

Shifting Taxes from Labour to Property

A Simulation under Market Equilibrium

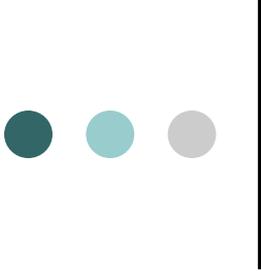
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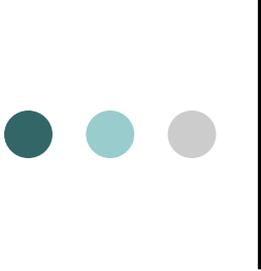
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Motivation

- In the context of the financial and economic crisis governments are confronted with the need for :
 - consolidating public finances
 - devising policy interventions aimed at fostering economic recovery and growth
- A general consensus seems to be reached on some general points:
 - lower the tax burden on labour income.
 - protect the most vulnerable groups of population, already severely hit by the crisis, without generating disincentives to labour market participation.
- Property taxation is recognized as a form of taxation capable of:
 - releasing resources to reduce the fiscal burden on low earners
 - being less harmful to economic efficiency and equity in the distribution of resources (European Commission, 2012; OECD, 2009; Mirrlees et al., 2011; IMF 2013).



Objective

- The aim of this paper is to assess the consequences on occupational rates and income distribution of a **revenue neutral** tax reform that shifts the tax burden from labour income to property, **fully accounting for labour market equilibrium effects**.
 - although a tax shifting to housing taxation is generally advocated on efficiency grounds, most of the empirical literature focuses on the distributional implications of property tax reforms (e.g. Pellegrino et al. 2012; Figari et al. 2012) without paying much attention to potential consequences on the labour market.
- We use Italy as a case study.
- We run our simulations:
 - in a **multisectorial framework** (i.e. we allow individuals to choose btw self-employment or dependent work) accounting for **different working solutions** (individuals choose btw part-time, full- time and extra-time)
 - by using a simulation procedure **consistent with the comparative static interpretation (Colombino 2010)**

