

The Overall Direct Tax Rate on Earned Incomes in Italy

1. Introduction

After the Second World War, direct taxation in Italy became oppressive and inequitable as a result of inflation and of "a legislation which was often chaotic and at times made to serve unattainable economic objectives" (1). The first step to reform this system was taken in 1951 by Minister Ezio Vanoni. In 1956 reform again came to the fore under Roberto Tremelloni, Vanoni's successor at the Ministry of Finance. Subsequently, however, what little had been achieved was undone on one pretext or another — natural disasters, the increase in current expenditure, or the need for an anti-cyclical policy. And so, in the course of the last 10 to 15 years, rates have been scaled up; surtaxes of various kinds have come thick and fast; new taxes have been devised, and the design to transform direct taxation from an "objective" (i.e., *ad rem*) to a personal basis has undergone such modifications that its realization, far from simplifying matters, has merely complicated the fiscal mechanism (2).

In the meantime, however, official experts pressed on with preparatory studies for fiscal reform (3), and, in 1965, commenting on their work, the Finance Minister declared that it was his intention to resume the drive to change taxation from an objective to a personal basis, to merge the existing direct taxes with the host of surtaxes in a single tax on individuals and to effect a qualitative discrimination as between incomes from different sources by applying a proportional levy on capital (4).

(1) EZIO VANONI: *Relazione al Senato sul disegno di legge contenente norme sulla perequazione tributaria e sul rilevamento fiscale straordinario*, in "Lex", 1951, part II, p. 1.

(2) Cfr. CESARE COSCIANI, "The Lines of a Taxation Reform in Italy", in this Review, December 1963.

(3) CESARE COSCIANI, "Tax Reform in Italy: Hopes and Misgivings", in this issue.

(4) ROBERTO TREMELLONI, "Lo stato dei lavori per la riforma tributaria", in *L'attività tributaria nel 1964*, published by the Ministry of Finance, IPS, Rome, 1965.

As to the new personal tax, he stated:

"The rates, the personal allowances and the exemption limit may, in this phase of consolidation, be roughly estimated on the basis of the real overall burden of all direct taxes, both personal and objective, and the respective surtaxes thereon levied on earned incomes, thus leaving practically unchanged the fiscal load on this group of taxpayers. At a later stage, consideration may be given to the desirability of modifying these rates with a view to introducing a more rational pattern of progressiveness, without however reducing the yield as a whole" (5).

Broadly speaking, these ideas have been adopted by the Five-Year Development Programme for 1966-70 (6), and are embodied in a Bill now before the Houses of Parliament. Once approved, it will enable the Government to carry out fiscal reform.

2. Calculation of the Overall Rate

Considerable interest, therefore, attaches to the calculation and the study of the *de jure* overall rates (7), both average and marginal, which apply to the incomes of self-employed workers and employees in 1967. Moreover, in order to assess the heavier taxation of these incomes in respect to that envisaged in the Vanoni reform, we have worked out the figures for 1953 as well, since at that time direct taxation could be regarded as based on the same principles but without any emergency surtaxes.

The first problem to be faced is which taxes should be taken into account for the calculation of the overall rate in 1967. In the following tables, for employed workers, we have included the objective non-property income tax (*imposta di ricchezza mobile*), the personal State income tax (*imposta complementare*), the personal municipal income tax (*imposta di famiglia*, as applied by the City of Rome) and the surtaxes thereon (ECA, Pro-Calabria, the temporary triennial surtax on the personal State income tax, the temporary 1967 surtax on all direct taxes and on the temporary triennial surtax). For self-employed workers, we have included, in addition to those

(5) *Ibidem*, p. XXVI.

(6) Approved by Public Law No. 685 of July 27th, 1967.

(7) Owing to tax evasion *de jure* rates may differ even widely from *de facto* ones. Moreover, any attempt to calculate the latter is doomed to failure because of the lack of adequate statistical data.

just mentioned, the municipal tax and the provincial tax on industries, businesses, arts and professions (*imposta e sovrimposta i.c.a.p.*). In the 1953 calculations, the same taxes have been included, plus only the ECA surtax at the rate applied at that time.

No account has been taken of two other local taxes and of tax-collectors' commissions — the former because of their scarce importance, the latter because of their variability.

