

# A simulation of crisis' effects between generations: will the social security reform balance protections?

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XXVIII National Conference of Labour Economics

Libera Università Internazionale degli Studi Sociali "Guido Carli" Roma, 27-28 September 2013

## Main objectives

### **Testing the role of 'reformed' social security institutions in reducing generational disparities**

- Estimation of the role of social safety nets in reducing income losses
- Simulation of the role of 'reformed' social protections in reducing income losses
- Comparison between pre and post reform protections, adopting a generational perspective

**No previsionsal purposes (dynamic microsimulation)**

## How?

- Setting-up a **flexible, data driven model** that simulates labour market trends for a representative sample of the Italian population
- Using **probabilistic transitions** between conditions (e.g. in and out of employment) to update the employment status
- Recursively applying transitions to **discrete units of time** (e.g. quarters)

## Methodology (1/3)

- **Basic survey:** ILFS (ISTAT)
- **Period:** 2008-I / 2012-IV
- **Unit of time:** quarters
- **Geographical area:** Italian macro-regions
- **Estimation of transition prob:** comparison between employment rates → within cells (age classes, geog. areas, sectors, type of contract, type of worker)
- **Imputation of status changes:** Monte Carlo method

## Methodology (2/3)

### Sequentially simulating events:

- In and out of employment
  - Out with the mobility allowance
  - Out with the ordinary unemployment benefit
  - Out with the unemployment benefit with low requirements
  - Out without subsidies for lack of requirements
- Wage supplement  
(ordinary, extraordinary and “in deroga”)
- Change of the number of working hours  
(from full time to part time and vice versa)

## Methodology (3/3)

more details on transition probabilities: in and out of employment

$$\begin{array}{l}
 \text{if } t = 1 \left\{ \begin{array}{l}
 \text{var}_1 = er_1 - er_0 \\
 er_1^{sim} = er_0 + \text{var}_1 \\
 e_1^{sim} = er_1^{sim} \cdot pop_0 \\
 \text{diff}_1 = e_1^{sim} - e_0 \\
 \text{if } \text{diff}_1 < 0 \text{ then } \text{prob\_out}_1 = -(\text{diff}_1/e_0) \\
 \text{if } \text{diff}_1 > 0 \text{ then } \text{prob\_in}_1 = \text{diff}_1/u_0
 \end{array} \right. \\
 \\
 \text{if } t > 1 \left\{ \begin{array}{l}
 \text{var}_t = er_t - er_{t-1}^{sim} \\
 er_t^{sim} = er_{t-1}^{sim} + \text{var}_t \\
 e_t^{sim} = er_t^{sim} \cdot pop_0 \\
 \text{diff}_t = e_t^{sim} - e_{t-1}^{sim} \\
 \text{if } \text{diff}_t < 0 \text{ then } \text{prob\_out}_t = -(\text{diff}_t/e_{t-1}^{sim}) \\
 \text{if } \text{diff}_t > 0 \text{ then } \text{prob\_in}_t = \text{diff}_t/u_{t-1}^{sim}
 \end{array} \right.
 \end{array}
 \quad \text{where :}$$

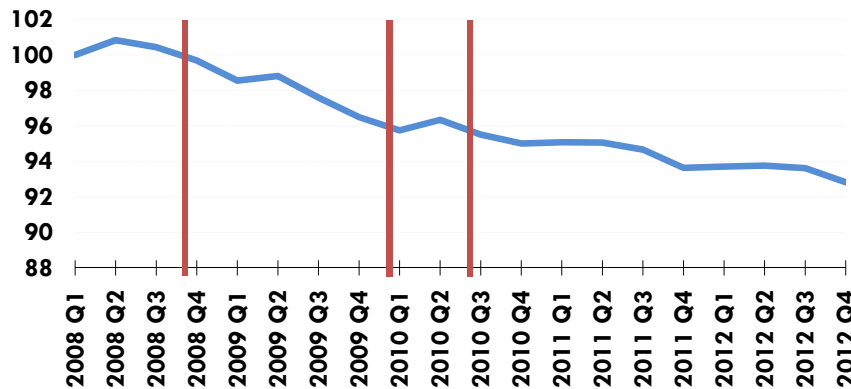
$t = 2$  to 20 quarters  
 $er$  = employment rate  
 $e$  = employed  
 $u$  = unemployed

