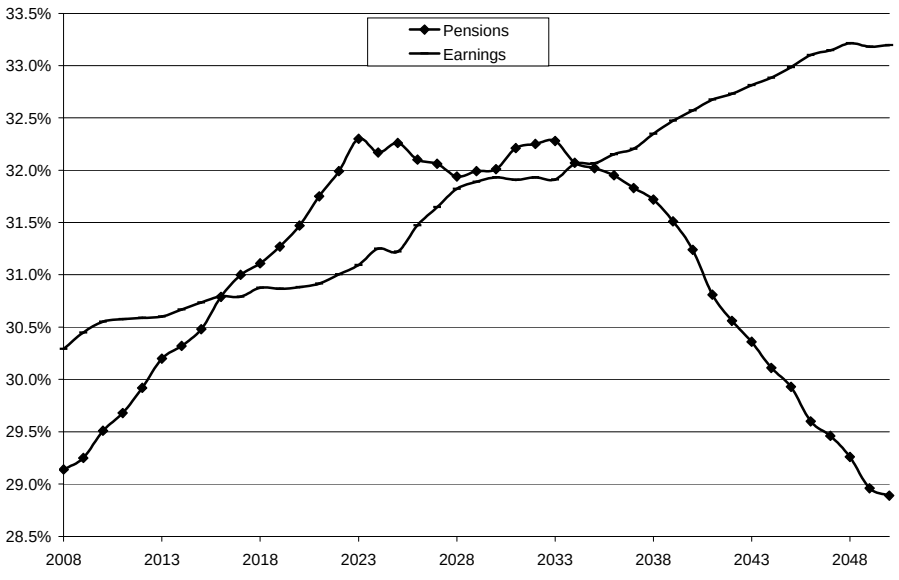
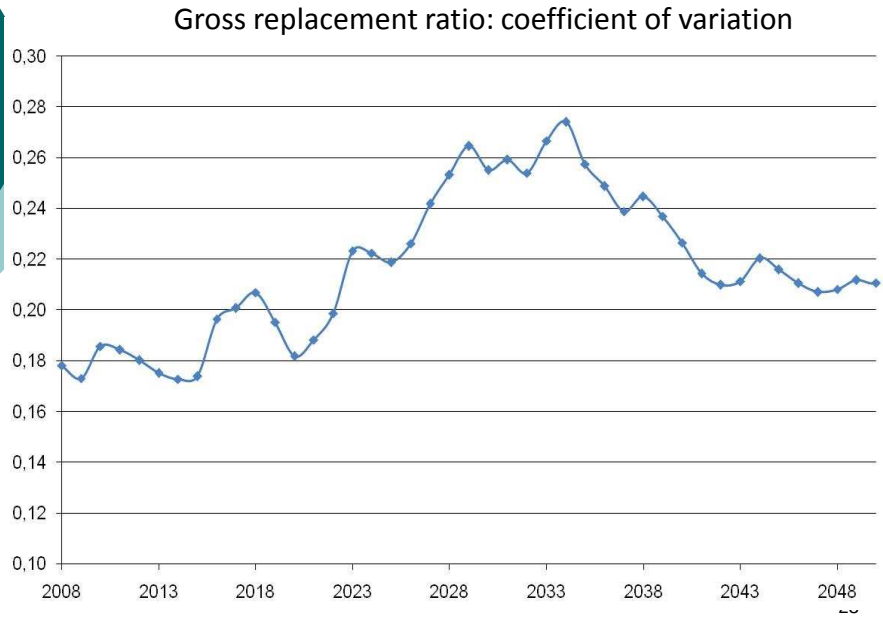
Gini index on earnings and old age pensions





Conclusion

1. Actuarial fairness in the long run (after 2035)
2. Dispersion in the distribution of old age pensions increases from 2020 to 2040: effect of the transition
3. There is an adequacy problem in the long run

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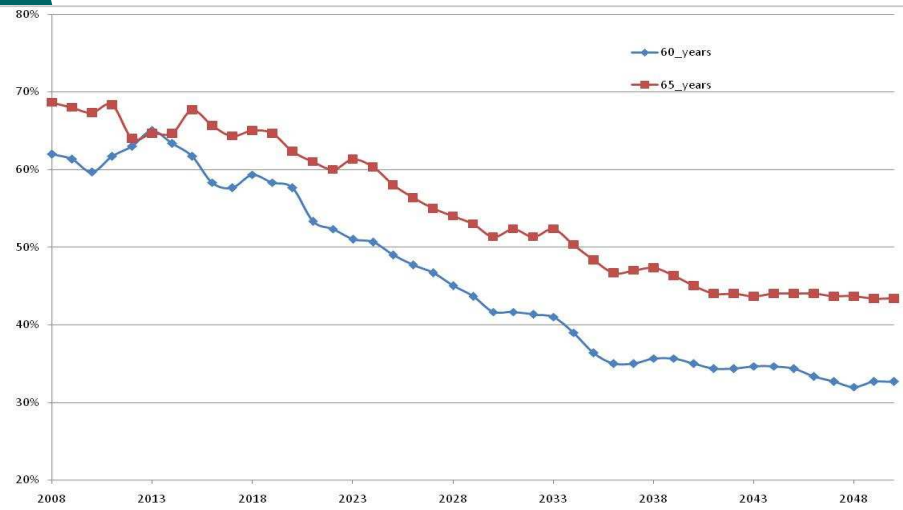
Replacement rate with different retirement age: women



Open questions

- How simulate retirement decisions:
  - At individual level;
  - At Household level
- Using:
  - option value theory;
  - Rule of thumbs on (RR, Age of retirement);
  - Econometric techniques
- Adequacy and retirement age;
- Role of private pensions
- …

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