Proposed Fiscal Policy

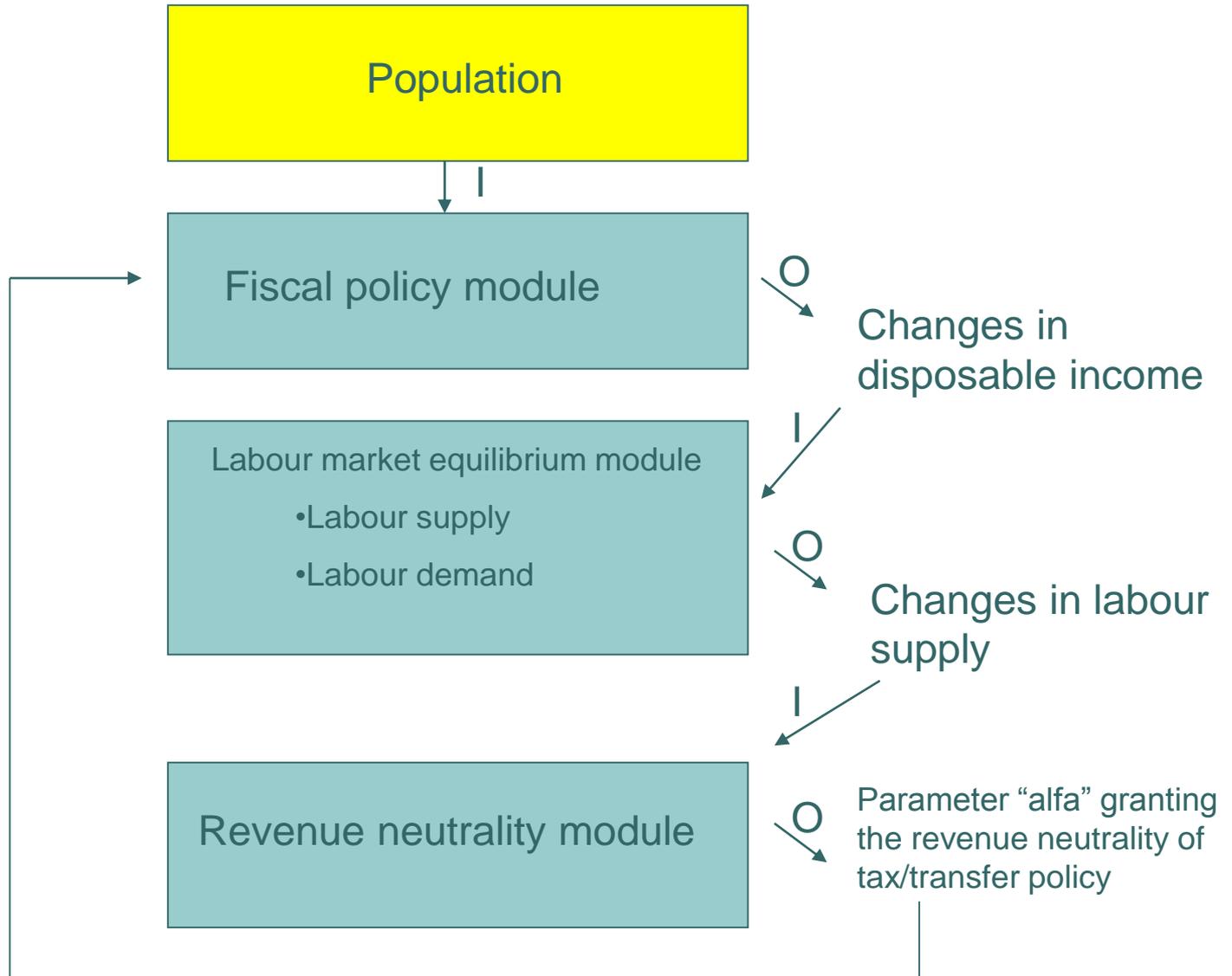
Tax shift from labour to property

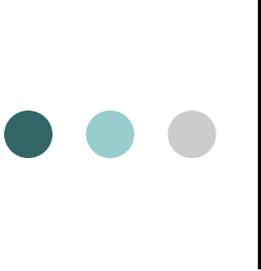
- The property tax is modelled as follows:
 - tax rate for primary residences are set at 0.4 per cent on (1.6*cadastral value)
 - basic tax rate set at 0.76 per cent on (1.6*cadastral value)
- The extra-revenue generated by the property tax reform are used to make personal income tax credits more generous and refundable.

Table 1 - Tax credits (w=taxable income)

	Current System	Reformed system (α *current tax_credit, refundable)
Employee	1840 if $w \leq 8000$ euro decreasing up to 55000 euro	2.1*1840 if $w \leq 8000$ euro Decreasing with w up to 18000 euro with a taper rate equal to 20%
Self-employed	1104 if $w \leq 4800$ euro decreasing up to 55000 euro	2.1*1104 if $w \leq 8000$ euro Decreasing with w up to 15000 euro with a taper rate equal to 20%

The simulation procedure





Fiscal policy module

- **Objective:** it converts gross income into disposable income
- **Description:**

It is built up on the Italian component of EUROMOD, the European-wide tax-benefit model:

 - EUROMOD is a static microsimulation model that combines detailed information on relevant policy rules with representative data on individual and household circumstances drawn from national household income surveys.
 - EUROMOD simulates the main social insurance contributions, income taxes and the non contributory benefits. Contributory benefits (mainly old age and disability pensions) are not simulated due to lack of information about contributory history and health conditions and are taken directly from the underlying survey (Sutherland and Figari, 2013).
 - Tax-benefit policies modelled in EUROMOD are modified in order to account for our policy reform

Labour market equilibrium module (1/2)

Objectives:

- it simulates the supply effects of the tax-reform accounting for labour market equilibrium effects

Description:

- SUBMODULE 1 Estimates a multisectorial structural model of labour supply of couples and single: clogit with “dummy refinement”
 - Each individual can choose among two different sectors (employee and self-employed) and among 4 job-types defined by weekly hours of work h : 0, 1÷26 (part time), 27÷52 (full time), > 52 (extra time). In the case of couple we combine the choice alternatives of male with those of female getting 49 alternatives, while in the case of singles the alternatives are 7.
 - The probability for the individual i to choose the working solution j is

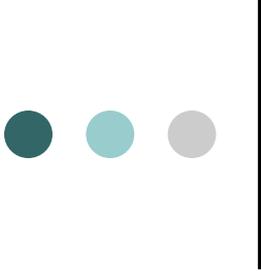
$$P_i(j; w_i, T) = \frac{\exp\{V_i(j; w_i, T) + \delta_{emp} D_{emp} + \delta_{self} D_{self}\}}{\sum_k \exp\{V_i(k; w_i, T) + \delta_{emp} D_{emp} + \delta_{self} D_{self}\}}$$

- V is modelled as a linear function of demographic characteristics and a set of interactions of disposable income with leisure, age and children
- Following Aaberge et al. (1995,2010), the coefficients of the dummies in equilibrium have the following interpretation:

$$\delta_{s=empl, self | m=couple, single} = \ln(J_{s,m} / H_m)$$

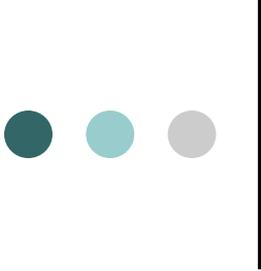
- J is the number of market jobs of type s for category m , H is the number of non market jobs. If we model the demand of jobs as to depend on the elasticity of the demand and the average wage for the sector, in equilibrium the coefficients can be written as:

$$\delta_{s=empl, self | m=couple, single} = \ln\left(\frac{K_{s,m} \bar{w}_s^{-\eta}}{H_m}\right)$$



