

Labor Supply and Taxation in Europe

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- How different is the marginal tax rate of the “second” earner?

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- Family tax splitting means that income is divided between all family members
- Common view is that male LFP is relatively inelastic, but FLFP is not
- Gender wage gap and who married whom may matter for labor supply

WHAT WE DO FOR FRANCE AND ITALY

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- Compute the marginal tax of the “second” earner

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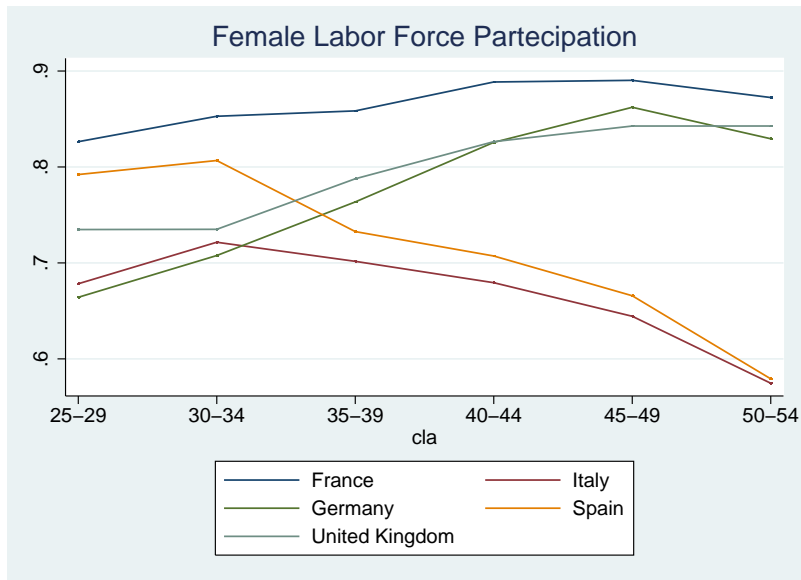
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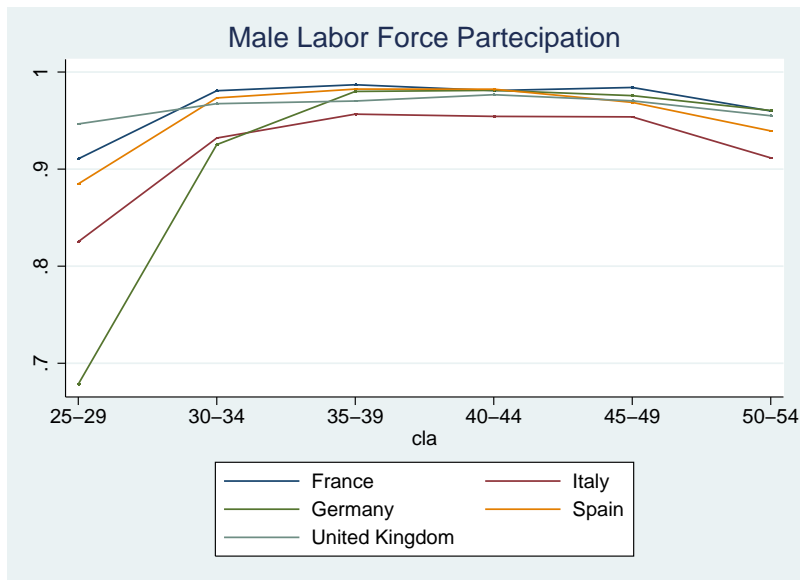
- Use EU-SILC 2007
- Compute the marginal tax of the “second” earner
- Simulate using different tax systems
- Compare marginal taxes, labor force participation in simulated economies

