# *NATIONAL TRANSFER ACCOUNTS (NTA):*

## *SOME POLICY APPLICATIONS IN ITALY*

### *WITH SPECIAL REFERENCE TO FISCAL POLICY*

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# 5 CASES WILL BE PRESENTED

# HIGHLIGHTING

# THE POSSIBILITY OF ANALYSING

# KEY POLICY ISSUES

# WITH TOOLS THAT MATCH

# THE DEMOGRAPHIC STRUCTURE

# (CURRENT AND EXPECTED)

# AND NATIONAL ACCOUNT DATA

# "TRADITIONAL" APPLICATIONS

**Case 1: ASSESSING THE LONG-RUN EFFECTS OF A PENSION REFORM ON PUBLIC FINANCE SUSTAINABILITY AND ON GENERATIONAL EQUITY**

**Case 2: THE NET FISCAL IMPACT OF IMMIGRATION**

# MORE "INNOVATIVE" APPLICATIONS

**Case 3: THE EFFECTS OF BUDGETARY POLICY ON THE YOUNG – A COHORT ANALYSIS**

**Case 4: HOW TO DEAL WITH THE FAMILY AS THE RELEVANT UNIT**

**Case 5: TOWARD NTA: A MICROECONOMIC MODEL OF FAMILY BEHAVIOUR (work in progress)**

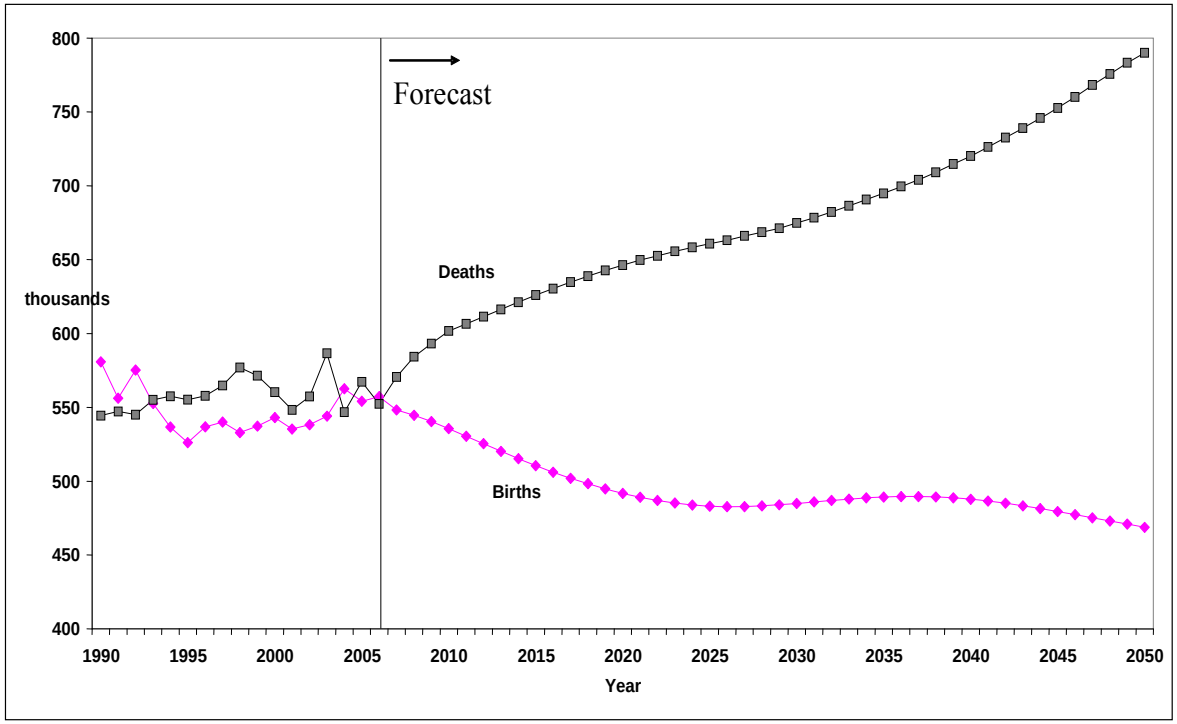
# Case 1

# ASSESSING THE LONG-RUN EFFECTS OF A PENSION REFORM ON PUBLIC FINANCE SUSTAINABILITY AND ON GENERATIONAL EQUITY

# (Sartor, 2001 and 2010)

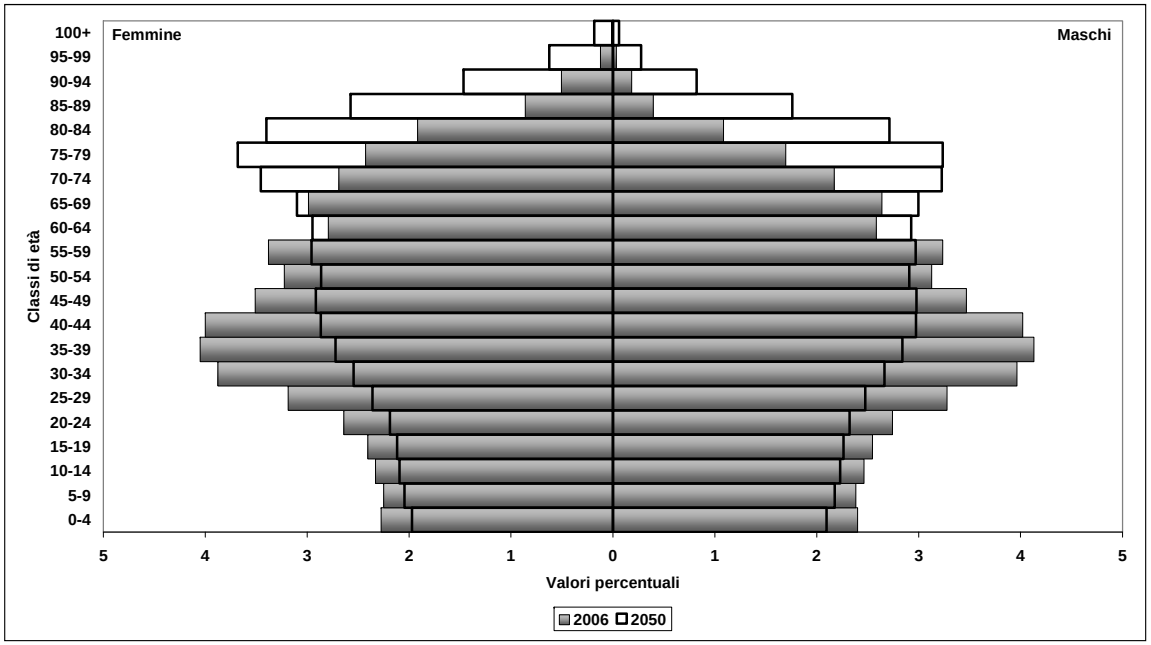
# THE ITALIAN DEMOGRAPHIC OUTLOOK

## ITALY: Demographic situation and forecast 1990-2050 – baseline scenario




Source: ISTAT (2007)