Labour market equilibrium module (2/2)

- SUBMODULE 2: simulates the effects of the tax-transfer reform. Following Colombino (2013), in the simulations the estimated parameters of the supply function are kept constant except for the parameters δ . δ vary according to the variation in the average wage needed to restore the equilibrium between the demand and the supply of work. Here the elasticity of the demand function is set at -0.5 (in line with Peichl and Siegloch 2012).
- Intuition: since the number of people willing to work changes as a response to a change in the tax-transfer policy, the equilibrium wage and then the constants δ should change consequently.
- Only in this way, simulations become consistent with a comparative static interpretation.



Revenue neutrality module

- **Objectives:**

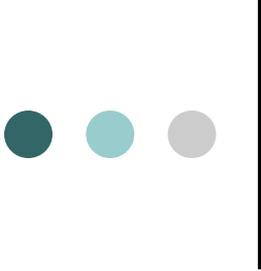
- it grants that the reform is revenue neutral

- **Description:**

- We impose $PBC_{post}=PBC_{ante}$ by modifying the parameter “alfa” that raises the current personal income tax credits for employee and self-employed
- The budget constraint is calculated as

$$PBC = \sum_i \sum_j (Taxes_i - Benefits_i) * weight_i * P_i(j, w_i, T)$$

where I indicated the individual, j the working choice and P the estimated probability that the individual i chooses the working solution j under the tax regime T .

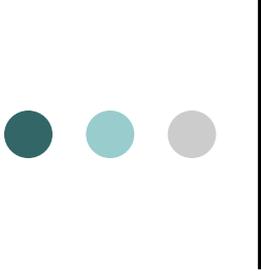


Population

- *We base our simulations on the Italian component of the 2010 European Union Statistics on Income and Living Conditions (EU-SILC) data set.*
- Reforms are supposed to affect disposable income of individuals and, consequently, the labour market decisions (type of work and hours of work) of the sub-sample of the so called "decision makers". Decision makers are individuals in the age range 18-59 not retired or disabled and not married with a retired or disabled partner whose labour supply is not invariant to policy changes.
- In our sample we identify as decision makers:
 - 6,282 couples and
 - 6,067 single (3,273 males and 2,794 females)

Table 2- "Decision makers" current occupational status

	Couples		Single	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
<i>Inactive</i>	6%	37%	15%	23%
<i>Employee</i>	69%	52%	63%	63%
<i>Self-employed</i>	25%	11%	22%	14%



Simulation results: morning after effect

Table 3 - Redistributive effects of tax shifting, static scenario: % variation of disposable income by decile groups

Decile groups	Property tax	Property tax and new tax credit
1	0.51	9.13
2	-1.05	2.12
3	-0.89	1.74
4	-0.98	1.49
5	-1.12	0.81
6	-1.09	0.59
7	-1.14	0.08
8	-1.19	-0.37
9	-1.21	-0.71
10	-1.63	-1.47

Note: Decile groups defined on the basis of equivalent disposable income in the pre-reform scenario

- Property tax is low redistributive as:
 - Flat tax rates
 - House ownership widespread across income deciles
- Tax credit is very redistributive, especially for the lowest income deciles

Simulation results: equilibrium model

- Once properly accounting for labour market equilibrium effects, we get that the reform leads to an increase in the participation rates:

Table 4 – Inactivity rates after reform

	Married		Single	
	<i>Men</i>	<i>women</i>	<i>Men</i>	<i>Women</i>
Inactive	-1.07%	-1.79%	-0.80%	-1.97%

- ...and increases the disposable income for the lowest income groups

Table 5 – Redistributive effects of reforms

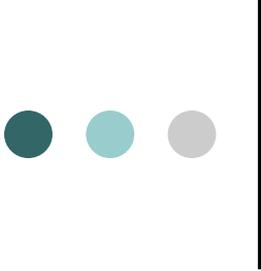
<i>Income decile</i>	Couples	Single	
		<i>Men</i>	<i>Women</i>
1	6.46%	11.91%	8.85%
2	1.92%	1.92%	0.27%
3	1.25%	-0.21%	-0.77%
4	0.46%	-1.16%	-1.00%
5	0.01%	-1.04%	-0.68%
6	-0.36%	-1.18%	-1.44%
7	-0.47%	-1.39%	-1.39%
8	-0.81%	-1.16%	-1.30%
9	-1.38%	-1.48%	-1.76%
10	-1.71%	-1.79%	-1.73%

