A microsimulation approach to the determinants of intrahousehold "strategic weight" differentials

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- What advantage is there in individualizing income tax or social benefits, as opposed to splitting or pooling them?
- Does it matter whether family and other personal circumstances are taken into account when calculating in-work benefits or tax credits?
- How does redistribution policy affect the household decision-making process and the welfare of individuals within families?

With regard to reforms of the tax or redistribution system, much of the economic and political debate has focused on such questions in all European countries over the past three decades.

Economists have for long been ill-equipped to tackle these issues, insofar as they have become accustomed to treat households as if they were individuals, and to use household data in a similar fashion.

The need to analyze policy impacts at an individual level forced researchers to propose alternatives to the unitary model, in order to explicitly take into account the existence of various decision-makers whose preferences quite likely differ.

➢ Facts:

- Individual bargaining power plays an important role in the intra-household allocation of resources.
- Empirical studies always face to the difficulty of defining it in a ***plausible and computable way, given the available data.***

➢ Contribution

This talk is about the use of microsimulation techniques in the analysis of intrahousehold resources allocation process.
In particular I propose to compute a sort of ***household members' bargaining power, defined for each member, as the share of resources lost, if he or she leave the household.***

The causes of bargaining power differentials are analysed in four EU countries presenting significantly ***different employment structure and tax-benefit systems***: Finland, Italy, Germany and the United Kingdom, using EUROMOD, an integrated (at European level) microsimulation model.

1. Introduction to microsimulation

- **What is the effect of income tax upon different types of families?**
- **What does it cost to raise the age pension by 2 Euros a week and what proportion of the aged would benefit?**
- **What will the structure of European society look like in 20 years time?**

These are the sort of questions that microsimulation models (and a little bit of imagination..) are designed to answer !

Definitions:

➢**Microsimulation models** (MSMs) allow simulating the effects of a policy on a sample of economic agents (individual, households, firms) at the *individual* level.

➢**Policy evaluation** is based on representations of the economic environment of individual agents, their budget constraints and possibly their behaviour.

➢**A policy simulation** then consists of evaluating the consequences of a change in the economic environment induced by a policy reform on a vector of indicators of the activity or welfare for each individual agent in a sample of observations.

The original idea: Guy Orcutt in the United States in the late 50's and early 60‘s but…

The usefulness of microsimulation techniques in the analysis of public policies has two aspects.

- First is the possibility of **fully taking into account the heterogeneity** of economic agents observed in micro-datasets.
- Second is the possibility of **accurately evaluating the aggregate financial cost/benefit** of a reform.

The comparison is thus made ex ante rather than ex post.

The desirable characteristics of a microsimulation model:

1) It must be an instrument able to characterise the **starting situation** (estimation stage) and to **simulate reforms** (simulation stage).

2) The tool must be **easy enough to be used for anyone**; even if computing languages are not a skill owned by the user. This does not mean that necessary information for knowing how everything works is not given. The interested researcher could know all the necessary steps followed to elaborate the final product

3) Indicators for **measuring the most relevant effects** of tax parameters must be incorporated (revenue magnitudes, equity and efficiency, poverty, etc., analysis).

4) The **input data** must incorporate as faithfully as possible the **real world**.

Structure of a microsimulation model:

- Dataset
- Economic Model [Rationality]
- Environment
- Redistribution system,
- Market characteristics,

A taxonomy of microsimulation models:

- arithmetical vs behavioural models
- static vs dynamic models
- partial vs general equilibrium models

Dataset:

- **Representativity;**
- **Underreporting;**
- **Updating;**
- **Net to gross;**

Algorithms:

- **flexibility vs rigidity;**
- **policy vs research,**

Validation: what is? How you do it.

Calibration: what is? How you do it.

The Bargaining Index

No agreement seems to emerge over a framework for modelling multi member household decision-making.

-Partisans of the **unitary approach** (Samuelson, 1956, Becker 1974) vs partisans of a **collective approach** (Manser and Brown, 1980, McElroy and Horney, 1981, Bourguignon, 1984, Chiappori, 1988, 1992 and Bourguignon et al. 1993, Lundberg and Pollack, 1993).

-Several empirical researches have explicitly adopted a collective household approach to analyze labour supply and welfare distribution effects of reforms in the tax-benefit system, Laisney et al. (2002), Bargain (2005), Carrasco and Ruiz-Castillo (2002), Beblo et al. (2002)

- A **major problem**: **the definition and the computation of the bargaining power of each of the spouses**. Lack of the data, theoretical issues and his dependence on the tax-benefit schedule (that assign different implicit weight to each household member depending on several economic and socio-demographic characteristics) make hard to define a criterion allowing for the computation of the bargaining power.

