HOW TO REDUCE THE INCOMES OF THE TWO LABOUR ELITES?

Jan TINBERGEN

The Hague, The Netherlands

In Western countries the share of incomes from assets in national income has fallen consider-ably during the last century. Inequality in labour incomes is much more important. Two types of labour show relatively high incomes: the professions and managers. Incomes of the former show a long-term relative decline due to a sharp increase in university graduates. The author offers a crude attempt to compare manager incomes in the U.S.A. with the size of the enterprise they are heading. He then poses the question whether manager incomes may be reduced further in comparison to average incomes by increasing their supply. This depends on whether manager capabilities are learnable or mainly innate. He concludes with some remarks on the demand for managers in a post-industrial society.

1. A general desire for less inequality

On several occasions public opinion polls in many countries have shown [cf. Mustert (1977)] that a majority of citizens prefer less inequality in incomes. Such a desire has been at the basis of socialist and of trade union movements and for quite some time concentrated on reducing the distance between capital income and labour income. More recently it was found that the larger part of variance in incomes is due to variance in labour income and the expression 'exploitation by human capital' was coined [Tinbergen (1975)]. This shift in emphasis is justified also by the fact that a non-negligible portion of income from capital is now drawn by insurance funds – and hence by people with moderate incomes and by the other fact that income from capital constitutes a falling share of total national income (cf. table 1).

Without denying that some very high incomes are incomes from capital we will concentrate our attention to relatively high labour incomes (earnings) and discuss possibilities to reduce inequality among them.

2. The two labour élites

We will deal with two groups of income earners known under somewhat different names and call them the intellectual and the managerial élite. In the

Table 1

Percentage share of income from assets in total national income.

D[ab]	F[ab]	GB[a]	NL[ad]	S[ae]	USA[a]
1895 34.5		1864/5 43.5[b]			
1913 31.5	1911 35	1910/14 36[e]	1913 24.1		1903/4 27.5[b]
1925/9 16.5			1930 25.5		1929 21.4[f]
1954/60 25.0	1954/60 17.5	1954/60 23.5[b]		1950 13.3	1954/60 20.5[b]
		1960/63 18.1[e]	1968 15.9	1972 4.2	1969 15.9[f]

[a]D: (Federal Republic of) Germany; F: France; GB: United Kingdom; NL: Netherlands; S: Sweden; USA: United States of America.

[b]Kuznets (1966).

[c]Lindbeck (1975).

[d]Tinbergen (forthcoming).

[e]Feinstein (1964).

[f]Christensen and Jorgensen (1973).

American Censuses of Population they are known as the two major occupational groups: (i) professional, technical and kindred workers, and (ii) managers and administrators. In continental European statistics censuses contain figures about independent workers and workers employed by others. In the Netherlands, directors of limited companies are a category alongside independents. In the Dutch Census main categories are described as (i) professions, higher and medium specialists and (ii) managers and officials. For some years tax figures about incomes of the professions are given separately, alongside other groups of independents and the directors of limited companies. Since in the present article only figures on the U.S.A. and the Netherlands will be dealt with we do not enter into details about other countries.

A large part of the research conducted to test theories about income distribution centers around the impact of schooling on income and the impact of inherited personality traits on income. This implies that cognitive abilities have had far more attention than non-cognitive. A further implication is that incomes of professionals and technicians have drawn much more attention of scholars than incomes of managers. This state of affairs is at least reflected in, but may even have to do with, the very uneven treatment of the breakdown of American census income figures into smaller and more homogeneous categories. Whereas a large number of occupations belonging to group (i) is specified, only very few categories of managerial occupations are given separately. Probably the most significant determinant of managerial income is the size of the firm where the function is performed. No breakdown according to size of firm is given by Census figures, however; one wonders why. In the present essay an attempt has been made to obtain a crude picture of such a breakdown.

As an extremely crude reconnaissance a regression of earnings figures y taken from the 1970 Census of the United States on two possible determinants has been estimated: s, the years of schooling completed, and a dummy z, provision-

ally called responsibility level. This dummy has been given three values only: 0, 1 and 2, and has been chosen equal to 2 for occupational groups with a high degree of responsibility either because of required leadership or because of the risk to society implied in wrong decisions. Thus, main occupational groups Operatives, Transport Equipment Operators, Laborers and Service Workers have been given 0, Sales Workers, Clerical and Kindred Workers and Craftsmen and Kindred Workers the value 1, and both Professional, Technical and Kindred Workers and Managers and Administrators the value 2.

In linear form the equation runs:

$$y = 6.19s + 13.59z + 22.88, \qquad R^2 = 0.839, \tag{1}$$
$$(1.05) \quad (1.46) \qquad n = 31.$$

The figures in parentheses are standard deviations of the regression coefficients. The units are $100 per annum for y; years for s and units as indicated for z.

