Table 2 *The macroeconomic and welfare effects of environmental tax reforms (Δ=percentage changes from base)*

	$\tau^{e*}=\varepsilon$	$\tau^{e*}=0.8\%$	$\tau^{e*}=2.5\%$	$\tau^{e*}=5\%$	$\tau^{e*}=10\%$
a) Effective labour tax	38.99	38.7	37.99	37.2	35.8
τ^{l} (%)					
$\Delta\tau^{l}$ (%)	-0.01	-0.3	-1.01	-1.8	-3.2
b) Employment rate	88.0142	88.9631	91.2648	93.8616	98.1984
N/L (%)	0.01613	1.094	3.71	6.661	11.589
ΔN/L (%)					
c) ΔGDP (%)	0.00889	0.599	2.022	3.604	6.192
d) Δ Private Consumption and Disposable Income (%)	0.00535	0.359	1.212	2.159	3.71
e) Δ Welfare (%)	0.00494	0.327	1.108	1.956	3.889

Table 3 *Sensitivity analysis of the calibration procedure (Δ=percentage changes from base)*

	1) **Central case**	2) **Union power**		3) **price markup**		4) **labour elast.**		5) **energy elast.**	
		ρ=0.01	**ρ=0.99**	**m=1.01**	**m=1.25**	**β=0.57**	**β=0.50**	**γ=0.021**	**γ=0.001**
a) Effective labour tax									
τ^l (%)	37.99	37.998	37.962	38.121	37.859	37.583	38.345	37.8	38.147
$\Delta\tau^l$ (%)	-1.01	-1.002	-1.038	-0.879	-1.141	-1.417	-0.655	-1.2	-0.853
b) Employment rate	91.2648	91.2416	91.361	90.8343	91.703	92.849	89.879	91.905	90.757
N/L (%)	3.71	3.684	3.819	3.221	4.208	5.51	2.135	4.438	3.133
ΔN/L (%)									
c) ΔGDP (%)	2.022	2.008	2.082	1.755	2.295	3.116	1.05	2.423	1.711
d) Δ Private Consumption and Disposable Income (%)	1.212	1.203	1.247	0.949	1.477	1.813	0.673	1.441	1.032
e) Δ Welfare (%)	1.108	1.099	1.144	0.846	1.373	1.709	0.572	1.337	0.929

Table 4 *Changing the degree of competition*

a) Effects of a top-up environmental tax of 0.1‰

	η=5 markup=1.25	**η=8.6542 markup=1.13**	**η=9.9 markup=1.112**	**η=15 markup=1.07**
ρ=0.08	N/L*=73.5137 N/L=73.5281 ΔN/L=0.01958 ΔGDP=0.0108 ΔI=0.00653 ΔW=0.00612 τ^l =38.9947	N/L*=95.7671 N/L=95.782 ΔN/L=0.01555 ΔGDP=0.0085 ΔI=0.00528 ΔW=0.00488 τ^l = 38.9957	N/L*=99.9415 N/L=99.9565 ΔN/L=0.015 ΔGDP=0.00826 ΔI=0.00516 ΔW=0.00475 τ^l = 38.9959	N/L*>full employment
ρ=0.12	N/L*=66.4955 N/L=66.509 ΔN/L=0.0203 ΔGDP=0.0112 ΔI=0.00648 ΔW=0.00607 τ^l = 38.9945	N/L*=88.0 N/L=88.0142 ΔN/L=0.01613 ΔGDP=0.0088 ΔI=0.00535 ΔW=0.00494 τ^l = 38.9956	N/L*=92.0627 N/L=92.077 ΔN/L=0.01553 ΔGDP=0.00854 ΔI=0.0051 ΔW=0.00469 τ^l = 38.9957	N/L*>full employment
ρ=0.2	N/L*=55.0888 N/L=55.1007 ΔN/L=0.0216 ΔGDP=0.0119 ΔI=0.0063 ΔW=0.00589 τ^l = 38.9941	N/L*=74.974 N/L=74.9868 ΔN/L=0.01707 ΔGDP=0.0094 ΔI=0.00524 ΔW=0.00484 τ^l = 38.9953	N/L*=78.7839 N/L=78.7968 ΔN/L=0.01637 ΔGDP=0.00904 ΔI=0.0051 ΔW=0.0047 τ^l =38.9955	N/L*=88.2536 N/L=88.2668 ΔN/L=0.01495 ΔGDP=0.00824 ΔI=0.00474 ΔW=0.00433 τ^l = 38.9959

Legend:

ρ denotes union power

η is the price elasticity of output demand

N/L* is the pre-reform equilibrium employment in %;

N/L is the post-reform equilibrium employment in %;