In the studies cited above the issue is dealt with through a calibration procedure. The authors estimate preferences for males and females in the consumption and leisure dimension, based on a two sub population of single individuals. They then assume that preferences for males and females in couples are not modified when forming a household if not for a cross leisure term. The cross leisure term is then determined together with the bargaining power by a calibration procedure. The calibration procedure implies finding a couple of values generating a set of optimal labour supply choices that are closest to the one observed.

An alternative approach: individual bargaining power coincides with a person's marginal contribution to household income.

The spirit of the idea is similar to what has been done in the game theory literature by Shapley (1953). **The Shapley value captures the importance of adding (or subtracting) a player in a winning coalition of a game (and hence its strategic weight)**.

In the same way, we are concerned with a definition of the strategic importance of each of the individuals in a given household (see also Shorrocks (1999) and Sastre and Trannoy (2002)..

- Such a measure is very easy to compute and can be used as a proxy of the ex ante bargaining power in any "household game"
- It allows for a comparative analysis of the performance of redistribution systems in equalising/disequalising the "bargaining power" of the household members both within and across countries.
- It also reveal social planners' preferences about household formation and intra-household resources allocation.

The measure

$$\lambda_i = \frac{YD(n) - YD(n-i)}{YD(n)}$$

YD(n) and YD(n-i) are household disposable income with and without household member i.

Disposable income may be divided into gross income and net transfers:

$$\lambda_i = \frac{(GY(n) + NT(n) - (GY(n-i) + NT(n-i))}{YD(n)}$$

or simply: $\lambda_i = \mu_i + \tau_i$

Where:

$$\mu_i = \frac{GY(n) - GY(n-i)}{YD(n)}$$

$$\tau_i = \frac{NT(n) - NT(n-i)}{YD(n)}$$

Alternatively, the proposed index can be seen as mechanism revealing the social planner preferences about household formation.

If the tax-benefit system is perfectly neutral with respect to the household size, λ_i boils down to the income share of person *i* and $\Sigma\lambda_i = 1$.

Thus $\Sigma\lambda_i > 1$ indicate a system that favours household formation, as the share of disposable income lost by the household if somebody leaves is higher than the share of his/her gross income; vice versa for $\Sigma\lambda_i < 1$.

To see this, take the following example:

*the disposable income of **each** person is $(1-t)Y+bn^a$, where $(1-t)Y$ is the net income and bn^a is a subsidy equal to b times household size raised to a. Hence,*

$$(7) \quad \lambda_i = \frac{(1-t)Y + b\left[n^{a+1} - (n-1)^{a+1}\right]}{\left[(1-t)Y + bn^a\right]n}$$

If a = 0, then $\lambda_i = 1/n$, which corresponds to a neutral tax-benefit system.

Shortcomings:

- No public goods
- Children are assimilated to independent units in the bargaining process
- Behavioural responses are not taken into account
- Alimony Legislation not considered

Dataset and Msm : Euromod

Before selection	Finland Finnish Income Distribution Survey	Germany (GSOEP)	Italy (Survey of Household Income and Wealth)	UK (Family Expenditure Survey)
# of individuals	5,086,139	78,956,258	57,206,842	57,443,762
# of households	2,355,000	32,289,963	19,816,115	24,490,138
Afeter selection				
# of individuals	3,046,674	57,934,344	40,976,950	39,245,363
# of households	992,192	19,507,731	12,470,477	13,304,952
Share of total sample				
individuals	59.9	73.4	71.6	68.3
households	42.1	60.4	62.9	54.3

Source: Authors' calculations based on EUROMD

Selection: sample of married and cohabiting adult couples (i.e. aged at least 18) with and without children (defined as single persons living with their parents and aged less than 30), irrespective of their activity status. For simplicity we excluded single parents and three-generation households.
Years: Finland, Germany 1998; Uk and Italy 1995.