OVERVIEW OF DATA

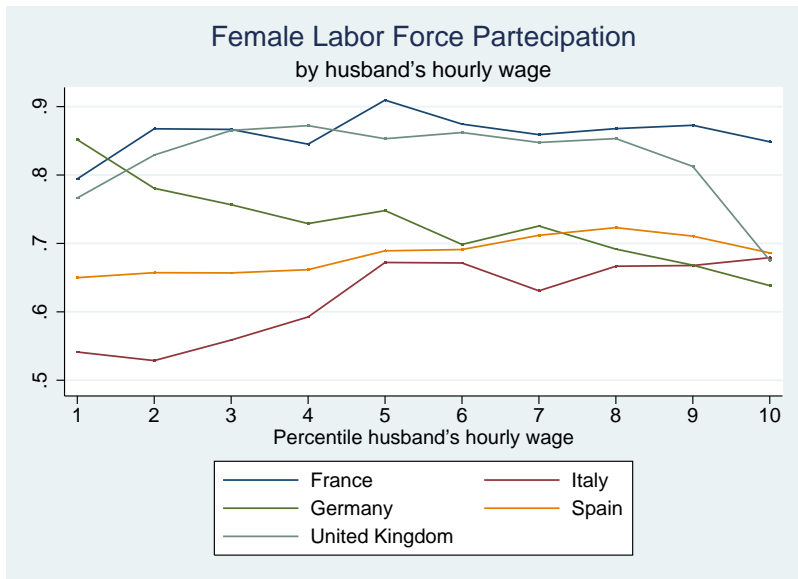
FEMALE LABOR FORCE PARTICIPATION BY AGE



MALE LABOR FORCE PARTICIPATION BY AGE



FEMALE LABOR FORCE PARTICIPATION BY HUSBAND'S WAGE



LABOR FORCE PARTICIPATION 25-55

Country	Men	Women
<i>France</i>	<i>0.97</i>	<i>0.87</i>
<i>Italy</i>	0.93	0.67
Spain	0.96	0.71
Germany	0.94	0.80
UK	0.97	0.80

Data: EU-SILC, 2007

FEMALE LABOR FORCE PARTICIPATION 25-55

Country	Without children				With Children			
	Single	Living with partner	Married	Divorced Separated Widow	Single	Living with partner	Married	Divorced Separated Widow
<i>France</i>	0.86	0.90	0.86	0.93	0.82	0.76	0.70	0.91
<i>Italy</i>	0.81	0.87	0.64	0.78	0.64	0.69	0.60	0.79
Spain	0.95	0.96	0.88	0.96	0.85	0.85	0.83	0.90
Germany	0.88	0.91	0.64	0.79	0.77	0.81	0.64	0.85
UK	0.94	0.94	0.87	0.91	0.60	0.66	0.74	0.76

Data: EU-SILC, 2007

FEMALE INCIDENCE OF PART-TIME (WOMEN 25-55)

Country	Single	Living with partner	Married	Divorced Separated Widow
<i>France</i>	0.16	0.26	0.38	0.23
<i>Italy</i>	0.15	0.24	0.27	0.19
Spain	0.15	0.18	0.24	0.16
Germany	0.30	0.26	0.67	0.49
UK	0.20	0.27	0.46	0.33

Data: EU-SILC, 2007

HOURLY WAGE

Country	Men	Women	Gender gap
<i>France</i>	14.14	11.98	15%
<i>Italy</i>	13.29	11.70	12%
Spain	10.65	9.19	14%
Germany	19.20	14.38	25%
UK	22.08	16.82	24%

Data: EU-SILC, 2007

TO SUMMARIZE

- No differences for men

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- No differences for men
- Female labor force participation is the lowest in Italy
- Female labor force participation is the highest in France
- In Italy, wife's participation rate increases with husband's income

TAX SYSTEMS

TAX SYSTEM - FRANCE VS ITALY

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- In France, the unit of taxation is the family

TAX SYSTEM - FRANCE VS ITALY

- In France, the unit of taxation is the family
- In Italy, the unit of taxation is the individual

FRENCH TAX SYSTEM - QUOTIENT FAMILIAL

CHILDREN	NUMBER OF PARTS			
	SINGLE	SINGLE IN COUPLES	MARRIED	WIDOWED
0	1	1	2	1
1	2	1.5	2.5	2.5
2	2.5	2	3	3
3	3.5	3	4	4

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- Divide total household income by number of parts

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- Apply tax rate

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- Divide total household income by number of parts
- Apply tax rate
- Multiply tax by number of parts to get total tax