# Italy: Population Structure in 2006 and 2050 (baseline forecast)




Source: Istat

## 1995 PENSION REFORM

## VERY LONG AND INEQUITABLE TRANSITION TO THE NEW SYSTEM

**THE LEGISLATED TRANSITION RULES THAT:**

- **WORKERS WITH SENIORITY $\geq$ 18 YEARS IN 1995 WOULD BE ENTITLED TO THE OLD RULES FOREVER**

- **WORKERS WITH SENIORITY < 18 YEARS IN 1995 WOULD BE ENTITLED TO THE "PRO RATA" SYSTEM**

**1995 PENSION REFORM (follows)**

**WHAT WOULD HAVE BEEN A FAIR TRANSITION:**

**APPLY "PRO RATA" THE OLD AND THE NEW SYSTEM TO ALL CURRENT WORKERS**

**E.G. FOR A WORKER WITH 18 YEARS OF SENIORITY IN 1995, PENSION BENEFITS WOULD BE CALCULATED:**

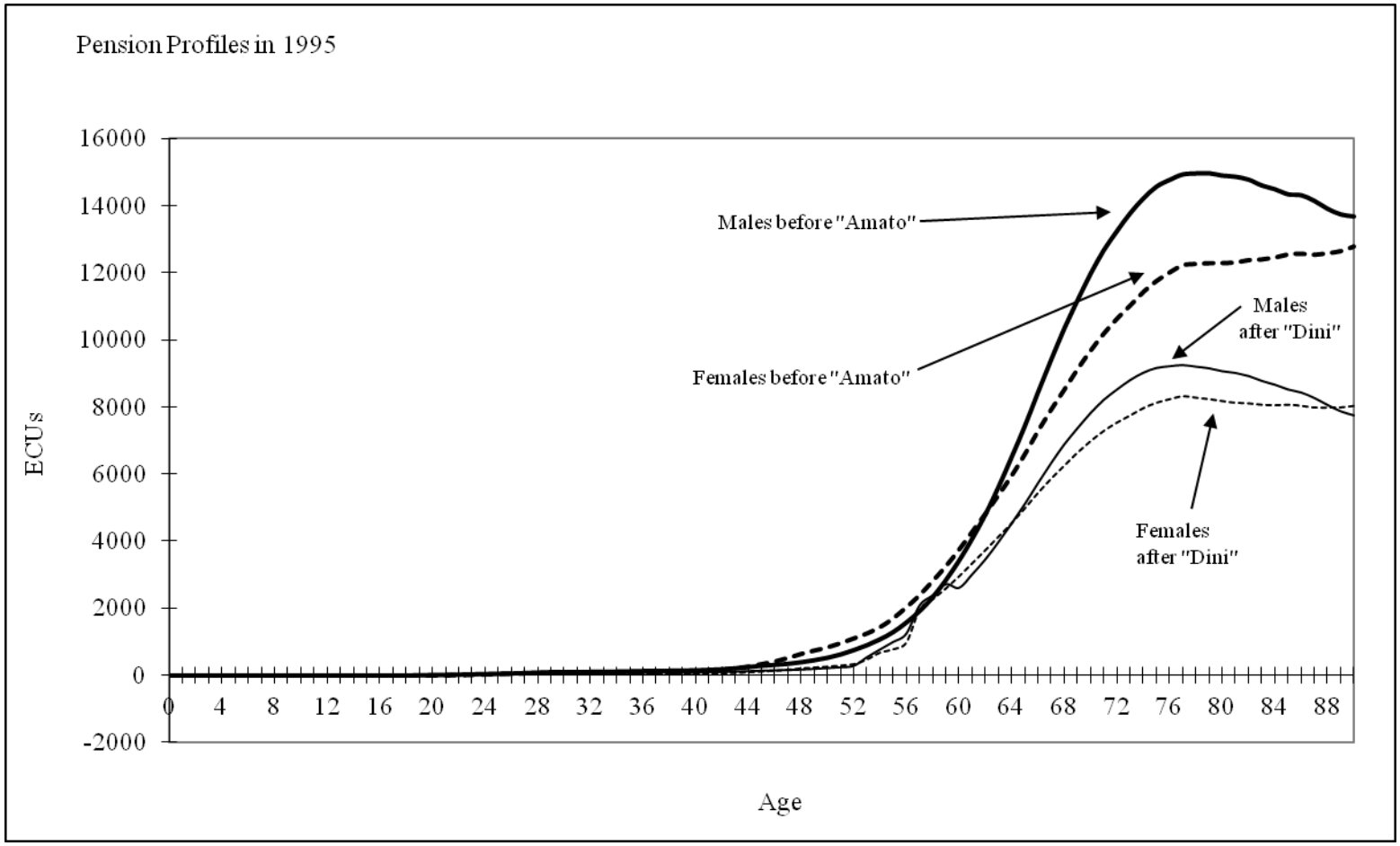
- **ON THE BASIS OF OLD ENTITLEMENT RULES FOR THE FIRST 18 YEARS OF CONTRIBUTION**
- **ON THE BASIS OF THE NEW RULES FOR THE REMAINING N-18 YEARS OF CONTRIBUTIONS)**

Generational Accounts under Alternative Pension Transitions
(thousand of ECU)