It is equally important in this kind of survey to decide how to define income. The fiscal laws relate rates to taxable income which is arrived at by deducing from net income the abatements to which the taxpayer is entitled. This concept of income, however, does not seem suitable to clarify the extent of the fiscal burden one has to bear. In addition, the adoption of taxable income as the base may give rise to uncertainty as to the real characteristics of the tax. A system which provides for a proportionate rate on taxable income arrived at by subtracting a fixed sum from net income is in fact a progressive tax on the latter.

Hence the income (y) used to obtain the average rate (t) in the formula $t = f(y)/y$ is net income which, for self-employed workers, is equal to their total earnings less their professional expenses. For employees, since their income is obtained without incurring production costs, net income is their total remuneration (salary, wages, bonuses, etc.).

Since in the case of personal taxes, such as the personal State income tax and the personal municipal income tax, deductions can be made according to one's personal or family circumstances, the overall rate cannot be determined until these parameters are specified. In the tables below, account has been taken of deductions of a personal nature, both fixed and variable, but not of those for dependents.

In brief, since the calculations deal with unmarried taxpayers, they show maximum rates which differ considerably from those actually applied in Italy, at least in the lower income brackets and for those with a large family.

In addition, the law permits the deduction of several taxes, either paid or only due, from income subject to other taxes, but the regulations are not always clear in this respect. Somewhat arbitrarily we have regarded the objective non-property income tax due for the year as deductible from the income subject to the personal State income tax and the personal municipal income tax, and in

turn the personal State income tax due for the year from the income subject to the personal municipal income tax.

Lastly, it has been assumed that most of the self-employed, and *a fortiori* of the employees, are in the under 20 million lire bracket. The calculations have therefore been carried out by finite intervals of 1 million lire up to 21 million lire. For the group between 20 and 50 million lire, the rates have been calculated only for those earning 25, 30, 40 and 50 million *per annum*.

3. Average Rate

Columns (c) and (d) of Table I show the average overall rate for earned income of employees at current prices in 1953 and 1967. Those earning 1, 10 and 50 million lire paid 6.4, 21.5, and 33.6 per cent of their income respectively sixteen years ago, and pay 5.2, 29.4 and 51.0 per cent at present. From a comparison of these two columns it is clear that those with incomes of up to 3 million lire are better off in 1967 than they were in 1953. For the higher brackets the contrary is true, and the additional burden grows progressively, that is, it increases with the tax base.

For self-employed workers, the ones whose overall rate is higher in 1967 than in 1953 are those with an income of over 2 million. From columns (f) and (g) of table I it emerges that those earning 1, 10 and 50 million lire now pay direct taxes of respectively 10.6, 34.6 and 54.0 per cent on their net earnings as against 10.7, 29.0 and 39.5 per cent in 1953.

In 1967, therefore, anyone earning an income of 50 million lire has to pay over half of it in tax, either to the national or the local authorities, whereas in 1953 the proportion was between two-fifths and a third.

As a result of domestic price increases, the purchasing power of the monetary unit shrinks, and incomes tend to grow in order to make good the loss. In any inflationary situation, therefore, a progressive tax takes up a larger share of real income.

To quantify this phenomenon, we have supposed that the various brackets of income earners have managed, in 1967, to maintain their real income at the 1953 level by means of, for example, the sliding scale, trade union negotiations or the scaling up of fees. This reassessment has been carried out by multiplying the incomes in the base year by the cost-of-living index which may

TABLE I
DIRECT TAXES ON EARNED INCOME IN 1953 AND 1967:
OVERALL AVERAGE RATE
(per cent)