FRENCH TAX SYSTEM - TAX SCHEDULE

FRACTION OF TAXABLE INCOME		RATE
1st bracket	Up to 5 852	0
2nd bracket	From 5 852 to 11 673	5.5
3rd bracket	From 11 673 to 25 926	14
4th bracket	From 25 926 to 69 505	30
5th bracket	Above 69 505	40

ITALIAN TAX SYSTEM - TAX SCHEDULE

FRACTION OF TAXABLE INCOME		RATE
1st bracket	Up to 15 000	23
2nd bracket	From 15 000 to 28 000	27
3rd bracket	From 28 000 to 55 000	38
4th bracket	From 55 000 to 75 000	41
5th bracket	Above 75 000	43

ITALIAN TAX SYSTEM - TAX CREDIT

TAXABLE INCOME	TAX CREDIT
Up to 8 000	1 840
From 8 000 to 15 000	$\text{MaxTaxCredit} + 502 \cdot (15\,000 - \text{taxable income}) / 7\,000$
From 15 000 to 55 000	$\text{MaxTaxCredit} \cdot (55\,000 - \text{taxable income}) / 40\,000$
More than 55 000	0

Where Max Tax Credit depends on level of taxable income

ITALIAN TAX SYSTEM - TAX CREDIT FOR FAMILY DEPENDENTS

TAXABLE INCOME	TAX CREDIT
Up to 15 000	$800 - 110 * \text{taxable income} / 15\,000$
From 15 000 to 40 000	From 690 to 720
From 40 000 to 80 000	$690 * (80\,000 - \text{taxable income}) / 40\,000$
More than 80 000	0

If wife's earnings are lower than 2840, then she depends on the husband

ITALIAN TAX SYSTEM - TAX CREDIT FOR DEPENDENT CHILDREN

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 $800 * (95000 - \text{taxable income}) / 95000$

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- Tax credits for children are equally shared between parents
- If spouse's taxes net of tax credit is less than her share in child credit, the entire child credit is provided to first earner

NEXT STEPS

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- (3) Compute Taxes and Net HH Income assuming that wife does work
- (4) Estimate FLFP as a function of the expected net income
- (5) Redo (2) and (3) changing tax system

FRANCE

SUMMARY STATISTICS - FRANCE, WOMEN

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	5193	39.97	8.70	24	54
Years in school	5168	13.18	4.32	2	18
Children	4810	1.18	1.05	0	3
Married	5193	0.57	0.49	0	1
Gross HH Income	5193	46723.18	26652.34	3252	299512
Hourly wage	3820	11.98	5.95	0.19	79.47

EXPERIMENTS - TWO TAX REFORMS IN FRANCE

Individual Income based with:

(1) Italian tax system (tax schedule + tax credits)

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Individual Income based with:

- (1) Italian tax system (tax schedule + tax credits)
- (2) French tax schedule and no splitting

SOME DEFINITIONS

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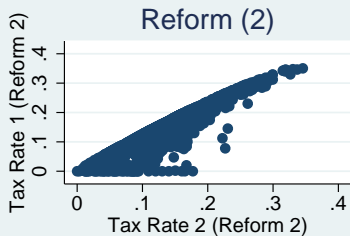
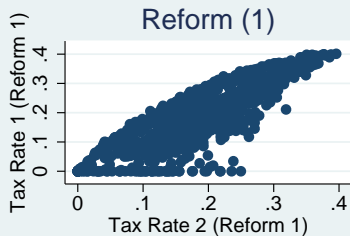
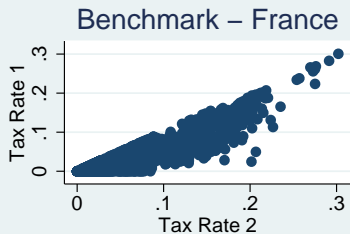
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- MARGINAL TAX = $\frac{\text{Change in Tot. Income Taxes}}{\text{Change in HH Net Income}}$

RATIO TO BENCHMARK (FRANCE)

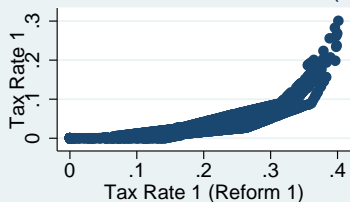
	Tot. Tax (Working)	Tot. Tax (Not Working)	MI
Reform (1)	3.18	1.89	0.99
Reform (2)	2.31	1.32	1.12