Simulation results: equilibrium model – distributional effects

Table 6 – Inequality indexes

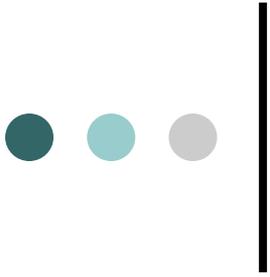
	Ante reform	Post -reform	
		Basic model	Equilibrium model
Relative mean deviation	0.156	0.149	0.151
Coefficient of variation	0.414	0.396	0.399
Standard deviation of logs	0.404	0.378	0.382
Gini coefficient	0.220	0.210	0.212
Mehran measure	0.309	0.294	0.297
Piesch measure	0.176	0.168	0.169
Kakwani measure	0.045	0.041	0.041
Theil entropy measure	0.079	0.072	0.073
Theil mean log deviation measure	0.080	0.071	0.072

- According to all the most used inequality indexes, the reform reduces inequality significantly
- Accounting for labour market equilibrium and imposing the revenue neutrality slightly reduce the average market wages (-0.6325% for employees and -0.994% for self-employed) and the generosity of the reform ($\alpha=1.935$ instead of 2.1), decreasing consequently the impact on participation rates and income distribution



Conclusions

- We have considered a hypothetical reform in Italy, i.e. using the revenue of the tax on house property (IMU, actually implemented in 2012) for increasing tax credits on low incomes and making them refundable.
- In order to evaluate the reform we have developed a simulation procedure can account for the public budget constraint and for labour market equilibrium conditions.
- The simulations confirm the expectations of an increase in employment and available income, especially for households in the lowest income deciles
- More ambiguous are the efficiency effects: employment and income tend to increase (at least in the lowest deciles), but the average income suffers a modest decrease when equilibrium is taken into account.
- Future work:
 - Try a less prudential assumption about demand elasticity
 - Base the evaluation procedure on individual and social preferences (e.g. Aaberge and Colombino 2013), not just on employment and income.



Thank you!!

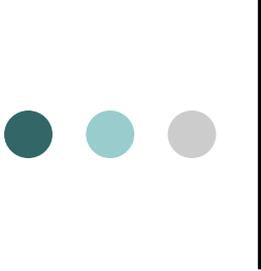
Elasticities

- Estimated elasticities of participation

	Couples				Singles	
	<i>Men</i>		<i>Women</i>		<i>Men</i>	<i>Women</i>
	Direct	Cross	Direct	Cross	Direct	Cross
Extensive margin participation	0.046	0.000	0.24	0.031	0.062	0.177
Total elasticity of hours	0.067	0.002	0.269	0.039	0.072	0.198

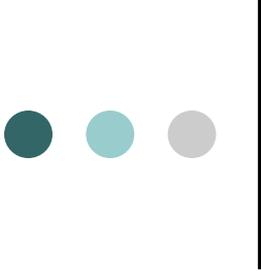
Note: Elasticities calculated numerically.

- The elasticities of participation at the extensive margin for men are about 0.05-0.06, while for women they reach 0.24 if in couple and 0.18 if single.
 - Cross-elasticities, although positive, are extremely low for men and they are about 0.03 for women.
- Elasticity of demand: -0.5



Descriptive statistics (unweighted)

	Couples				Singles			
	Men		Women		Men		Women	
	mean	std.dev.	mean	std.dev.	mean	std.dev.	Mean	std.dev.
Household size	3.50	1.01	-	-	1.54	0.78	1.78	0.90
Number of cohabitant children number of children aged 7-10 per household	1.21	0.94	-	-	0.04	0.25	0.32	0.67
Number of children aged 4-6 per household	0.29	0.54	-	-	0.01	0.11	0.08	0.29
Number of children aged 0-3 per household	0.18	0.42	-	-	0.00	0.05	0.04	0.21
Household disposable income (euro per month)	0.16	0.39	-	-	0.00	0.07	0.04	0.20
Average age	2672	1231	-	-	1644	1107	1402	1025
	43.94	8.05	40.84	8.06	36.42	10.03	37.48	10.34



Simulation results: equilibrium model - revenue neutral policy and equilibrium wages

- In equilibrium tax credits have to be reduced: $\alpha=1.935$ instead of 2.1
- and average equilibrium wages have to slightly decrease

	Ante reform	Post-reform	
		Labour supply model	Equilibrium model
Couples	1300.9	1313.4	1298.2
Single men	1316.6	1321.9	1308.9
Single women	1051.5	1063.2	1050.7