Table 2: Descriptive statistics (weighted)

	Finland		Germany		Italy		UK	
	Males	Females	Males	Females	Males	Females	Males	Females
# of adult individuals	989,338	989,338	17,487,514	17,481,694	12,467,897	12,467,897	13,303,374	13,303,374
average age	49.8	47.5	50.1	47.4	50.6	46.8	48.4	45.9
% adults in employment	74.5	69.7	66.7	49.0	65.8	35.8	64.4	53.5
% secondary education	35.09	36.82	39.9	40.0	58.8	54.5	71.5	72.1
% tertiary education	29.57	30.24	33.1	21.8	7.3	6.0	22.2	22.7
% no children	43.9		53.8		28.7		48.8	
% one child	22.2		20.5		27.6		20.2	
% two children	21.8		19.4		32.6		21.9	
% three or more children	12.1		6.3		11.1		9.2	

Source: Authors' calculations based on EUROMOD

Employment: significant variation across the different "social models".

- Male employment: Finland's rate is almost 10% higher than that in Germany, Italy and in the UK.
- Female employment rate: in Finland the rate of female employment is almost twice than that of Italy, while Germany and the UK are in an intermediate position.
- Household typologies, we notice that childless households are the dominant household typology in all countries but Italy.

Table 3: Average strategic weight by number of children

	Finland	Germany
Couples without children	0.958	0.936
Couples with children		
One child	0.928	0.857
Two children	0.911	0.822
Three or more children	0.889	0.739

	Italy	UK
Couples without children	1.022	0.945
Couples with children		
One child	1.015	0.904
Two children	1.037	0.861
Three or more children	1.077	0.845

Source: Authors' calculations, based on EUROMOD

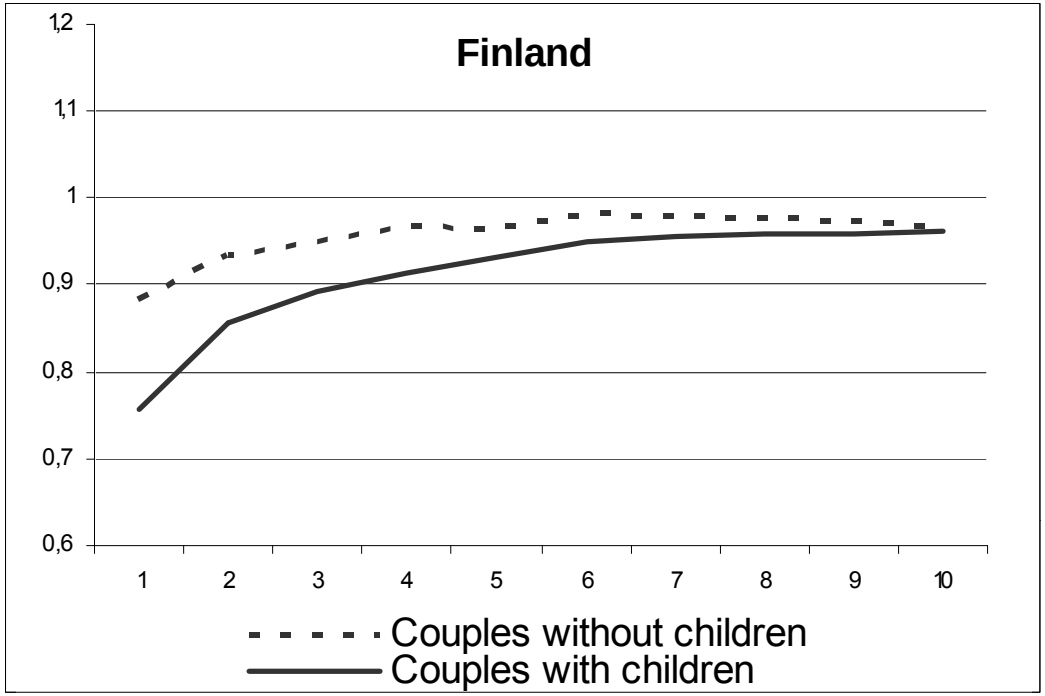
Table 4: Average strategic weight by female employment status (working-age households)