TAX RATE OF MARRIED AND PACSED

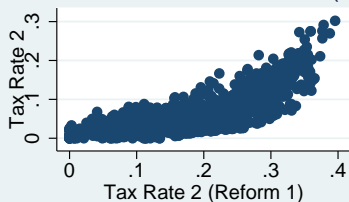


TAX RATE OF MARRIED AND PACSED

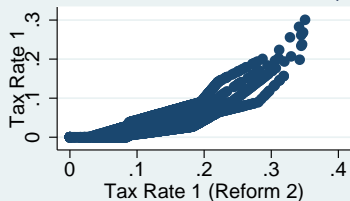
Benchmark vs Reform (1)



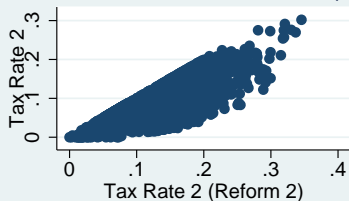
Benchmark vs Reform (1)



Benchmark vs Reform (2)



Benchmark vs Reform (2)



TAX RATES - MARRIED AND PACSED

	Tax Rate 1	Tax Rate 2
Benchmark	0.041	0.073
Reform (1)	0.202	0.198
Reform (2)	0.137	0.124

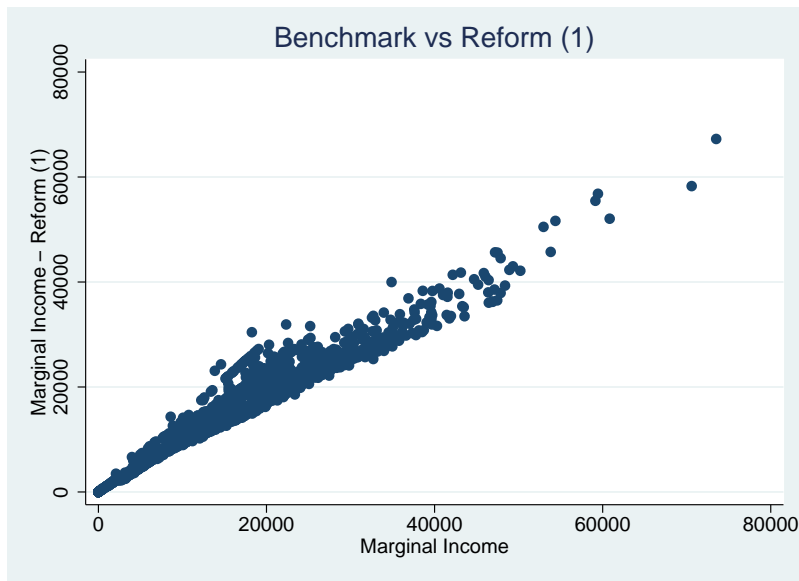
⇒ Higher increase with Italian system

TAX RATES - SINGLES

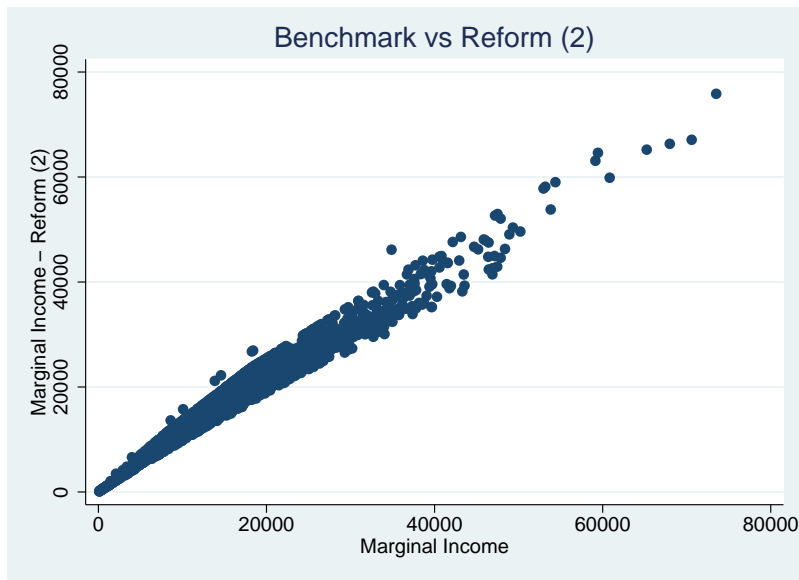
	Tax Rate 1	Tax Rate 2
Benchmark	0.027	0.084
Reform (1)	0.052	0.081
Reform (2)	0.049	0.082