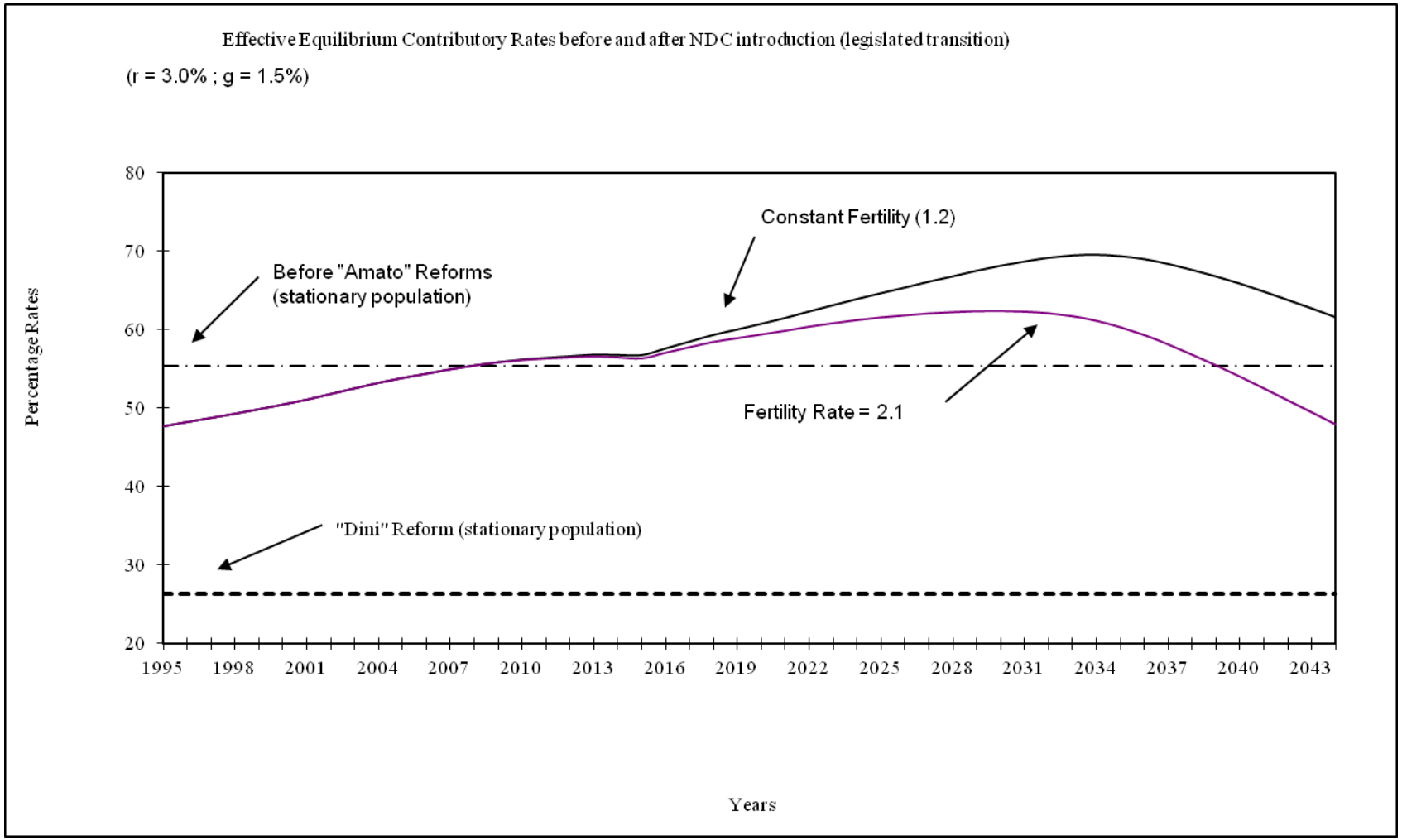
| Age in 1995 | 1996 Legislated transition | | Alternative *pro rata* transition | | Percentage difference | |
|---|---|---|---|---|---|---|
| | Pensions | Social sec. Contributions | Pensions | Social sec. Contributions | Pensions | Social sec. Contributions |
| 0 | 14,0 | 48,8 | 14,0 | 48,8 | 0,0 | 0,0 |
| 5 | 16,6 | 57,8 | 16,6 | 57,8 | 0,0 | 0,0 |
| 10 | 19,6 | 68,5 | 19,6 | 68,5 | 0,0 | 0,0 |
| 15 | 23,3 | 80,8 | 23,3 | 80,8 | 0,0 | 0,0 |
| 20 | 28,3 | 89,2 | 28,3 | 89,2 | 0,0 | 0,0 |
| 25 | 35,7 | 88,3 | 35,7 | 88,3 | 0,0 | 0,0 |
| 30 | 44,7 | 81,0 | 44,7 | 81,0 | 0,0 | 0,0 |
| 35 | 55,6 | 69,0 | 55,6 | 69,0 | 0,0 | 0,0 |
| 40 | 81,0 | 52,0 | 69,0 | 53,8 | 17,4 | -3,3 |
| 45 | 95,3 | 38,6 | 85,3 | 39,5 | 11,7 | -2,3 |
| 50 | 111,5 | 24,9 | 104,5 | 25,3 | 6,7 | -1,6 |
| 55 | 128,7 | 11,7 | 125,8 | 11,7 | 2,3 | 0,0 |
| 60 | 144,0 | 2,0 | 144,0 | 2,0 | 0,0 | 0,0 |
| 65 | 150,8 | 0,1 | 150,8 | 0,1 | 0,0 | 0,0 |
| 70 | 143,1 | 0,0 | 143,1 | 0,0 | 0,0 | 0,0 |
| 75 | 121,6 | 0,0 | 121,6 | 0,0 | 0,0 | 0,0 |
| 80 | 93,8 | 0,0 | 93,8 | 0,0 | 0,0 | 0,0 |
| 85 | 69,3 | 0,0 | 69,3 | 0,0 | 0,0 | 0,0 |
| 90 | 50,1 | 0,0 | 50,1 | 0,0 | 0,0 | 0,0 |
| 95 | 34,9 | 0,0 | 34,9 | 0,0 | 0,0 | 0,0 |
| 100 | 13,0 | 0,0 | 13,0 | 0,0 | 0,0 | 0,0 |

Baseline (r=0.05, g=0.015), thousands of ECU (present 1995-value).