## Chi-Squared Test for equality of joint distribution

Quarter	Simulation result – Workers (%)								P- Value
	North East- Under 35	North East- Over 35	North East- Under 35	North West- Over 35	Centre- Under 35	Centre- Over 35	South- Under 35	South- Over 35	
2008 Q2	9,3	20,3	6,8	14,8	6,2	14,4	9,0	19,3	1
2008 Q3	9,2	20,4	6,9	14,9	6,1	14,4	8,8	19,2	1
2008 Q4	9,2	20,4	6,8	15,1	6,1	14,6	8,5	19,2	1
2009 Q1	9,1	20,6	6,8	15,1	6,0	14,9	8,4	19,1	1
2009 Q2	8,9	20,8	6,6	15,2	6,1	14,8	8,3	19,3	1
2009 Q3	8,9	20,9	6,6	15,1	6,2	14,7	8,3	19,4	1
2009 Q4	8,9	21,0	6,5	15,1	6,0	14,8	8,2	19,4	1
2010 Q1	8,8	21,0	6,5	15,4	6,0	15,0	7,9	19,3	1
2010 Q2	8,7	21,0	6,4	15,4	5,9	15,1	8,0	19,5	1
2010 Q3	8,7	21,1	6,4	15,4	6,0	15,0	8,0	19,5	1
2010 Q4	8,7	21,2	6,4	15,3	5,9	15,0	8,0	19,5	1
2011 Q1	8,7	21,3	6,4	15,5	5,8	15,0	7,9	19,4	1
2011 Q2	8,5	21,2	6,3	15,5	5,8	15,1	8,1	19,5	1
2011 Q3	8,5	21,2	6,3	15,7	5,8	15,0	8,0	19,5	1
2011 Q4	8,6	21,2	6,2	15,7	5,6	15,0	8,0	19,6	1
2012 Q1	8,4	21,5	6,2	15,7	5,6	15,1	8,0	19,5	0,99999
2012 Q2	8,3	21,5	6,1	15,7	5,7	15,2	7,9	19,6	0,99999
2012 Q3	8,3	21,5	6,1	15,9	5,6	15,2	7,8	19,7	0,99999
2012 Q4	8,3	21,5	6,0	16,0	5,5	15,3	7,8	19,7	0,99998

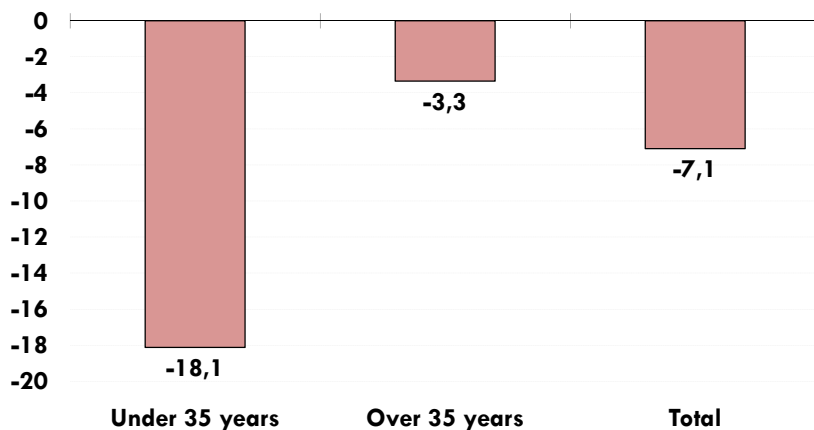
## The impact of crisis on income

Quarterly average income from 2008 to 2012  
First quarter of 2008 equal to 100%



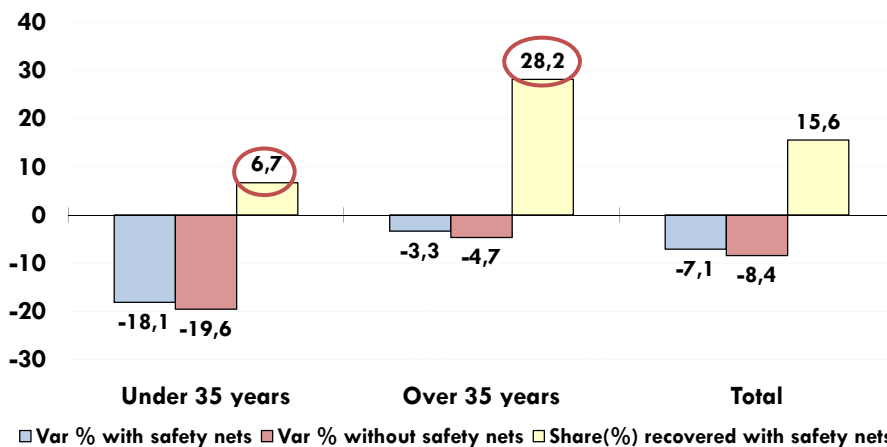
## Differences between generations

% Var. annual average income from 2008 to 2012



## The role of social safety nets

% share of income recovered with safety nets



## The pre-reform social security system

- **Under ongoing employment**

- **Ordinary CIG**
- **Extraordinary CIG**
- **CIG “in deroga”**

- **In case of unemployment**

- **Ordinary unemployment benefits**
- **Reduced unemployment benefits**
- **Mobility allowance**