⇒ No change for those who work

MARGINAL INCOME - MARRIED AND PACSED



MARGINAL INCOME - MARRIED AND PACSED



REFORM (1) - MARGINAL TAX OF SECOND EARNER

MARRIED AND PACSED WOMEN

QUARTILES OF HUSBAND'S INCOME	QUARTILES OF WIFE'S INCOME		
	1st	2nd	3rd
1st	0.088	0.095	0.106
	0.101	0.164	0.198
2nd	0.121	0.135	0.162
	0.096	0.163	0.216
3rd	0.215	0.223	0.256
	0.081	0.107	0.174

France (benchmark)

France with Italian tax schedule and tax credits

REFORM (1) - MARGINAL TAX

SINGLE AND DIVORCED WOMEN

QUARTILES OF OTHER INCOME	QUARTILES OF OWN INCOME		
	1st	2nd	3rd
1st	0.063	0.081	0.111
	0.011	0.028	0.090
2nd	0.160	0.177	0.234
	0.059	0.053	0.062
3rd	0.236	0.267	0.322
	0.058	0.077	0.054

France (benchmark)

France with Italian tax schedule and tax credits

REFORM (1) - MARGINAL TAX OF SECOND EARNER

Married and Paced WOMEN vs SINGLES IN FRANCE

QUARTILES OF OTHER INCOME	QUARTILES OF OWN INCOME		
	1st	2nd	3rd
1st	0.088 0.063	0.095 0.081	0.106 0.111
2nd	0.121 0.160	0.135 0.177	0.162 0.234
3rd	0.215 0.236	0.223 0.267	0.256 0.322

⇒ Not too much difference between Married and Singles

REFORM (1) - MARGINAL TAX OF SECOND EARNER

Married and Paced WOMEN VS SINGLES IN ITALY

QUARTILES OF OTHER INCOME	QUARTILES OF OWN INCOME		
	1st	2nd	3rd
1st	0.101 0.011	0.164 0.028	0.198 0.090
2nd	0.096 0.059	0.163 0.053	0.216 0.062
3rd	0.081 0.058	0.107 0.077	0.174 0.054

⇒ Higher marginal tax for Married than Singles

REFORM (2) - MARGINAL TAX OF SECOND EARNER

MARRIED AND PACSED WOMEN

QUARTILES OF HUSBAND'S INCOME	QUARTILES OF WIFE'S INCOME		
	1st	2nd	3rd
1st	0.088	0.095	0.106
	0.039	0.066	0.097
2nd	0.121	0.135	0.162
	0.040	0.067	0.101
3rd	0.215	0.223	0.256
	0.043	0.070	0.112

France (benchmark)

France with French tax schedule and no splitting

REFORM (2) - MARGINAL TAX

SINGLE AND DIVORCED WOMEN

QUARTILES OF OTHER INCOME	QUARTILES OF OWN INCOME		
	1st	2nd	3rd
1st	0.063	0.081	0.111
	0.042	0.067	0.107
2nd	0.160	0.177	0.234
	0.027	0.053	0.106
3rd	0.236	0.267	0.322
	0.021	0.041	0.121

France (benchmark)

France with French tax schedule and no splitting

REFORM (1) AND (2) - MARGINAL TAX OF SECOND EARNER

MARRIED AND PACSED WOMEN WITH CHILDREN

QUARTILES OF HUSBAND'S INCOME	QUARTILES OF WIFE'S INCOME		
	1st	2nd	3rd
1st	0.069	0.079	0.087
	0.106	0.162	0.193
	0.041	0.063	0.086
2nd	0.103	0.118	0.134
	0.094	0.159	0.218
	0.039	0.064	0.098
3rd	0.160	0.186	0.210
	0.078	0.107	0.177
	0.041	0.067	0.105