Inspection of the partial scatter diagrams shows that the impact of z is very close to linear, but that of s curvilinear; accordingly a significantly better fit is obtained by the introduction of a term in s^2; this yields the equation

$$y = -6.43s + 0.591s^2 + 15.31z, \qquad R^2 = 0.918. \tag{2}$$

The simple correlation coefficients $r_{yz} = 0.769$, $r_{yz} = 0.618$ and $r_{sz} = 0.24$ show that both variables s and z make a substantial contribution to the good fit obtained and are only loosely interrelated. This supports our plea for the introduction of the z dummy, and in particular for our distinguishing between two, not narrowly related, élites: one with cognitive personality traits and one with a non-cognitive, or at least less typically cognitive characteristic.

Before engaging into a more thorough discussion of its true nature, we should remind the reader of the fact that s does not simply stand for schooling, but also for innate cognitive capability. The most convincing evidence on this aspect of the subject is due to Taubman (1975, 1977) and collaborators. Using the regression coefficients for schooling implies the assumption that untapped reserves of this innate capability are available. We come back on this issue in section 7.

Two more preliminary remarks may be added before tackling our main subject. One is that in an attempt to 'explain' the income distribution in the Netherlands we also found that a satisfactory explanation cannot be given without introducing the z dummy [cf. Bouma c.s. (1976) and Tinbergen (1975)].

The other is that the elitist character of a group can be reduced in two ways: their incomes can be reduced, but also their numbers can be raised. Table 1 illustrates the latter point. From it we see that the percentage of the active population belonging to what we called the two labour élites has increased considerably over the period since 1900, except the 'independent workers' in the Netherlands.

Table 2

Percentage of active population belonging to the two 'labour élites'.

United States[a]		1900	1970	
Professional, technical, etc. workers as a	{male	3.4	14.0	
percentage of all workers	{female	8.2	14.5	
Managers, administrators, etc. as a percentage	{male	6.8	14.2	
of all workers	{female	1.4	4.5	
The Netherlands		1900	1960	1973
Percentage of active population with university degree		0.54[b]	1.37[c]	
Percentage of active population with higher professional education			1.94[c]	
Percentage with either university degree or higher professional education			3.31[c]	9[d]
			1930	1963
Independent workers as a percentage of active population[e]			24	13

[a]US Population Censuses.
[b]Tassenier (1972).
[c]Netherlands Population Censuses.
[d]Statistical Pocketbook, Central Bureau of Statistics (1976, p. 98).
[e]Census of Production (1930 and 1963) (non-farm enterprises only).

3. Income determinants

In order to discuss possibilities to reduce the inequality in labour incomes we must know by what mechanism they are determined, and what means of social-economic policy appear in that mechanism so as to enable policy makers to affect incomes. We will follow Pen and Tinbergen (1977) and consider both natural and organized scarcity (the latter being a form of power) as the main determinants of earnings. The mechanism is partly economic: natural scarcity is expressed by the operation of demand and supply; organized scarcity may partly appear in the demand or supply functions and partly assume other forms which may be described by terms such as discrimination or collusion. Another form of power may exist: the power of custom which can also be indicated as inertia in the adaptation of prices to changed demand and supply factors. Since we are mainly interested in long-term changes in incomes and employment of the labour élites we may neglect time lags.

The socio-economic determinants of incomes as far as dependent on markets can be subdivided into demand and supply factors. Demand factors are the quantities of persons required with a variety of traits, especially traits relevant

to the performance of productive tasks. Supply factors are the quantities available with such traits or characteristics. The relevant characteristics are revealed by function analyses or job evaluation (phrases considered identical here). A broad subdivision of these characteristics is one in cognitive and non-cognitive. For the intellectual élite cognitive characteristics will be predominant. For the manager élite other characteristics may have to be added. A fuller discussion of the latter will be taken up in sections 5 and 6.

Forms of discrimination or collusion may enter the picture if some groups are paid (high) incomes not because of high productivity, but because they belong to an 'inner circle' showing an internal solidarity. The outcome of this discrimination may be facilitated by the objective difficulty of measuring the productivity of the group members. Historical examples are such privileged groups as emperors, kings, nobility and priests. Less remote examples may be found in the industrial military complex [Galbraith (1971)] or totalitarian rulers.