Source: Sartor, 2001



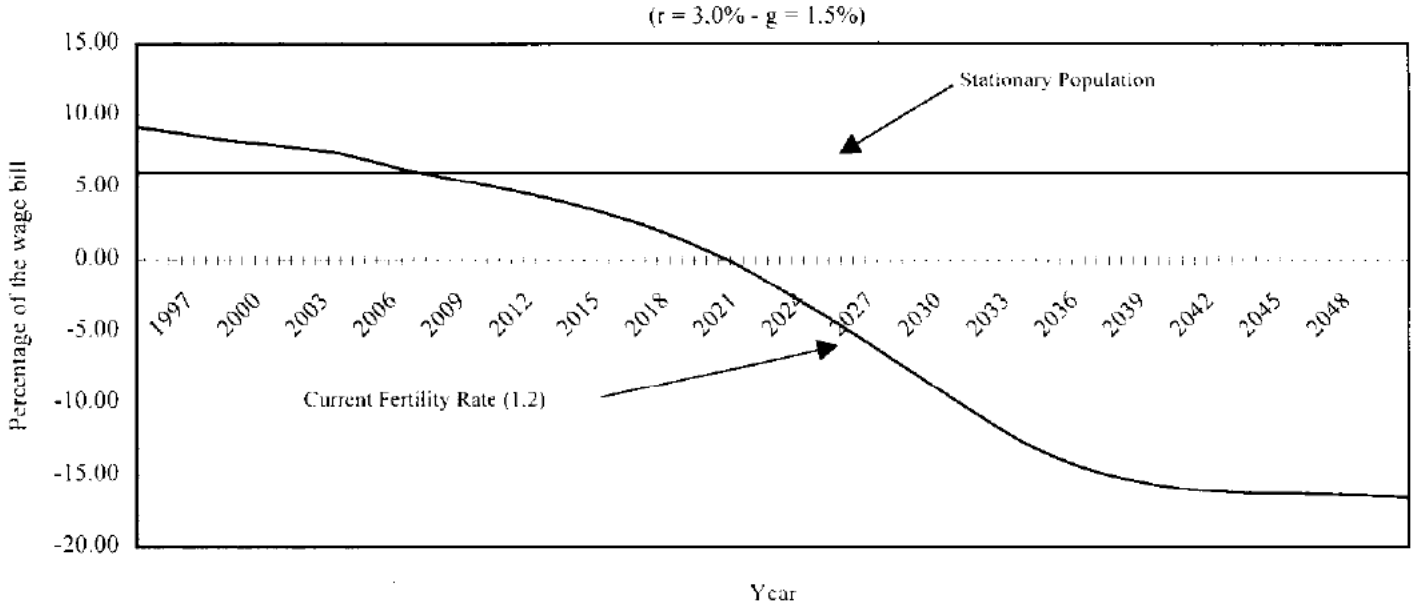

Source: Sartor, 2001


Effective Equilibrium Contributory Rates before and after NDC introduction (legislated transition)
(r = 3.0% ; g = 1.5%)
Percentage Rates
80
70
60
50
40
30
20
1995
1998
2001
2004
2007
2010
2013
2016
2019
2022
2025
2028
2031
2034
2037
2040
2043
Years
Constant Fertility (1.2)
Before "Amato" Reforms
(stationary population)
Fertility Rate = 2.1
"Dini" Reform (stationary population)

# NOTE:

# A FULLY-FUNDED PENSION SCHEME WOULD NOT ELIMINATE THE GLOBAL IMBALANCE

*Chart 3.* 1995 Pension Reform - Net Savings Under a Hypothetical Fully-Funded Scheme



# Case 2

# THE NET FISCAL IMPACT OF IMMIGRATION

# (Rizza and Romanelli, 2010)

# CROSS SECTION ANALYSIS

# FOCUSING ON A SINGLE FISCAL YEAR

# MAY BE MISLEADING:

# THE DEMOGRAPHIC STRUCTURE OF IMMIGRANTS IS SIGNIFICANTLY DIFFERENT FROM NATIVES

**Long-Run Effects of Immigration on Italian Public Finance (billions euro)**
**An NTA Approach (1)**

| | 2006 | | | 2030 | | | 2050 | |
|---|---|---|---|---|---|---|---|---|
| | Immigrants | Italians | Immigrants per capita (2) | Immigrants | Italians | Immigrants per capita (2) | Immigrants | Italians |
| Total Revenues | 20.8 | 506.5 | 79.5% | 83.4 | 643.4 | 62.6% | 176.3 | 677.4 |
| Total Expenditures | 10.1 | 394.4 | 50.2% | 74.7 | 570.2 | 63.2% | 173.8 | 648.4 |
| Balance | 10.7 | 112.1 | | 8.7 | 73.2 | | 2.5 | 29.0 |

(1) Source: Rizza P., Romanelli M., 2010, Gli stranieri e la finanza pubblica in Italia, mimeo, Banca d'Italia, Roma.

(2) As a percentage of per capita values for Italians.

| Generational Accounts: Net Present value of Lifetime Tax and Transfers (per capita 000s euros) | | | |
|---|---|---|---|
| | Immigrants 1st Generation | Italians | Immigrants 2nd Generation |
| Taxes and SSC | 295.5 | 443.5 | 321.0 |
| Transfers and Servic | 186.5 | 366.0 | 289.0 |
| Balance | 109.0 | 77.5 | 32.0 |

Source: Rizza P., Romanelli M., 2010, Gli stranieri e la finanza pubblica in Italia, mimeo, Banca d'Italia, Roma.