## The Labour Market Reform (1/2)

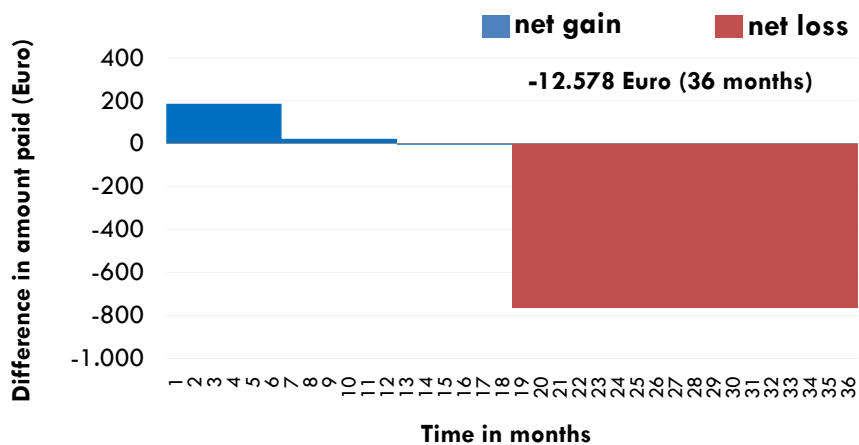
- The labour market reform (l.92/12) intervened on three aspects in order to realize a **more inclusive and dynamic labour market in order to reduce generational differences**
  - More exit flexibility
  - More entry rigidity
  - **Social safety nets**
- **Replacement of ordinary and reduced unemployment benefits with Aspi and Mini-Aspi**
- **Abolition of Mobility allowance from 2017**
- Contribution for employer-coordinated freelance workers (collaboratori in monocommittenza) became structural

## The Labour Market Reform (2/2)

	<b>ASPI</b>	<b>Mini ASPI</b>
<b>Workers concerned</b>	Employees including apprentices and fixed-term contracts in the public sector	Employees including apprentices and fixed-term contracts in the public sector
<b>Insurance requirement</b>	1 week INPS enrolment prior to the previous two years	
<b>Contribution requirement</b>	12 months INPS contributions in the past 24 months	3 months of contributions in the last 12 months
<b>Duration of performance</b>	<b>12 months</b> for under 55 years old 18 months to over 55 years old	Equal to half of the weeks of contributions in the last year
<b>Entity of performance</b>	<b>75% for 6 months</b> <b>60% from the 7th to the 12th</b> <b>45% by the 12th month</b>	<b>75% for 6 months</b>

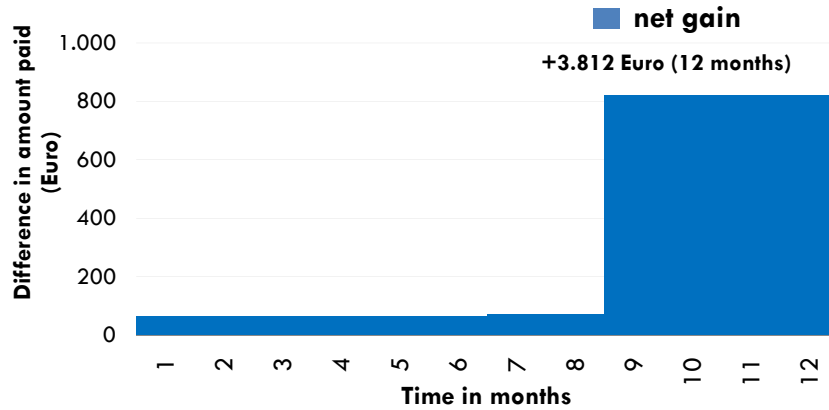
## Aspi vs Mobility Allowance

Difference in benefits paid to unemployed with mobility requirements, 55 years old, monthly gross income of 2 000 Euro



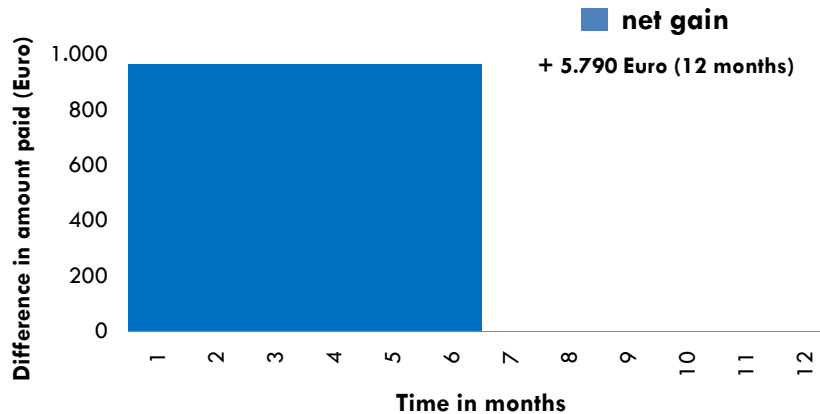
## Aspi vs Ordinary Unemployment Benefits