Net income (thousands of lire)		Of employees			Of self-employed		
at current prices (a)	in 1953 at 1967 prices (b)	1953 over (a) (c)	1967 over (a) (d)	1967 over (b) (e)	1953 over (a) (f)	1967 over (a) (g)	1967 over (b) (h)
1,000	1,632	6.428	5.226	8.801	10.666	10.562	14.749
2,000	3,264	11.092	9.868	13.856	16.752	16.350	20.406
3,000	4,896	13.600	12.852	17.346	19.635	19.753	23.988
4,000	6,528	15.503	15.670	22.236	21.323	22.062	28.066
5,000	8,160	16.768	18.072	26.170	23.073	24.229	31.733
6,000	9,720	17.859	20.137	29.092	24.625	26.071	34.335
7,000	11,424	18.811	23.546	31.564	26.059	29.291	36.514
8,000	13,056	19.998	25.832	34.661	27.384	31.422	39.325
9,000	14,688	21.110	27.858	36.589	27.807	33.188	41.070
10,000	16,320	21.463	29.388	38.338	29.013	34.607	42.625
11,000	17,952	22.574	30.957	39.667	30.130	35.950	43.858
12,000	19,584	23.581	33.189	40.851	31.242	37.280	44.885
13,000	21,216	23.910	34.532	41.779	31.539	39.239	45.727
14,000	22,848	24.854	35.815	42.648	32.616	40.337	46.537
15,000	24,480	25.140	36.919	43.388	32.877	41.373	47.207
16,000	26,112	26.040	38.033	44.120	33.861	42.344	47.831
17,000	27,744	26.355	38.919	44.796	34.140	43.293	48.404
18,000	29,376	27.174	39.752	45.376	34.370	43.898	48.942
19,000	31,008	27.480	40.466	45.967	34.587	44.550	49.500
20,000	32,640	27.684	41.109	46.538	34.831	45.151	49.969
21,000	34,272	28.508	41.647	47.014	35.034	45.677	50.421
25,000	40,800	29.399	43.610	48.853	35.808	47.419	52.054
30,000	48,960	30.409	45.627	50.753	36.708	49.180	53.756
40,000	65,280	32.126	48.612	53.807	38.220	51.875	56.501
50,000	81,600	33.618	50.968	56.358	39.544	53.954	58.774

reasonably be assumed to rise between 1953 and the end of 1967 from 1,000 to 1,632. This index has been chosen as an adjustment coefficient because it seems the most suitable yardstick for measuring the variation in the purchasing power of the worker's income. However, we would have obtained the same results if we had adopted the implicit price index of the net national product, the increase in which will probably be from 1 to 1.630 during this period. The domestic devaluation of the currency, however, would have been less marked if the retail price index had been used (8).

It follows that, in the case in question, the purchasing power of 1 million lire in 1953 is equal to that of 1.63 millions in 1967. As a first approximation (9), we may say that in the current year a worker has an unchanged real income if his money earnings have increased in that proportion. In column (b) of Table I the 1953 incomes have been revalued at 1967 prices, and on that basis we have calculated in columns (e) and (h) the overall average rates, which obviously are always higher than those in columns (d) and (g). Because of the progressiveness of the rates, the man drawing an unchanged real income will end up by paying a higher rate which is not forced on him by Parliament (at least purposely) but by the invisible hand of the market through the gradual erosion of the currency. For employees the price factor has involved the loss (in favour of the Government) of 3.6, 9.0 and 5.4 per cent of real incomes which have remained unchanged respectively at 1, 10 and 50 million lire. For the self-employed, the corresponding percentages are 4.2, 8.0 and 4.8. The comparison of the two series brings out the fact that this type of deterioration, for incomes with a constant purchasing power, is over 7 points between 5 and 12-13 million lire. This is due to the rapid increase in progressiveness between 8 and 20-21 millions at 1967 prices.

If, as against this, we subtract the rate for an unchanged real income in 1967 from the one that applied to the same income in 1953, we have the total variation in the rate, attributable both to the decisions of Parliament and to the workings of the market; for employees, the deterioration starts at 2.4 per cent, rises to 16.9 and is as high as 22.7 for those with real incomes of 1, 10 and 50 mil-

(8) The increase assumed for 1967 over the previous year is 3 per cent for the cost of living and 2.5 per cent for the net national product implicit prices.

(9) This specification is necessary since the validity of the affirmation is linked to highly restrictive assumptions such as the absence of change in the worker's tastes and the proportionate variation of all prices.

lion lire, while for self-employed labour at the same levels the increases amount to 4.1, 13.6, and 19.2 per cent.