# Case 3

# THE EFFECTS OF BUDGETARY POLICY ON THE YOUNG: A COHORT ANALYSIS (Pertile, Polin, Rizza and Romanelli, 2011)

## LIFE-CYCLE TAX RATES
## AS A MEASURE OF FAIRNESS BETWEEN GENERATIONS

**A COMPREHENSIVE MEASURE OF LIFE-CYCLE TAX RATES CAN BE CALCULATED AS THE RATIO BETWEEN:**

- **TAXES A COHORT IS GOING TO PAY THROUGH ITS RESIDUAL LIFE-CYCLE, NET OF TRANSFERS (CASH AND IN-KIND) RECEIVED FROM THE PUBLIC SECTOR**

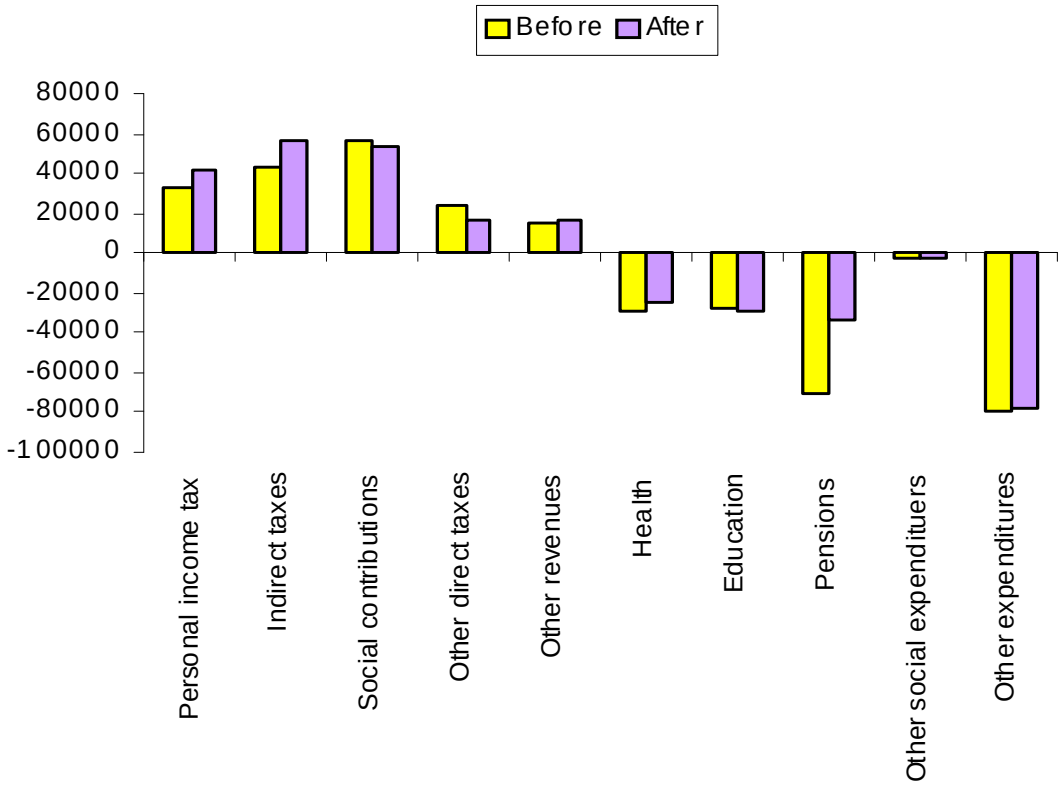
- **RESIDUAL LIFETIME INCOME**

**TAX-RATES CAN BE COMPARED ACROSS GENERATIONS BY ANALYZING SPANS OF YEARS SUCH THAT STARTING AGE IS THE SAME**

# INTERGENERATIONAL INEQUALITY FOR ITALY: RESIDUAL LIFETIME TAX RATES

| | | |
|---|---|---|
| 1952 cohort 15% | VS. | 1970 cohort 23% |
| 1970 cohort 20% | VS. | 1988 cohort 20% |

# THE IMPACT OF THE FISCAL CONSOLIDATION PROCESS
# A BREAKDOWN OF THE EFFECTS OF THE 1980 COHORT
# (NET PRESENT VALUES OF TAXATION/EXPENDITURE PROGRAMMES)



# Case 4

# HOW TO DEAL WITH THE FAMILY AS THE RELEVANT UNIT

# FROM INDIVIDUAL ACCOUNTS TO FAMILY ACCOUNTS

# FAMILY INTERTEMPORAL FISCAL INCIDENCE (FIFI)
# A NEW METHODOLOGY FOR ASSESSING PUBLIC POLICIES

## Polin and Sartor (2009)

## HOW A FAMILY HAS BEEN DEFINED

By modifying Ermish and Overton (1985) concept of a "Minimal Household Unit",

# A **MINIMAL FAMILY UNIT (MFU)**

has been defined as:

**A SINGLE OR A COUPLE OF ADULTS FINANCIALLY INDEPENDENT OF THEIR PARENTS, REGARDLESS WHETHER THEY STILL LIVE IN THEIR PARENTS' HOUSE.**

## FAMILY LIFE:

**"BIRTH" OF A NEW MFU: FINANCIAL INDEPENDENCE**
**"DEATH" OF THE MFU: PASSING AWAY OF THE LAST ADULT.**

## FAMILY FORMATION PROCESS:

**Estimate the PROBABILITY DENSITY FUNCTION of the following states, conditional upon age and gender:**

1. **BEING FINANCIALLY INDEPENDENT**
2. **BECOMING A COUPLE (OR STAYING SINGLE)**
3. **DELIVERING A CHILD OF N-TH ORDER, CONDITIONAL UPON HAVING A CERTAIN LEVEL OF EDUCATION**