Difference in benefits paid to unemployed with a fixed-term contract, unemployment requirements, 30 years old, monthly gross income of 1 500 Euro

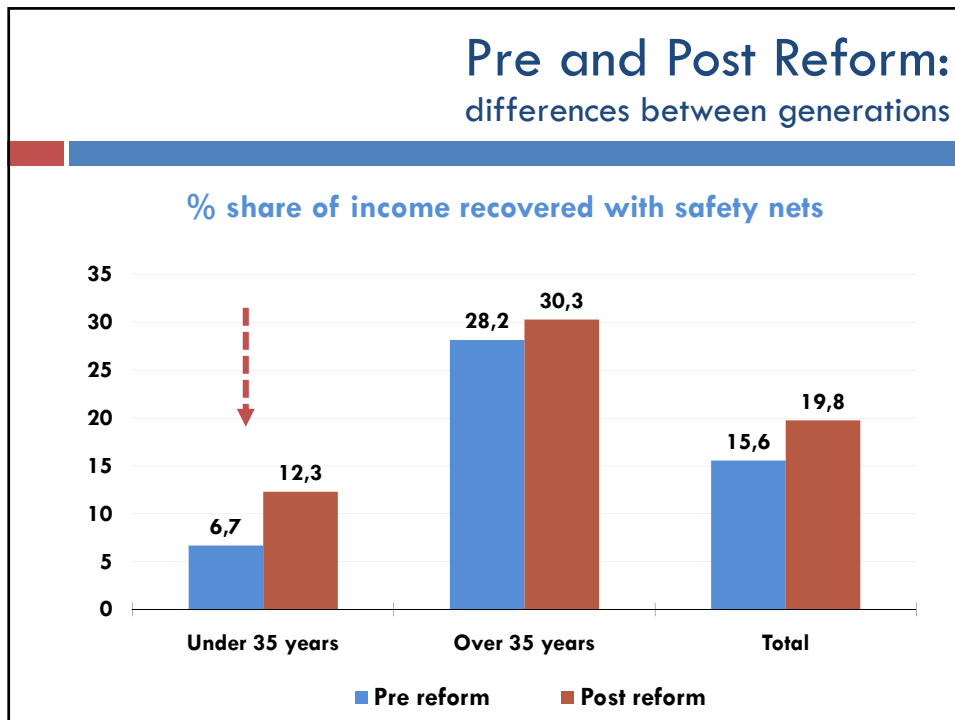


## Mini-Aspi vs Reduced Unemployment Benefits

Difference in benefits paid to unemployed with a fixed-term contract, 18 months of contributory seniority, 30 years old, monthly gross income of 1 500 Euro







### Pre and Post Reform: differences between geographical area and generations

**% share of income recovered with safety nets**

		Pre reform	Post reform
Under 35 years	North West	7,3	13,5
	North East	6,7	9,9
	Centre	7,5	14,2
	South	5,2	11,7
Over 35 years	North West	33,1	36,1
	North East	33,4	31,3
	Centre	27,0	29,1
	South	22,0	26,3

## Pre and Post Reform:

a closer look at winners and losers

**% distribution of individuals per category  
and average income variation. 2012**

	Losers		Indifferent	Winners	
	Individuals	Income		Individuals	Individuals
15-35	0.5	-15.7	96.2	3.3	50.8
35-49	0.7	-52.1	97.6	1.7	62.4
50-64	0.3	-57.3	98.7	0.9	44.8
Total	0.5	-41.2	97.4	2.1	53.0

## Conclusions

- The economic crisis moved to the labour market with a strong impact on income and with differences between geographical area and generations.
- The social security system reduce the crisis's negative impact on income but preserve the duality already present in the labour market.
- The Labour Market Reform tried to balance these different protections. According to the simulation, it succeeded to do that, but differences remain high.

## Future developments

### Application to administrative data "Compulsory Communications Data"

#### Advantages

- No representativeness limitations
- Continuous unit of time
- Hiring and firing flows

#### Disadvantages

- Missing information on income (matching with other administrative data sources?)
- Missing information on wage supplement (except "in deroga")

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