4. Marginal Rate and Incentives to Work

A progressive tax is usually defined as one where the rate increases with the tax base. In other words, it is necessary and sufficient that $f(y)/y < f'(y)$. The function $f(y)$ indicates that the yield depends on the tax base, which in this case is net income (y); the ratio of these two quantities gives the average rate. Supposing that the latter function is continuous and derivable, the limit to the incremental ratio between yield and base gives the marginal rate. If the marginal rate is higher than the average rate, the tax is progressive. If it is lower, the tax is regressive.

Professor Pigou had maintained that progressiveness can be defined not only with reference to the average rate as previously, but also in relation to the marginal rate (10); provided it is clear to which one reference is made, this second definition is also acceptable. Taxes which are progressive according to the marginal yield are also progressive according to the average rate, but the contrary is not necessarily true (11).

In the calculation of the overall marginal rates shown in Table II, instead of infinitesimal increments, we have taken finite intervals of 1 million lire from 1 to 20 millions and of 10 millions between 10 and 50 millions. In addition, the calculation has been worked out with reference to the fiscal structure of 1953 and to the one applicable in 1967 both for the self-employed and for employees (12).

The overall marginal rates do not seem to follow, at least in the range under examination, any simple mathematical law but an absolutely unpredictable path. On the basis of the 1953 fiscal system, the overall marginal rate follows a fairly regular course up to the eighth million for self-employed labour and up to the ninth for the employees, even if the gradient of the curve continuously changes; after that there is a series of zigzags which has no logical justification. The overall marginal rate in 1967 has, it must be said, a slightly less irregular pattern. After continually rising, although

(10) A. C. PIGOU: "A Study in Public Finance", MacMillan, London, pp. 46-51.

(11) See ONORATO CASTELLINO: "Note sulla progressività dell'imposta complementare", in *Giornale degli Economisti e Annali di Economia*, 1963, pp. 168-85.

(12) In table II we have calculated, by finite intervals of 1.63 million lire, the values of the marginal rate applicable in 1967 to incomes with constant purchasing power.

not at a uniform rate up to the seventh million, it follows a wavy line, reaching a peak at the point corresponding to the 12th million for employees and to the 13th for self-employed labour.

Although theoretical analysis on incentives has basically not gone beyond the general conclusions already reached by Barone (13), it seems advisable, for the sake of completeness, to examine what effect, if any, variations in the rate may have had between 1953 and 1967 on the willingness to work.

The introduction of a flat tax or the increase of its rate may drive the worker either to toil for a greater number of hours or to devote more of his time to leisure, on the fairly plausible hypothesis that the income deriving from his labour has a declining marginal utility and on the slightly less realistic hypothesis that the worker is completely free to vary the supply of work (14). As a result of the application of the tax, the income effect tends to increase the productive effort, whereas the substitution effect presses in the opposite direction, so that, *a priori*, the result is undetermined. In equilibrium, the ratio of marginal utility of leisure to that of income must be equal to the net wage rate. In mathematical language, we have $f'(u_1)/f'(u_2) = w$.

Since, after the tax, the net wage rate is reduced to $(1-t)w$, the value of the first member must also decline. It follows from the hypothesis formulated that the marginal utility of leisure always declines and that of income increases, but the formula does not say whether the new equilibrium is achieved with a greater, an equal or a smaller number of working hours. On the hypothesis that the marginal utility of leisure is independent of income, at least theoretically we may go a stage further. The labour effort will increase, diminish or remain constant according to whether the elasticity of income utility is greater, smaller or equal to 1. That is, in symbols

$$\frac{f'(u_1)/f'(u_2)}{f'(y)/f(y)} \cong 1.$$

(13) ENRICO BARONE: "Di alcuni teoremi fondamentali per la teoria matematica dell'imposta", in *Giornale degli Economisti*, 1899, pp. 201-210.

(14) LIONELLO ROSSI: "Considerazioni sulla Abwaelzung", in *Studi in memoria di Gino Borgatta*, Istituto di cultura bancaria, Milan, 1953, vol. II, pp. 161-167, and GERSHON COOPER: "Taxation and Incentive in Mobilization", in *Quarterly Journal of Economics*, 1952, pp. 43-67. The prevailing opinion among experts is that taxation is not specially important as regards incentives to work.