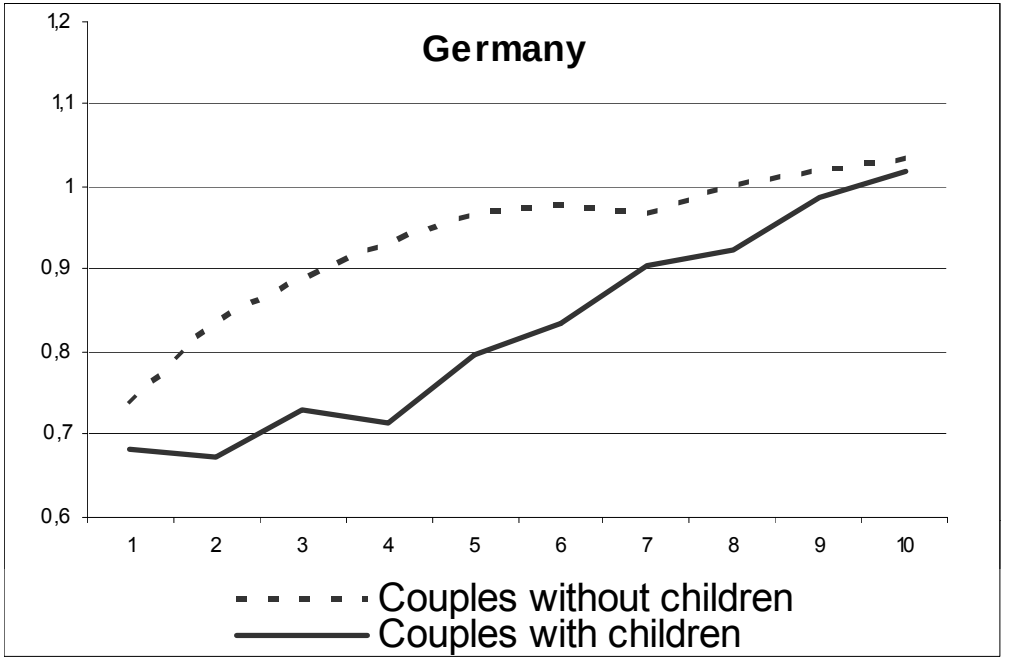
	Finland	Germany
Couples without children		
- female partner not in employment	0.942	0.866
- female partner in employment	0.953	0.971
Couples with children		
- female partner not in employment	0.818	0.745
- female partner in employment	0.927	0.869

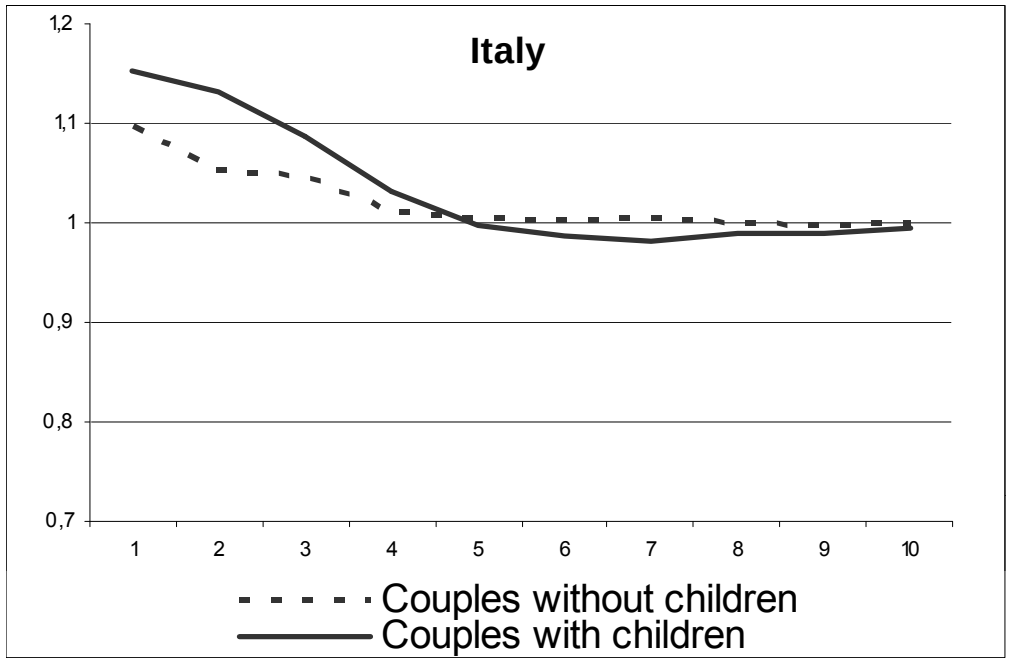
	Italy	UK
Couples without children		
- female partner not in employment	1.035	0.881
- female partner in employment	1.001	0.993
Couples with children		
- female partner not in employment	1.085	0.794
- female partner in employment	0.977	0.918

Source: Authors' calculations, based on EUROMOD

Fig. 1: Neutrality index by disposable income deciles (couples with and without children)