4. The intellectual élite: A race between technology and education?

Income formation of the intellectual élite during the twentieth century can be analysed more easily than income formation of the leadership élite mainly because of two circumstances. On the one hand the production of intellectuals has been organized more deliberately and earlier than that of managers and, on the other hand, more statistical data are available to test theories on their income formation. The latter circumstance is a consequence of the former. Alongside with these two phenomena the production of intellectuals has been the subject of a by now established body of theory known as the human capital theory of education. It is within this framework of research that Carmel J. Ullman Chiswick presented her remarkable longitudinal study on the growth of professional occupations in the American labour force [Ullman (1972)]. It is also thanks to statistical data for the United States as well as the Netherlands from the year 1900 on I could present my theory of the 'race between technology and education' [Tinbergen (1975)]. Common features of the two studies are the (for economists) usual distinction between a demand and a supply equation. Mrs. Chiswick's supply function, when interpreted in the traditional way, shows a negative slope, with an elasticity, though negative, smaller in absolute value than the demand elasticity. In my analysis I assumed an inelastic supply, hence neither negatively nor positively sloped. Mrs. Chiswick's relative demand function shows an elasticity of -2.5 if relative prices are explained by, among other variables, relative quantities. If the latter had been considered to be the dependent variable, my guess is that she would have found a figure near -1.5, but this is a guess based on the squared multiple correlation coefficient of 0.6 obtained by her. My own study assumes a demand substitution elasticity of -1. In a number of studies higher elasticities (in absolute value) have been found [cf. Tinbergen (1975a)]; recently Groenveld and Kuipers (1977) found figures

not much above unity. I agree with them that our information is still somewhat unreliable. The studies mentioned agree on the phenomenon that the relative numbers in the labour force of those having university or higher education (the latter including also higher professional education) have increased considerably and their relative incomes decreased. The role of the development of technology in this process is not interpreted uniformly by the various models used. My suggestion is that this development has tended to raise the demand for workers with higher education, whereas some of Kuipers' suggest a falling and others a rising demand. Still other models, including Mrs. Chiswick's, are neutral in this respect. The net role of increased education is uniformly one of depressing although in varying degrees, relative incomes of the intellectual élite by about 1 percent per annum over the period 1900–1970.

5. The managerial élite: Some crude figures

Income formation of managers has been studied in less detail than income formation of professional workers because of the two circumstances mentioned in section 4. Deliberate and organized training of managers is a far more recent phenomenon than intellectual education. Business schools are recent phenomena in comparison to universities, some of which are nearly 1000 years old. Moreover, rightly or wrongly, many people wonder whether managers can be 'produced' by training to any large extent. In the present section we propose first to give a crude idea of the heterogeneity of the group of managers. Table 3 constitutes an attempt to give an approximate picture of the very large dispersion in size of enterprises and the labour incomes of their managers in the U.S.A. The table claims to give a picture of the situation around 1970–1975 and has been based on figures for 1969 (census), 1972 [Statistical Abstract (1975)], 1974 and 1975 (Fortune Magazine).

From a graphical representation a fairly good fit can be obtained for the linear relationship

$$\ln y = 0.915 + 0.307 \ln S,$$
$$\quad (0.146)\ (0.030)$$

where y is employment income or earnings and S is sales, both in \$, meaning that the elasticity of income with respect to sales amounts to 0.307. The warning should be repeated that the figures of table 3 are meant to be a crude approximation of an illustrative nature.

6. How to explain manager earnings?

If we want to find out whether manager labour incomes can be effected by socio-economic policy we must try to 'explain' them, hence to identify their main determinants and the impact of the latter on the former. In an attempt to

Table 3

Size rank, sales and chief executive earnings of enterprises (proprietorships, partnerships and corporations) in the United States, around 1970–1975.

Rank	Sales per enterprise in $1000	Chief executive earnings in $1000
1– 10	20,000,000[b] ⎫	
11– 50	5,000,000[b] ⎪	250[d]
51– 500	965,000[b] ⎬	
501– 1000	160,000[c]	
*0.001– 224	8,500[e] ⎫	
224– 427	690[e] ⎬	24[l]
427– 1700	210[e] ⎭	
1700– 2800		
2800– 3500 ⎫	71[e] ⎫	12.5[f]
3500– 4200 ⎬	⎪	
4200– 5500 ⎫	35[e] ⎬	8[f]
5500– 6700 ⎪	⎪	4.5[f]
6700– 7700 ⎬	⎪	2.5[f]
7700–13000 ⎭	6[e] ⎭	
Average	192[e]	11.05[d]

Sources:

[a] 1970 Census of Population, PC(2)-8B, pp. 53, 116, 225, 230, 234, 239, 263, 299, 400, and 405. (Average earnings in 1969 of all managers, etc.)

[b] Fortune, May 1975, p. 208; authors: Lenore Schiff, Caroline Parker Young, Claudine Knight; industrial corporations 1974.

[c] Fortune, June 1975, p. 120; refers to 1974.

[d] Fortune, May 1976, p. 173–312; author: Charles G. Burck, research associate: Fay Rice (employment income, rounded, in 1975).

[e] Statistical Abstract of the US, 1975, p. 491.

[f] Estimated from source a.