See CESARE COSCIANI: *Istituzioni di scienza delle finanze*, UTET, Turin, 1961, p. 725 *et seq.*; SERGIO STEVE: *Lezioni di scienza delle finanze*, CEDAM, Padua, 1964, p. 389 *et seq.*

TABLE II
DIRECT TAXES ON EARNED INCOME IN 1953 AND 1967:
OVERALL MARGINAL RATE
(per cent)

Net income (thousands of lire)		Of employees			Of self-employed		
at current prices (a)	in 1953 at 1967 prices (b)	1953 over (a) (c)	1967 over (a) (d)	1967 over (b) (e)	1953 over (a) (f)	1967 over (a) (g)	1967 over (b) (h)
1,000	1,632	6.428	5.226	8.801	10.666	10.562	14.749
2,000	3,264	15.756	14.509	18.911	22.835	22.138	26.062
3,000	4,896	18.639	18.821	24.327	25.405	26.560	31.151
4,000	6,528	21.212	24.122	36.904	26.383	28.988	40.301
5,000	8,160	21.828	27.682	41.903	30.077	32.894	46.402
6,000	9,792	23.314	30.461	43.701	32.386	35.288	47.346
7,000	11,424	24.523	44.002	46.398	34.663	48.603	49.581
8,000	13,056	28.302	41.835	56.337	36.656	46.337	59.006
9,000	14,688	30.018	44.058	52.022	31.191	47.324	55.036
10,000	16,320	24.631	43.168	54.070	39.875	43.373	56.610
11,000	17,952	33.687	46.647	52.956	41.291	49.377	56.184
12,000	19,584	34.661	57.744	53.875	43.479	51.923	56.184
13,000	21,216	27.852	50.636	52.915	35.100	62.743	55.831
14,000	22,848	37.137	52.503	53.953	46.606	54.602	57.063
15,000	24,480	29.127	52.370	53.740	36.540	55.885	56.608
16,000	26,112	39.552	54.743	55.097	48.617	56.906	57.178
17,000	27,744	31.412	53.103	55.615	38.626	58.469	57.571
18,000	29,376	41.083	53.898	55.242	38.252	54.187	58.073
19,000	31,008	32.974	53.334	56.617	38.487	56.275	59.555
20,000	32,640	31.567	53.319	57.360	39.490	56.582	58.876
10,000	16,320	21.463	29.388	38.338	29.013	34.607	42.625
20,000	32,640	33.905	52.830	54.737	40.649	55.695	57.312
30,000	48,960	35.861	54.663	59.185	40.461	57.239	61.331
40,000	65,280	37.273	57.564	62.967	42.759	59.960	64.734
50,000	81,600	39.593	60.395	66.562	44.838	62.268	67.867

For a progressive tax it is equally impossible to arrive at definite conclusions. However, as the marginal rate is higher than the average rate, the substitution effect is stronger, so that the labour effort will diminish more sharply or will increase less than in the case of a proportionate tax with the same yield. If either the marginal or the average rate of a progressive tax is increased (or diminished), nothing can be affirmed as to the direction of the incentive to work. However, if the marginal rate declines, while the average rate increases or remains constant, the number of working hours will always increase, at least in the framework of the fairly simple hypotheses set above. Similarly, the amount of time worked will be reduced every time a modification of the tax structure leads to a decline in the average rate while the marginal rate remains unchanged or increases.

Between 1953 and 1967, both the average rates and the marginal rates have tended to move in the same direction, so that it is impossible to affirm *a priori* what their effect has been on the willingness of the workers to increase their productive effort; only empirical investigations, which are not easy, could provide an answer to this question (15). However, for employee income there is a zone between 2 and 4 million lire in which, between 1953 and 1967 the variations in the average rate were negative and those in the marginal yield positive; on the basis of the theoretical approach outlined above, these rates may be taken to have had a negative effect on the incentive to work.

5. Elasticity of Yield and Rates

One characteristic of progressive taxes is their acting as automatic stabilizers of the economic system; if the income of an individual or of a nation diminishes, the variation in its tax burden is more than proportionate to the income variation. Vice versa, if the income increases, the tax collected increases at a higher rate. The presence of automatic stabilizers which may affect both public receipts and

(15) See GEORGE F. BREAK: "Income Taxation and Incentives to Work: A Survey of Recent Literature", in *Rivista di diritto finanziario e scienza delle finanze*, 1957, p. 121 et seq.; COSTANZA COSTANTINO: "La tassazione del reddito e gli incentivi al lavoro", in *Archivio Finanziario*, 1961, pp. 52-79.

expenditures is valuable, especially when either Parliament or the Administration is slow to cope with cyclical fluctuations (16).