)N/L denotes percentage changes in equilibrium employment
)GDP denotes percentage changes in GDP
)I denotes percentage changes in disposable income (and consumption)
)W denotes percentage changes in private welfare
τ^l is the effective labour tax

b) Effects of a top-up environmental tax of 2.55%

	η=5 markup=1.25	**η=8.6542 markup=1.13**	**η=9.9 markup=1.112**	**η=15 markup=1.07**
ρ=0.08	N/L*=73.5137 N/L=76.7656 ΔN/L=4.424 ΔGDP=2.412 ΔI=1.451 ΔW=1.347 τ^l = 37.802	N/L*=95.7671 N/L=99.219 ΔN/L=3.604 ΔGDP=1.9647 ΔI=1.217 ΔW=1.113 τ^l = 38.019	N/L*=99.9415 N/L>full employment τ^l = 38.005	N/L*>full employment
ρ=0.12	N/L*=66.4955 N/L=69.5326 ΔN/L=4.567 ΔGDP=2.4906 ΔI=1.438 ΔW=1.333 τ^l = 37.764	N/L*=88 N/L=91.2648 ΔN/L=3.71 ΔGDP=2.0224 ΔI=1.2116 ΔW=1.1079 τ^l = 37.991	N/L*=92.0627 N/L=95.3603 ΔN/L=3.5819 ΔGDP=1.9524 ΔI=1.1754 ΔW=1.0718 τ^l = 38.025	N/L*>full employment
ρ=0.2	N/L*=55.0888 N/L=57.7572 ΔN/L=4.844 ΔGDP=2.641 ΔI=1.402 ΔW=1.2981 τ^l =37.691	N/L*=74.974 N/L=77.9053 ΔN/L=3.909 ΔGDP=2.1317 ΔI=1.1938 ΔW=1.0902 τ^l =37.938	N/L*=78.7839 N/L=81.7572 ΔN/L=3.774 ΔGDP=2.0575 ΔI=1.1609 ΔW=1.0573 τ^l =37.974	N/L*=88.2536 N/L=91.3217 ΔN/L=3.476 ΔGDP=1.8946 ΔI=1.0859 ΔW=0.9824 τ^l = 38.053

Legend: see Legend of Table 4a

c) Effects of a top-up environmental tax of 10%

	η=5 markup=1.25	**η=8.6542 markup=1.13**	**η=9.9 markup=1.112**	**η=15 markup=1.07**
ρ=0.08	N/L*=73.514 N/L=83.4819 ΔN/L=13.5918 ΔGDP=7.2312 ΔI=4.3499 ΔW=3.9438 τ^{l} = 35.4	N/L*=95.7671 N/L>full employment τ^{l} = 35.9	N/L*=99.9415 N/L>full employment τ^{l} = 36	N/L*>full employment
ρ=0.12	N/L*=66.4955 N/L=75.7757 ΔN/L=13.95613 ΔGDP=7.4392 ΔI=4.2945 ΔW=3.8886 τ^{l} = 35.3	N/L*=88 N/L=98.1984 ΔN/L=11.58909 ΔGDP=6.1924 ΔI=3.7096 ΔW=3.306 τ^{l} = 35.8	N/L*=92.0627 N/L>full employment τ^{l} = 35.9	N/L*>full employment
ρ=0.2	N/L*=55.0888 N/L=63.2151 ΔN/L=14.75127 ΔGDP=7.8555 ΔI=4.1698 ΔW=3.7644 τ^{l} = 35.1	N/L*=74.974 N/L=84.252 ΔN/L=12.37495 ΔGDP=6.6077 ΔI=3.7006 ΔW=3.297 τ^{l} = 35.7	N/L*=78.7839 N/L=88.2699 ΔN/L=12.04053 ΔGDP=6.4312 ΔI=3.6286 ΔW=3.2253 τ^{l} =35.8	N/L*=88.2536 N/L=97.7904 ΔN/L=10.80613 ΔGDP=5.7774 ΔI=3.3113 ΔW=2.9092 τ^{l} = 36.1

Legend: see Legend of Table 4a

Annex 1: Italian data, annual average 1986-1995

Year	U	E^h	I	INCTAX	τ^w	SS	W	τ^p	τ^l
1986	11.125	32876959	671631	93515	0.139236	112162	291903	0.384244	0.37817
1987	11.975	34358883	735247	101336	0.137826	119887	318951	0.375879	0.373365
1988	12.05	36315778	803716	120608	0.150063	132510	350043	0.378553	0.383457
1989	12	39515774	884856	132727	0.149998	151147	377193	0.400715	0.393166
1990	11.4	44279033	982605	147622	0.150235	170344	422049	0.403612	0.394587
1991	10.925	53320295	1078315	161668	0.149927	185521	461255	0.402209	0.393761
1992	10.65	54757648	1145750	177636	0.155039	198078	482295	0.410699	0.401034
1993	10.25	58922005	1137344	196964	0.173179	203049	484802	0.418829	0.417251
1994	11.275	59241605	1186468	187569	0.15809	204883	490271	0.417897	0.406227
1995	11.975	64453862	1265867	193817	0.15311	218188	501066	0.435448	0.410017

Legend:

U: unemployment rate as percentage of labour force. All workers, males and females.
Source: National Accounts

E^h: households total energy expenditure. It includes expenditure for heating and other domestic uses, and private transport. Calculated from aggregated expenditure on all fuels. Current prices, aggregate households. Source: BEN and National Accounts

I: households disposable income. Current prices, aggregate households
Source: National Accounts

INCTAX: income-tax revenue. Current prices.
Source: National Accounts

τ^w: labour-income tax. Calculated as INCTAX over I. See Modigliani et al. (1986) and Mendoza, Razin and Tesar (1994)

SS: total social security contributions . Current prices
.Source: National Accounts

W: pre-tax nominal wage bill. Current prices. Dependent workers, males and females.
Source: National Accounts

τ^p: payroll tax. Calculated as SS over W

τ^l: effective labour-income tax. Calculated as in Mendoza, Razin and Tesar (1994), using the formula: $\tau^l = (\tau^w + \tau^p)/ (1+ \tau^p)$