*From here on downward rank numbers in 000's.

formulate a theory as set out in section 3 we should try to use the results of function analysis in order to represent the characteristics required and hence the demand side, and the results of personal performance estimates to represent the supply side. Function analysis has been started for simpler occupations, and then usually called job evaluation, quite some time ago. More recently function analysis has gradually been extended to the 'higher' jobs. In both cases initially a fairly large number of 'aspects' has been proposed and the degree in which required for a given job been scored with the aid of scales developed in careful negotiations between workers, employers and specialists. Later developments showed a tendency to reduce the number of aspects, because of high intercorrelations found. Thus the Dictionary of Occupational Titels (DOT) uses some ten aspects, summarized in three main aspects, dealing with information, dealing with things and dealing with people.

Whereas for the lower occupations agreement has been reached on a uniform method, no such uniformity has yet been attained with regard to managing occupations. The aspects most relevant for the proper performance of a managerial task are given a number of different names whose exact meanings are not always clear and are likely partly to overlap. One system, proposed by Jaques (1961) ends up with one single summarizing concept called time span. It is a measure of the time which elapses before an error committed can become evident. The simpler the job, the shorter the time span. Another system, dealt with in Muller (1970), and due to a considerable extent to Van Lennep, uses as a summarizing concept a 'helicopter capability', of which the power to understand complicated situations, alongside a sense of realism, a capacity to take decisions are components. A third summarizing concept proposed and applied by Malotaux (1977) is called 'complexity', again based on a number of components, partly related to the capabilities used by DOT. The systems mentioned are examples only and this author doesn't consider himself an expert in the field. Two things are striking. One is the need for integration into one generally acceptable system and a corresponding uniform terminology. The other phenomenon is that leadership for a small or medium-size plant or firm requires capabilities different from those required by the very large units. Especially the capability to deal with people ranks high for small or medium-size managers but tends to become less important for the very 'large' manager. The 'helicopter capability' or equivalent other denominations require cognitive aspects such as power of analysis and sense of realism which are closer to features of exceptionally able intellectuals again.

Although material is available on the determinants of manager incomes, it is not so easily accessible to the outsider as are published enquiries and statistics as used in the establishment of earnings equations for non-managerial functions. In particular individual performance scores in quantitative form have so far not been discovered by this author, although attempts are being made to collect them.

In terms of the more fundamental information on which a demand equation for managerial labour might be based, namely the information on production functions in the econometric sense, we may characterize the situation also by stating that production functions in which managerial labour enters as a separate factor of production have not so far been estimated in published documents.

Even if the type of earnings function for managers of diverse types and referring to longer time periods existed, and would explain the high incomes of some manager groups with the aid of scarcity the question arises: can such scarcity be reduced by deliberate policies?

This question raises a second one, namely, are manager features learnable? If so, to what extent – or, in other words, are they innate to a larger extent than are intellectuals' features?

Figures shown by Burck (1976) imply that between 1952 and 1975 labour incomes of top executives rose 30 percent less than wages. It would be interesting to know whether reduced scarcity can indeed be made responsible for this relative decline.

7. Future supply of and demand for managers

For an estimate of future manager incomes – of different enterprise size groups – both a demand and a supply forecast is needed and in both cases an extrapolation of past tendencies would be superficial.

On the demand side questions arise about the future structure of the production process. The United States are likely to live already for some time in the post-industrial era. The percentage of the active population employed in manufacturing rose from 17.4 in 1870 to 29.3 in 1950 and fell to 26.5 in 1960 and to 24.2 in 1970. The average size (expressed in persons employed) in 1969 was 83 in manufacturing, 8.6 in trade, banking, etc. and 11.5 in services. This makes it likely that the demand for high-level managers will decline, if high-level stands for a large unit to manage. The shift to (modern) services may well lead to a demand for managers with a high-level education. Moreover, claims with regard to the quality of employment sought may reflect itself in further decentralization within large units, and corresponding changes in the type of manager in demand.

The supply of managers will depend on what effect training in business schools and a large number of manager courses, symposia and so on will have on both the number and the quality of individuals applying for managerial posts. Here the question, already mentioned, may come up what untapped resources of managerial ability of an innate character exist. A wide field of research, only partly covered, offers itself and its results have to be waited for before any conclusions about the prospects for manager incomes can be drawn. It may be appropriate to keep in mind here the interesting findings by Hauser and Featherman (1976), that access to schooling (of all types) has not only increased but that the unfavourable impact on that access by a number of 'social handicaps' has also clearly diminished. Comparing two generations, those born in 1907/11 and those born in 1947/51, they find that the 0.8 year less schooling of those coming from farms has disappeared; that the 0.8 years less schooling of those coming from the South has diminished to 0.3 year, that the 2.0 years less schooling of those of Spanish background fell to 0.7 years and that the 1.35 years less schooling of blacks has vanished as well. These changes may well affect the scarcity of both élites discussed and hence contribute to less inequality in income distribution in the next few decades.

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