Automatic stabilizers are usually discussed in aggregate terms; however, there is no reason why the same concept should not be applied to the income of groups or classes in order to ascertain the degree of stabilization which a particular instrument can exercise as a weighted mean of the coefficients of the individual components. In any case, as regards progressive income tax, it does not seem correct to adopt a different approach, since an increase or a decrease in the national income does not automatically affect the various income brackets in the same proportion.

The criteria for the measurement of the cyclical sensitivity of taxes are essentially that of the elasticity of yield and that of the marginal yield (17). The first of these brings out how the tax collected varies percentagewise with changes in income; the latter shows what part of the incremental income is absorbed by the tax. Of these two measurements, the former is preferable, if greater importance is attached to relative variations, the latter, if absolute variations are to be stressed.

In this context, what has inclined us to consider the elasticity of yield is that it makes possible a combination of the marginal rate with the average one, which we have calculated for the overall direct tax. As $G=f(y)$, the marginal rate is $\frac{dG}{dy}$, the average rate is $\frac{G}{y}$, and the elasticity of the yield $\frac{y}{G} \cdot \frac{dG}{dy}$ (18).

(16) See for all this R. A. MUSGRAVE: *The Theory of Public Finance*, McGraw Hill, New York, 1959, pp. 501-517.

(17) On this issue, see the thorough studies of ANTONIO PEDONE: "Appunti sulla sensibilità congiunturale delle imposte", in *Contributi in omaggio di G. U. Papi*, Giuffrè, Milan, 1964, pp. 535-545; *Gettito tributario e congiuntura in Italia nel periodo 1950-62*, ISCO, Rome, 1965.

(18) The elasticity of the yield by finite intervals according to Musgrave may be rewritten as follows:

$$E(\alpha) = \frac{\Delta G}{\Delta y} \cdot \frac{y_0}{G_0} = \frac{\Delta G/G_0}{\Delta b/b_0} \cdot \frac{\Delta b/b_0}{\Delta y/y_0}$$

The formula provides for the more general case in which the tax base does not coincide with income. Since in the construction of the examples we have used net income instead of taxable income, b and y coincide; in our case it is not possible to speak of a separate elasticity of the base in relation to income.

TABLE III

ELASTICITY OF YIELD, AVERAGE RATE AND MARGINAL RATE IN 1967

Net income (thousands of lire)	Employee elasticity			Self-employed elasticity		
	of the yield	of the average rate	of the marginal rate	of the yield	of the average rate	of the marginal rate
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1,000	—	—	—	—	—	—
2,000	2.776	0.888	1.776	2.096	0.548	1.096
3,000	1.906	0.604	0.594	1.624	0.416	0.398
4,000	1.875	0.657	0.943	1.467	0.348	0.273
5,000	1.766	0.612	0.588	1.490	0.393	0.536
6,000	1.685	0.573	0.500	1.456	0.380	0.360
7,000	2.185	1.016	0.664	1.864	0.741	2.262
8,000	1.776	0.678	-0.343	1.581	0.509	-0.322
9,000	1.705	0.628	0.424	1.506	0.450	0.168
10,000	1.549	0.494	-0.180	1.427	0.384	0.009
11,000	1.587	0.534	0.800	1.426	0.387	0.420
12,000	1.865	0.792	2.607	1.444	0.406	0.561
13,000	1.525	0.484	-1.464	1.683	0.630	2.496
14,000	1.520	0.485	0.468	1.391	0.364	-1.677
15,000	1.462	0.430	-0.028	1.385	0.357	0.322
16,000	1.482	0.450	0.675	1.375	0.351	0.270
17,000	1.396	0.374	-0.464	1.380	0.358	0.432
18,000	1.384	0.362	0.255	1.251	0.238	-1.241
19,000	1.341	0.326	-0.180	1.281	0.266	0.684
20,000	1.317	0.300	-0.003	1.270	0.255	0.095
10,000	—	—	—	—	—	—
20,000	1.797	0.399	0.797	1.609	0.305	0.609
30,000	1.329	0.220	0.068	1.267	0.178	0.054
40,000	1.261	0.195	0.159	1.219	0.165	0.141
50,000	1.242	0.196	0.196	1.200	0.159	0.152