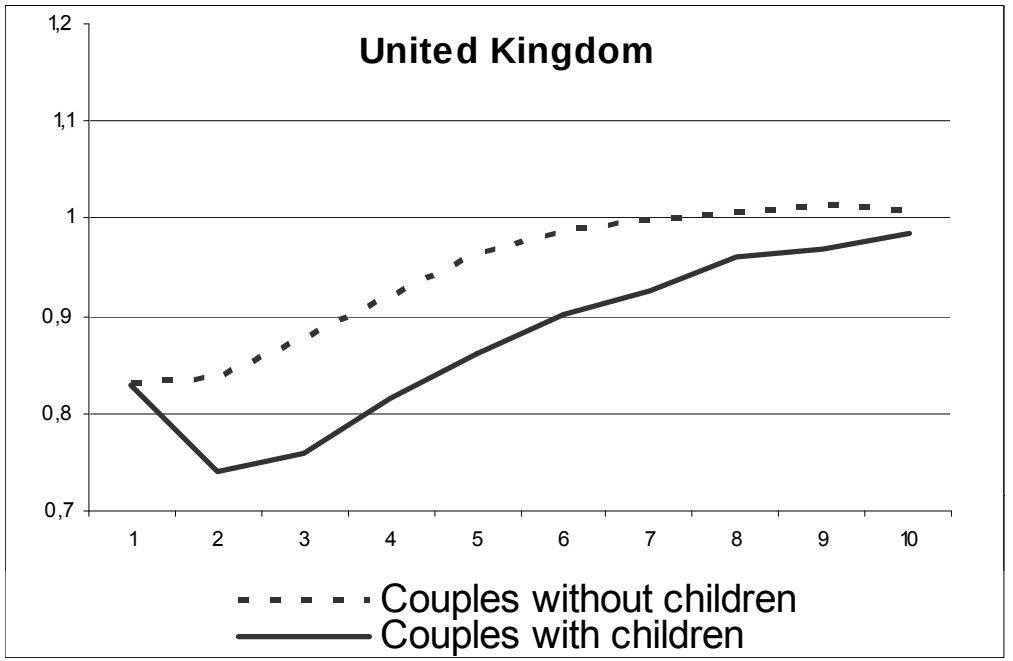


Table 5: Normalised average strategic weight by female partner employment status and presence of children

	Finland		Germany	
	Male	Female	Male	Female
Couples without children				
- female partner not in employment	0.638	0.362	0.712	0.288
- female partner in employment	0.549	0.451	0.550	0.450
Couples with children				
- female partner not in employment	0.557	0.443	0.478	0.522
- female partner in employment	0.505	0.495	0.456	0.544

	Italy		United Kingdom	
	Male	Female	Male	Female
Couples without children				
- female partner not in employment	0.817	0.183	0.785	0.215
- female partner in employment	0.525	0.475	0.566	0.434
Couples with children				
- female partner not in employment	0.759	0.241	0.655	0.345
- female partner in employment	0.518	0.482	0.521	0.479

Source: Authors' calculations, based on EUROMOD

Table 6: Average impact of net transfers on standardised strategic weight (by number of children)

	Finland		Germany	
	Male	Female	Male	Female
No children	**0.574**	**0.426**	**0.631**	**0.369**
Original income	0.374	0.325	0.509	0.331
Transfers	0.200	0.101	0.122	0.039
% change	*53.554*	*31.058*	*23.919*	*11.717*
One child	**0.525**	**0.475**	**0.515**	**0.485**
Original income	0.721	0.536	1.036	0.431
Transfers	-0.196	-0.062	-0.521	0.054
% change	*-27.158*	*-11.466*	*-50.259*	*12.564*
Two children	**0.512**	**0.488**	**0.453**	**0.547**
Original income	0.793	0.497	1.240	0.386
Transfers	-0.281	-0.009	-0.787	0.161
% change	*-35.474*	*-1.771*	*-63.487*	*41.782*
Three or more children	**0.473**	**0.527**	**0.326**	**0.674**
Original income	0.745	0.408	1.173	0.344
Transfers	-0.272	0.120	-0.847	0.330
% change	*-36.552*	*29.317*	*-72.195*	*95.860*