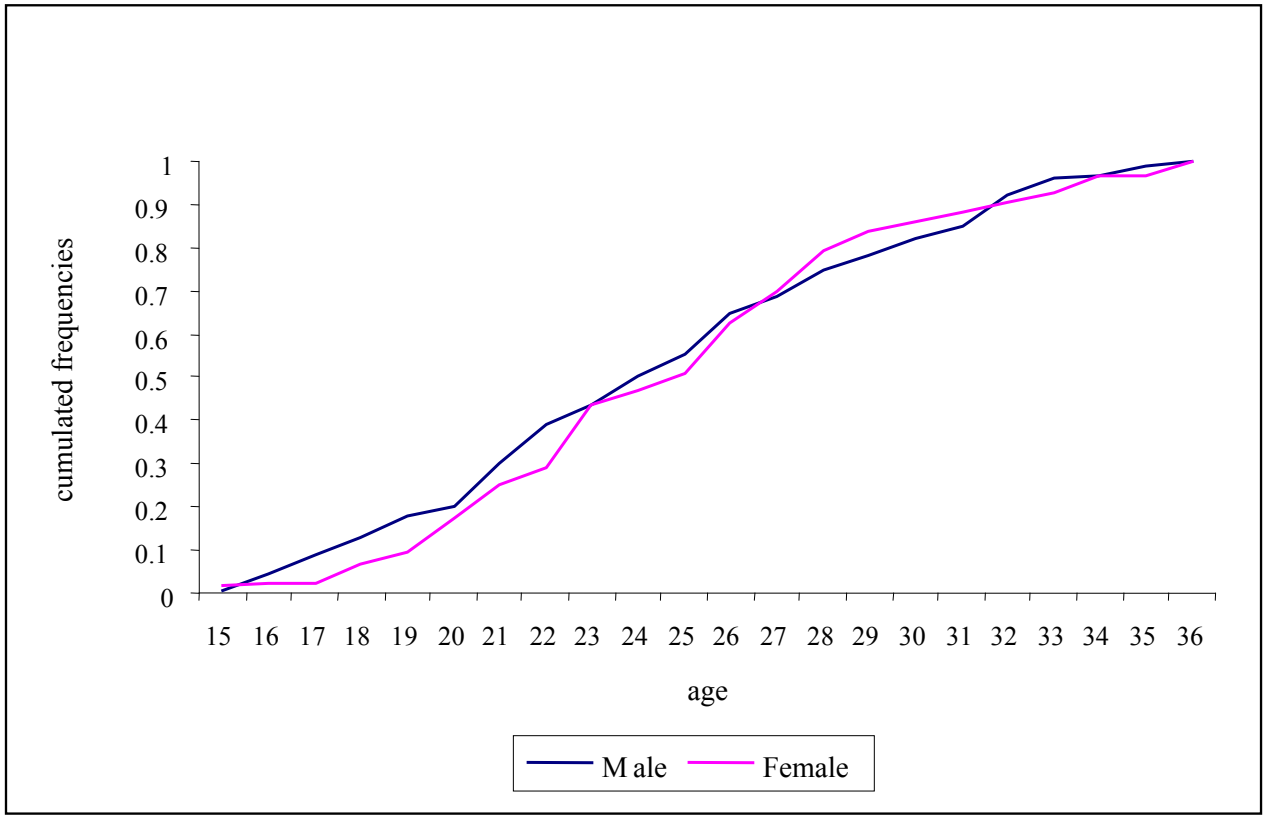
# METHOD

**DEFINE THE LIFE CYCLE OF A FAMILY**

Determine the **FAMILY INTERTEMPORAL FISCAL INCIDENCE (FIFI)**
= sum of all tax and primary spending programs that affect families during their lifetime

Determine **THE MARGINAL NET SUBSIDY FOR CHILDREN (MNS)** =
= Change occurred in FIFI when family of type *k* has one more child

# **Family Formation** (Financial Independence)

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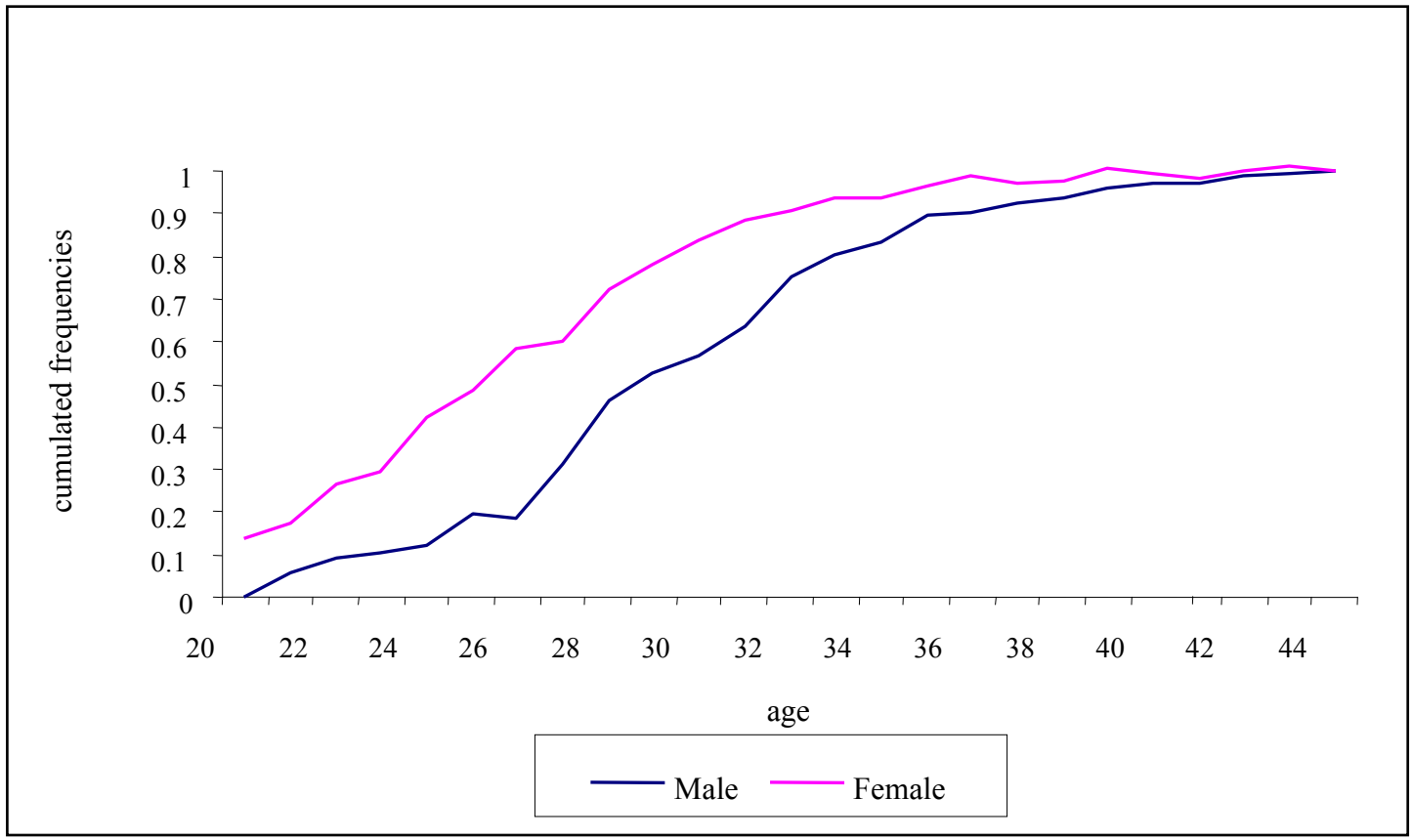
# Marriage / Cohabitation