France (benchmark)

France with Italian tax schedule and tax credits

France with no splitting

MULTINOMIAL LOGIT - MARGINAL EFFECTS, MARRIED

	Unemployed	Part-Time	Full-Time
Marginal Income	-4.66e-06 (0.0000)***	-9.55e-06 (0.0000)***	0.00002 (0.0000)***
Net Income	1.77e-07 (0.0000)	3.87e-07 (0.0000)*	-1.02e-06 (0.0000)**
Age	0.0033 (0.0056)	0.0180 (0.0076)**	0.0229 (0.0128)**
Age2	-.00005 (0.0007)	-0.0002 (0.0001)**	-0.0003 (0.0002)**
Children	-0.0014 (0.0043)	0.0147 (0.0052)***	-0.0757 (0.0099)***

Base outcome is Out of Labor Force

CHANGE IN EMPLOYMENT STATUS OF MARRIED VS SINGLES

	Out of LF	Unemployed	Part-Time	Full-Time
Benchmark	0.11 0.04	0.05 0.10	0.07 0.05	0.77 0.81
Reform (1)	0.13 0.04	0.05 0.09	0.08 0.04	0.74 0.83
Reform (2)	0.09 0.04	0.04 0.08	0.06 0.04	0.81 0.84

CHANGE IN EMPLOYMENT STATUS OF MARRIED WITH/WITHOUT CHILDREN

	Out of LF	Unemployed	Part-Time	Full-Time
Benchmark	0.12	0.05	0.08	0.75
	0.09	0.04	0.06	0.81
Reform (1)	0.13	0.05	0.08	0.74
	0.08	0.03	0.05	0.84
Reform (2)	0.11	0.04	0.06	0.78
	0.06	0.04	0.04	0.86

TO SUMMARIZE

- Reform (1) does not affect FLFP

TO SUMMARIZE

- Reform (1) does not affect FLFP
- Reform (2) increases total taxes but decreases marginal tax, and affects positively LFP of married

ITALY

SUMMARY STATISTICS - ITALY, WOMEN

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	10100	39.52	8.57	24	54
Years in school	10062	11.92	4.01	2	18
Children	8736	0.88	0.95	0	3
Married	10100	0.64	0.49	0	1
Gross HH Income	10100	46953.37	34130.38	-52968	1033559
Hourly wage	5523	11.70	6.71	0.03	96.41

EXPERIMENT - TAX REFORM IN ITALY

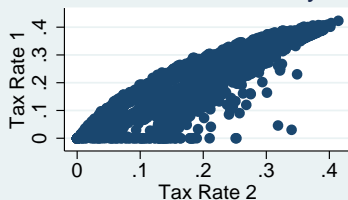
- French tax schedule with splitting

RATIO TO BENCHMARK (ITALY)