	Italy		United Kingdom	
	Male	Female	Male	Female
No children	**0.655**	**0.345**	**0.641**	**0.359**
Original income	0.373	0.206	0.612	0.332
Transfers	0.282	0.138	0.029	0.026
% change	*75.610*	*67.123*	*4.814*	*7.905*
One child	**0.626**	**0.374**	**0.567**	**0.433**
Original income	0.665	0.393	0.826	0.432
Transfers	-0.039	-0.019	-0.258	0.000
% change	*-5.795*	*-4.777*	*-31.283*	*0.054*
Two children	**0.645**	**0.355**	**0.583**	**0.417**
Original income	0.762	0.371	0.974	0.347
Transfers	-0.116	-0.016	-0.391	0.069
% change	*-15.278*	*-4.294*	*-40.113*	*19.999*
Three or more children	**0.632**	**0.368**	**0.522**	**0.478**
Original income	0.731	0.324	0.803	0.278
Transfers	-0.099	0.044	-0.282	0.200
% change	*-13.586*	*13.681*	*-35.062*	*72.037*

Source: Authors' calculations, based on EUROMOD

Decomposing net transfers

Instruments have been classified into broad groups:
(1) taxes and social security contributions,
(2) social assistance and housing benefits,
(3) family benefits,
(4) old age and sickness benefits and
(5) unemployment benefits.

For each group of measures we have simulated what the power differentials within the household would be if the measures did not exist. This allows us to estimate the specific contribution of each element of the tax benefit system. Again the analysis was performed on households with and without children.

Tab. 6 and tab. 7 present the results of such decomposition for households with and without children respectively. The tables have differently shaded areas: pale grey corresponds to positive and negative variations in the interval [0, 0.05], grey corresponds to the interval (0.05,1] and dark grey intervals correspond to variations in the interval (1,∞]. This allows us to immediately see which instruments play a significant role in reshaping intra-household power differentials.

Table 7: Average impact on individual strategic weight of different instruments, by income decile (households without children)

	Finland		Germany		Italy		United Kingdom	
	Male	Female	Male	Female	Male	Female	Male	Female
Taxes/SSC								
1	0.00	0.00	-0.04	0.04	-0.02	0.02	0.00	0.00
2	0.00	0.00	-0.02	0.02	0.02	-0.02	*-0.01*	*0.01*
3	0.00	0.00	*-0.01*	*0.01*	**-0.06**	**0.06**	*-0.01*	*0.01*
4	0.00	0.00	*-0.01*	*0.01*	-0.04	0.04	-0.02	0.02
5	0.00	0.00	-0.02	0.02	*-0.01*	*0.01*	*-0.01*	*0.01*
6	0.00	0.00	0.00	0.00	-0.02	0.02	-0.03	0.03
7	0.00	0.00	-0.02	0.02	-0.04	0.04	*-0.01*	*0.01*
8	0.00	0.00	-0.02	0.02	-0.02	0.02	-0.02	0.02
9	0.00	0.00	*-0.01*	*0.01*	0.00	0.00	*-0.01*	*0.01*
10	0.00	0.00	-0.03	0.03	-0.03	0.03	*-0.01*	*0.01*
Housing/S.A. benefits								
1	*-0.01*	*0.01*	**-0.07**	**0.07**	**-0.09**	**0.09**	-0.04	0.04
2	0.00	0.00	-0.03	0.03	-0.02	0.02	-0.03	0.03
3	0.00	0.00	*-0.01*	*0.01*	**-0.07**	**0.07**	*-0.01*	*0.01*
4	-0.01	0.01	0.00	0.00	-0.02	0.02	0.00	0.00
5	0.00	0.00	*-0.01*	*0.01*	*0.01*	*-0.01*	*-0.01*	*0.01*
6	0.00	0.00	*0.01*	*-0.01*	0.00	0.00	*-0.01*	*0.01*
7	0.00	0.00	*-0.01*	*0.01*	*-0.02*	*0.02*	0.00	0.00
8	0.00	0.00	*-0.01*	*0.01*	*-0.01*	*0.01*	*-0.01*	*0.01*
9	*0.01*	*-0.01*	0.00	0.00	*0.01*	*-0.01*	0.00	0.00
10	0.03	-0.03	0.00	0.00	0.00	0.00	0.00	0.00
Family benefits								
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Old age/sickness benefits								
1	*0.01*	*-0.01*	**0.09**	**-0.09**	**0.24**	**-0.24**	**0.02**	**-0.02**
2	*0.01*	*-0.01*	**0.12**	**-0.12**	**0.18**	**-0.18**	**0.04**	**-0.04**
3	*0.01*	*-0.01*	**0.15**	**-0.15**	**0.16**	**-0.16**	*0.01*	*-0.01*
4	*0.01*	*-0.01*	**0.09**	**-0.09**	**0.19**	**-0.19**	0.00	0.00
5	0.01	-0.01	**0.10**	**-0.10**	**0.18**	**-0.18**	*0.01*	*-0.01*
6	0.00	0.00	**0.08**	**-0.08**	**0.16**	**-0.16**	0.00	0.00
7	*0.01*	*-0.01*	**0.04**	**-0.04**	**0.13**	**-0.13**	0.00	0.00
8	0.00	0.00	**0.04**	**-0.04**	**0.10**	**-0.10**	0.00	0.00
9	0.00	0.00	**0.04**	**-0.04**	**0.07**	**-0.07**	0.00	0.00
10	0.03	-0.03	*0.02*	*-0.02*	*0.03*	*-0.03*	0.00	0.00
Unemployment benefits								
1	0.00	0.00	*-0.01*	*0.01*	0.02	-0.02	0.00	0.00
2	0.00	0.00	0.00	0.00	0.03	-0.03	0.00	0.00
3	*0.01*	*-0.01*	0.00	0.00	-0.03	0.03	0.00	0.00
4	*-0.01*	*0.01*	0.02	-0.02	*-0.01*	*0.01*	0.00	0.00
5	0.00	0.00	0.00	0.00	0.02	-0.02	0.00	0.00
6	0.00	0.00	0.03	-0.03	0.00	0.00	*-0.01*	*0.01*
7	0.00	0.00	*-0.01*	*0.01*	*-0.01*	*0.01*	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	*-0.01*	*0.01*	0.00	0.00	*0.01*	*-0.01*	0.00	0.00
10	0.03	-0.03	0.00	0.00	0.00	0.00	0.00	0.00