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# MAIN EMPIRICAL FINDINGS

## FIFI

- **SUBSTANTIAL VARIABILITY EVEN WITHIN "AVERAGE" FAMILIES**

- **FIFI ranges**

**from 9,300 euros (1.9% of NPV of lifetime labour earnings)**
**to 168,000 euros (33.6% of NPV of lifetime labour earnings)**

- **12.5% OF CHILDLESS FAMILIES PAY NO LIFETIME TAXES (OR RECEIVE A NET SUBSIDY)**

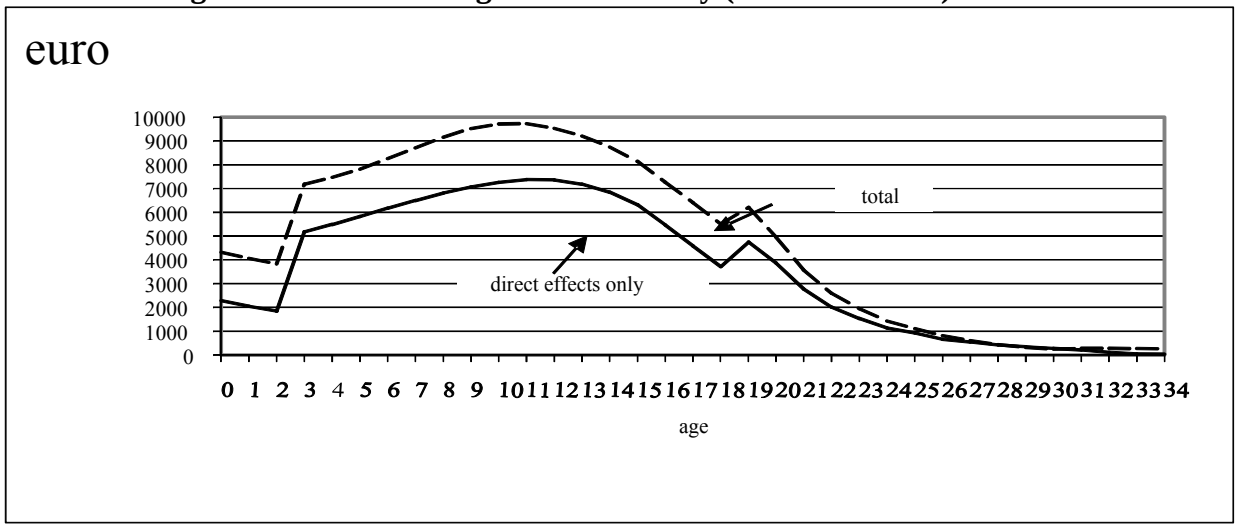
- **The above percentage monotonically increases with the number of dependants, as:**

- **16.7% OF FAMILIES WITH 1 CHILD PAY NO LIFETIME TAXES (OR RECEIVE A NET SUBSIDY)**

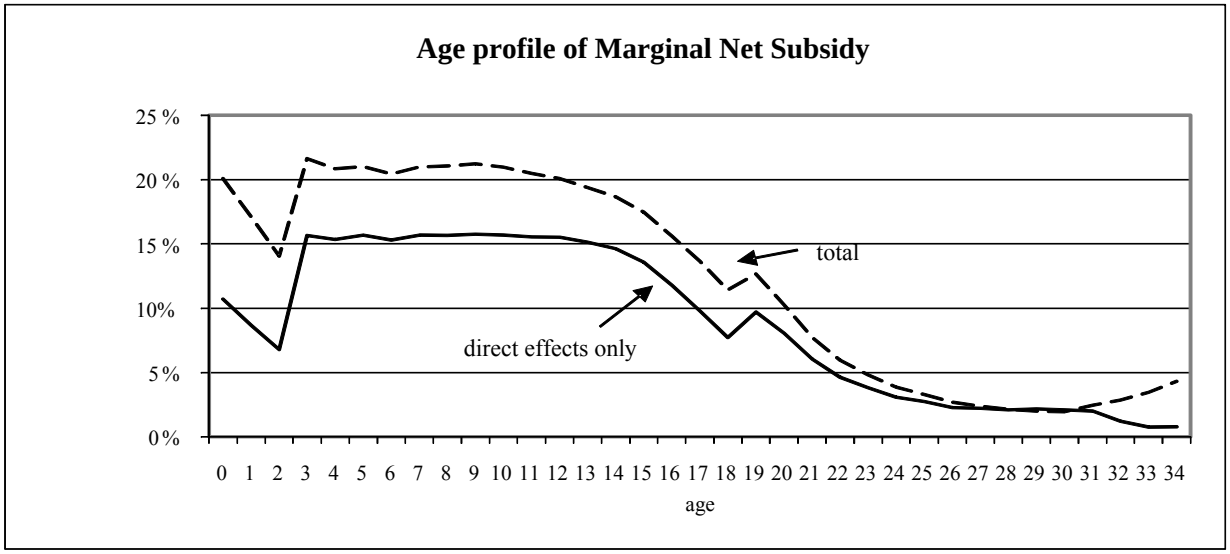
- **35.4% OF FAMILIES WITH 2 CHILDREN PAY NO LIFETIME TAXES (OR RECEIVE A NET SUBSIDY)**