	Tot. Tax (Working)	Tot. Tax (Not Working)	MI
Reform	0.42	0.58	0.97

TAX RATE OF MARRIED AND PACSED

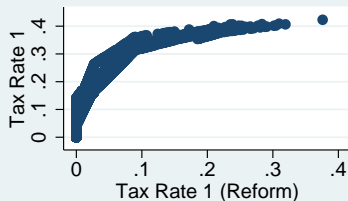
Benchmark – Italy



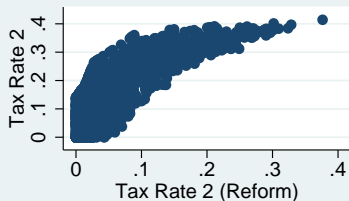
Reform



Benchmark vs Reform



Benchmark vs Reform



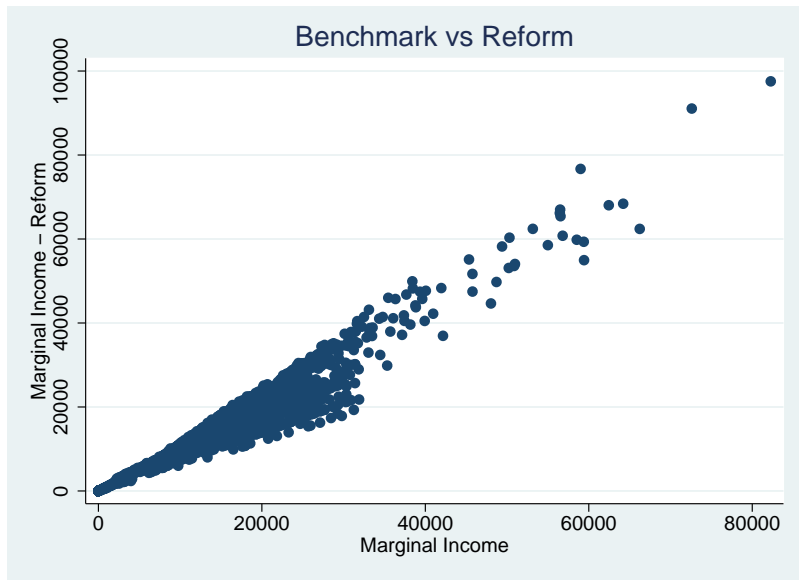
TAX RATES - MARRIED AND PACSED

	Tax Rate 1	Tax Rate 2
Benchmark	0.19	0.18
Reform	0.05	0.07

TAX RATES - SINGLES

	Tax Rate 1	Tax Rate 2
Benchmark	0.15	0.15
Reform	0.11	0.14

MARGINAL INCOME - MARRIED AND PACSED



REFORM - MARGINAL TAX OF SECOND EARNER

MARRIED AND PACSED WOMEN

QUARTILES OF HUSBAND'S INCOME	QUARTILES OF WIFE'S INCOME		
	1st	2nd	3rd
1st	0.075	0.122	0.173
	0.080	0.096	0.111
2nd	0.086	0.141	0.193
	0.128	0.138	0.165
3rd	0.063	0.105	0.134
	0.243	0.245	0.277

Italy (benchmark)

Italy with French tax schedule and splitting

REFORM - MARGINAL TAX

SINGLE AND DIVORCED WOMEN

QUARTILES OF OTHER INCOME	QUARTILES OF OWN INCOME		
	1st	2nd	3rd
1st	0.009	0.029	0.049
	0.108	0.135	0.179
2nd	0.069	0.088	0.048
	0.222	0.258	0.271
3rd	0.066	0.074	0.050
	0.314	0.338	0.348

Italy (benchmark)

Italy with French tax schedule and splitting

REFORM - MARGINAL TAX OF SECOND EARNER

MARRIED AND PACSED WOMEN WITH CHILDREN

QUARTILES OF HUSBAND'S INCOME	QUARTILES OF WIFE'S INCOME		
	1st	2nd	3rd
1st	0.074	0.115	0.172
	0.060	0.075	0.084
2nd	0.084	0.136	0.187
	0.114	0.121	0.131
3rd	0.065	0.110	0.158
	0.175	0.191	0.222

Italy (benchmark)

Italy with French tax schedule and splitting

MULTINOMIAL LOGIT - MARGINAL EFFECTS, MARRIED

	Unemployed	Part-Time	Full-Time
Marginal Income	-8.57e-07 (0.0000)*	-3.15e-06 (0.0000)***	0.00002 (0.0000)***
Net Income	4.62e-08 (0.0000)	4.87e-07 (0.0000)***	-1.31e-06 (0.0000)**
Age	-0.0053 (0.0056)	0.0198 (0.0077)***	0.0385 (0.0148)***
Age2	0.00003 (0.0007)	-0.0002 (0.0001)***	-0.0004 (0.0002)**
Children	-0.0058 (0.0057)	-0.0017 (0.0063)	-0.0786 (0.0134)***

Base outcome is Out of Labor Force

CHANGE IN EMPLOYMENT STATUS OF MARRIED VS SINGLES

	Out of LF	Unemployed	Part-Time	Full-Time
Benchmark	0.40	0.05	0.07	0.48
	0.19	0.11	0.04	0.66
Reform	0.38	0.05	0.07	0.50
	0.19	0.11	0.04	0.66

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- The Italian system discourages LFP of low income second earners, but less than French system
- The French system would not affect FLFP