Note: Figures are in italics for absolute changes in the range (0.0.1], underlined for absolute changes in the range (0.1, 0.4] and in bold for absolute changes in the range (0.4, ∞).

Source: Authors' calculations, based on EUROMOD

Table 8: Average impact on individual strategic weight of different instruments, by income decile (households with children)

	Finland		Germany		Italy		United Kingdom	
	Male	Female	Male	Female	Male	Female	Male	Female
Taxes/SSC								
1	**-0.07**	**0.07**	**-0.11**	**0.11**	-0.03	0.03	-0.02	0.02
2	-0.03	0.03	**-0.20**	**0.20**	-0.04	0.04	-0.02	0.02
3	-0.03	0.03	**-0.13**	**0.13**	**-0.06**	**0.06**	**-0.05**	**0.05**
4	-0.02	0.02	**-0.19**	**0.19**	-0.04	0.04	**-0.05**	**0.05**
5	-0.02	0.02	**-0.12**	**0.12**	-0.04	0.04	-0.04	0.04
6	-0.02	0.02	**-0.10**	**0.10**	-0.03	0.03	**-0.06**	**0.06**
7	0.00	0.00	**-0.09**	**0.09**	-0.02	0.02	-0.04	0.04
8	-0.02	0.02	**-0.08**	**0.08**	-0.02	0.02	-0.02	0.02
9	0.00	0.00	**-0.07**	**0.07**	-0.02	0.02	-0.03	0.03
10	0.02	-0.02	**-0.06**	**0.06**	-0.03	0.03	-0.02	0.02
Housing/S.A. benefits								
1	**-0.08**	**0.08**	**-0.18**	**0.18**	*0.01*	*-0.01*	0.04	-0.04
2	**-0.05**	**0.05**	**-0.22**	**0.22**	0.00	0.00	-0.04	0.04
3	-0.04	0.04	**-0.17**	**0.17**	*-0.01*	*0.01*	**-0.05**	**0.05**
4	-0.02	0.02	**-0.19**	**0.19**	*0.01*	*-0.01*	**-0.06**	**0.06**
5	-0.02	0.02	**-0.11**	**0.11**	*-0.01*	*0.01*	-0.04	0.04
6	*-0.01*	*0.01*	**-0.09**	**0.09**	*-0.01*	*0.01*	**-0.05**	**0.05**
7	0.00	0.00	**-0.07**	**0.07**	0.00	0.00	-0.03	0.03
8	*-0.01*	*0.01*	**-0.06**	**0.06**	0.00	0.00	*-0.01*	*0.01*
9	*0.01*	*-0.01*	*-0.01*	*0.01*	0.00	0.00	-0.02	0.02
10	**0.05**	**-0.05**	0.00	0.00	0.00	0.00	*-0.01*	*0.01*
Family benefits								
1	-0.02	0.02	**-0.08**	**0.08**	**-0.05**	**0.05**	0.03	-0.03
2	-0.04	0.04	**-0.07**	**0.07**	**-0.06**	**0.06**	0.02	-0.02
3	-0.03	0.03	-0.04	0.04	**-0.06**	**0.06**	-0.04	0.04
4	-0.02	0.02	**-0.05**	**0.05**	-0.02	0.02	-0.03	0.03
5	-0.03	0.03	-0.03	0.03	-0.02	0.02	-0.03	0.03
6	-0.02	0.02	-0.02	0.02	-0.02	0.02	-0.04	0.04
7	-0.02	0.02	-0.03	0.03	*-0.01*	*0.01*	-0.03	0.03
8	-0.03	0.03	*-0.01*	*0.01*	*-0.01*	*0.01*	*-0.01*	*0.01*
9	*0.00*	*0.00*	*-0.01*	*0.01*	0.00	0.00	-0.02	0.02
10	0.02	-0.02	0.00	0.00	0.00	0.00	*-0.01*	*0.01*
Old age/sickness benefits								
1	*0.00*	*0.00*	0.02	-0.02	0.04	-0.04	*0.01*	*-0.01*
2	*0.01*	*-0.01*	*0.01*	*-0.01*	0.04	-0.04	0.04	-0.04