- **43.8% OF FAMILIES WITH 3+ CHILDREN PAY NO LIFETIME TAXES (OR RECEIVE A NET SUBSIDY)**

**Age Profile of the Marginal Net Subsidy (absolute values)**

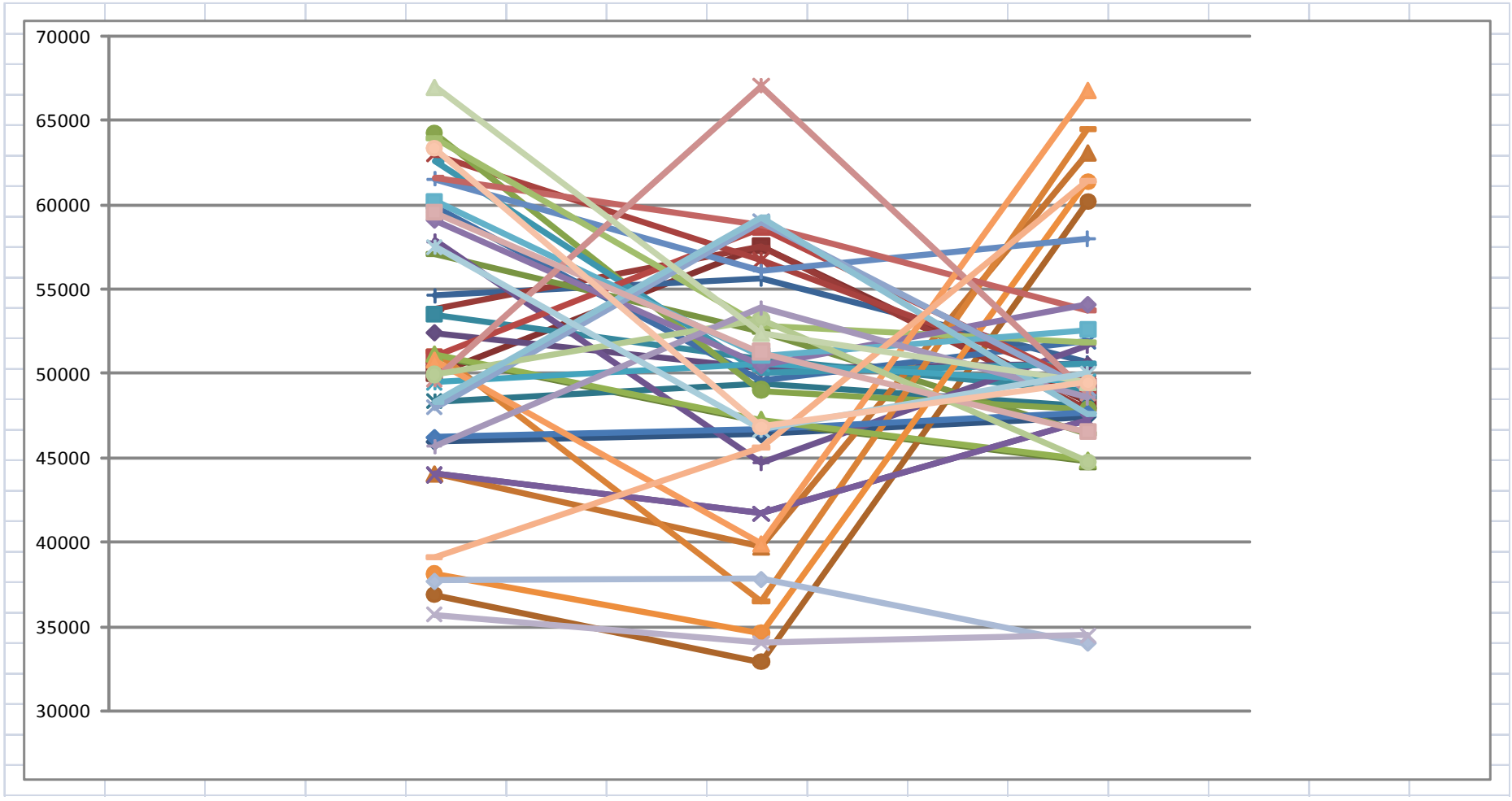



**Age Profile of the Marginal Net Subsidy (% labor earnings)**



# LARGE (UNPLANNED?) VARIABILITY: FISCAL CHURNING ?

# Marginal Net Subsidy for All MFUs



# Case 5

# TOWARD NTA:
# A MICROECONOMIC MODEL
# OF FAMILY BEHAVIOUR
# (Pertile, Polin, Sartor, Sommacal work in progress)

# AIM:

**TO ASSESS INDIVIDUAL AND FAMILY INTERTEMPORAL FISCAL INCIDENCE**

**IN A DYNAMIC MODEL WHERE BEHAVIOURAL RESPONSES ARE TAKEN INTO ACCOUNT**

**(E.G. EFFECTS OF A PENSION REFORMS ON LABOUR SUPPLY AND SAVINGS)**

# TOOL:

## "LARGE SCALE" LIFECYCLE / OLG MODEL

## ENDOGENOUS VARIABLES: LABOUR SUPPLY AND SAVINGS

## COUNTRIES: ITALY AND OTHER EUROPEAN COUNTRIES

## ESTIMATION AND CALIBRATION PROCEDURE BASED ON EU-SILC DATA

## KEY FEATURES OF THE MODEL:

- STRUCTURAL APPROACH: BEHAVIOURAL RESPONSES ARE MODELLED AS THE OUTCOME OF THE MAXIMIZATION OF AN INTERTEMPORAL UTILITY FUNCTION

- TRADITIONAL BEHAVIOURAL MICROSIMULATION MODELS: REGRESSION EQUATIONS WITH NO STRUCTURAL FOUNDATION (NON-ROBUSTNESS TO THE LUCAS CRITIQUE)

- NO GENERAL EQUILIBRIUM EFFECT

## (KEY FEATURES FOLLOWS)

- **HIGH DEGREE OF HETEROGENEITY: AGE, GENDER, CIVIL STATUS, NUMBER OF CHILDREN, EDUCATION LEVEL, PRODUCTIVITY.**

- **TRADITIONAL OLG MODELS IN THE SPIRIT OF AUERBACH AND KOTLIKOFF: LIMITED DEGREE OF HETEROGENEITY**

- **ALL TYPES OF TAXES AND SPENDING PROGRAMS ARE CONSIDERED.**

*Thank You for Your Attention!*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