By finite intervals of 1 million lire, such as are assumed in Table III, the elasticity of yield, whether for employees or for self-employed, shows a rather erratic tendency. It starts with a value of over 2 corresponding to an income of 2 millions, falls in the range between 2 and 6 millions and then, after a sudden rise, again begins to sink. The downward movement, however, is not smooth, as there are two more peaks.

The elasticity of yield is less than unity for all regressive taxes, and equal to unity for proportionate taxes. It is more than unity for progressive taxes. As the progressiveness of the average rate declines, the coefficient of yield elasticity approaches unity. And this is the case with our overall income tax. Actually, even when the marginal rate becomes constant, the average rate continues to rise, and tends to approach the former without ever reaching it owing to deductions.

Since it is possible to express the elasticity of yield using the elasticity of the average rate, the values of $E(t)$ by intervals of 1 million lire have been calculated in columns (c) and (f) of Table III, from which it will be seen that in only one case does it exceed unity, that is, for the employee seven million lire bracket. Actually, the elasticity of the average rate is negative, nil or positive for regressive, proportionate and progressive taxes respectively. It is positive and more than unity when the average rate grows faster than income. From the data in the two columns in question, it will be noted that $E(t)$ diminishes and tends to zero as the average rate approaches the marginal one (19).

For anyone who, like Professor Pigou, defines progressiveness in relation to the marginal rate, the table also provides the values of the elasticity of that rate which turn out to be more erratic than the corresponding values of the average rate. In this case, too, the

(19) Defining the elasticity of the average rate $E(t)$ as the ratio of the percentage variation of that rate to variation in income $\frac{y_0}{t_0} \cdot \frac{\Delta t}{\Delta y}$, according to Musgrave the elasticity of yield may be expressed as $E(G) = E(t) + \frac{t_1}{t_0} = E(t) \frac{y_1}{y_0} + 1$.

Musgrave (*op. cit.*, p. 507) affirms that $E(t)$ or the elasticity of the average rate is greater than 1 for proportional taxes; this is an oversight since, in proportionate taxes, (Δt being equal to 0), $E(t)$ must be equal to 0.

elasticity is negative, positive or nil, according to whether the tax is regressive, progressive or proportionate in relation to the marginal rate (20).

6. Conclusions

The conclusion which appears to emerge from this analysis is that mere consolidation of the present rates of the various taxes will undoubtedly lead to administrative simplification and to greater fiscal transparency, but it will perpetuate injustices and anomalies in the rate structure. A real reform cannot dispense with a careful revision of the progressive pattern of the existing income taxes, and ought to give due weight not only to the average rate but also to the marginal one.

In addition, bearing in mind that tax evasion is a direct function of the magnitude of the rate, the reduction of tax rates seems to be the only way of restoring confidence between the Revenue Authorities and the taxpayer. Moreover, if this assumption is correct, the yield should not be affected as a result and might even increase, while fairness and incentives to work and to take on risks would gain. This was quite clear to the Fiscal Authorities in 1951, and it is to be hoped that reformers will again take it as a starting point.

To conclude, since the results expected of the promised reform ought not again to be wiped out by continuous unplanned and hasty tax increases, obtained either by raising the rates or by applying surtaxes, the guiding principle should be accepted that the fiscal system is an organic framework which cannot be tinkered with without undermining the whole structure.

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(20) The elasticity of the marginal rate is

$$E(\tau) = \frac{\Delta \tau}{\tau_1} \cdot \frac{y_1}{\Delta y} = \left(\frac{t_1 E t_2 + t_2}{t_0 E t_1 + t_1} - 1 \right) \frac{y_1}{\Delta y} = \left(\frac{E_{G_2} t_1}{E_{G_1} t_0} - 1 \right) \frac{y_1}{\Delta y}$$

In this way, the elasticity of the marginal rate is expressed in terms of the elasticity of the average rate or of the elasticity of yield.