3	*0.01*	*-0.01*	0.02	-0.02	0.03	-0.03	*0.01*	*-0.01*
4	*0.01*	*-0.01*	*0.01*	*-0.01*	**0.05**	**-0.05**	*0.01*	*-0.01*
5	*0.01*	*-0.01*	0.02	-0.02	**0.06**	**-0.06**	*0.01*	*-0.01*
6	0.00	0.00	*0.01*	*-0.01*	**0.05**	**-0.05**	-0.02	0.02
7	*0.01*	*-0.01*	0.02	-0.02	**0.06**	**-0.06**	0.00	0.00
8	*-0.01*	*0.01*	0.02	-0.02	**0.06**	**-0.06**	*0.01*	*-0.01*
9	*0.01*	*-0.01*	0.00	0.00	0.05	-0.05	*-0.01*	*0.01*
10	0.02	-0.02	0.00	0.00	0.02	-0.02	0.00	0.00
Unemployment benefits								
1	0.02	-0.02	*0.01*	*-0.01*	0.02	-0.02	0.00	0.00
2	0.02	-0.02	*0.01*	*-0.01*	0.02	-0.02	0.02	-0.02
3	*0.00*	*0.00*	0.03	-0.03	*-0.01*	*0.01*	*0.01*	*-0.01*
4	0.02	-0.02	*0.01*	*-0.01*	*0.01*	*-0.01*	*0.01*	*-0.01*
5	0.01	-0.01	0.02	-0.02	*-0.01*	*0.01*	*0.01*	*-0.01*
6	0.00	0.00	*0.01*	*-0.01*	*-0.01*	*0.01*	-0.02	0.02
7	0.00	0.00	*0.01*	*-0.01*	0.00	0.00	*-0.01*	*0.01*
8	-0.01	0.01	0.03	-0.03	0.00	0.00	0.00	0.00
9	*0.01*	*-0.01*	0.00	0.00	0.00	0.00	*-0.01*	*0.01*
10	0.02	-0.02	*0.01*	*-0.01*	0.00	0.00	0.00	0.00

Note: Figures are in italics for absolute changes in the range (0,0.1], underlined for absolute changes in the range (0.1, 0.4] and in bold for absolute changes in the range (0.4, ∞).

Source: Authors' calculations, based on EUROMOD

Conclusions:

- Difference in employment rates play a significant role and explain gender strategic weight differentials
- Cross country comparison show the determinant role of the tax benefit system (direction of the effect is sometimes ambiguous)
- The strategic weight, despite the aforementioned weaknesses, provide:
  - a boundary to the inequality of an intra-household sharing rule based on more realistic assumptions
  - an intuitive framework to analyse the role of public policies and compare their effect on intra household distribution across time/countries

Further research:

- Provide axiomatic foundations
  - is the strategic weight a threshold to inequality in all kinds of games?
- Accounting for public goods
  - do public good reduce intra household inequality?
- Accounting for parental control over children
  - how do parents use the strategic weights of children? how does it affect their own strategic weight?
- Accounting for possible behavioural reactions
  - how does the set of opportunities out of the household affect intra household sharing?
- Accounting for alimony legislation
  - how does the country legislation modify the bargaining power?