27-8-2006

LIBERTY-BASED OPTIMUM DISTRIBUTION AND TAXATION

Serge-Christophe KOLM *

Abstract

Unanimous opinion, supported by our basic rights and by reflective philosophy, happens to hold that optimum income taxation and distribution are not to be determined by individual utilities and a social welfare function. Therefore, the criterion is an equality in liberties: social freedom (our constitutional basic rule), and equal total freedom respecting it and Pareto efficiency. The resulting tax or subsidy, which is incentive-compatible, amounts, equivalently, to an equal sharing of the product of the same labour (with different productivities), to a basic income financed by equal labours or by a flat tax exempting overtime work, and to a general reciprocity of transfers of the product of the same labour. The required information is available and the scheme can be introduced by classical reforms.

Keywords: Income, taxation, subsidies, freedom, justice, equality, rights, efficiency, reciprocity.

JEL classification numbers: D30, D31, D33, D63, E24, E25, H20, H21, H24, H53, I30, I31, I38, P26, P28, P43.

* Institute of Public Economics, School for Higher Studies in the Social Sciences, Paris.

I. INTRODUCTION

1. Macrojustice and unanimity[1]

I hope to show here that the problem of defining the optimum distribution in society is largely solved (and that the solution is simple and implementable). This solution takes the form of specific income transfers. Since "the fundamental function of any theory of social welfare is to supply criteria for income distribution" (Arrow, 1963), this would also be a solved problem, with the major caveat that the relevant reference will not be welfare but liberty, in application of a unanimous judgment. Unanimity of considered judgments will indeed provide the normative bases of the solution – this is the method of "endogenous social choice."

What is largely solved, more precisely, is the problem of specifying *macrojustice*, that is, the basic rule of society and its application to the allocation of the very largest part of society's resources. Because of this rule ("social freedom" – see below), the macrojustice allocation takes the form of general, all-purpose purchasing power, or income, for everybody. Yet, society also displays innumerable questions of "microjustice" about more specific situations, items, and people. It is also fruitful to consider cases of "mesojustice" concerned with specific but important items that can concern everybody (e.g. education, health). Yet, the field of macrojustice enlarges when more items are allocated through income and the market (with information and other corrections of "failures"). Macrojustice is our sole concern here.

Better be vaguely right than precisely wrong:[2] this aphorism does not say what is right and wrong, but it proves that ethics should have precedence over information. One cannot find a second-best policy if one is not sufficiently secure about what the first best would be in the first place. Moreover, ethics may show, as an immanent reward, that the information most difficult to obtain is in fact irrelevant. This will happen here.

---

[1] Too many people helped me to improve the presentation of the following ideas by their remarks and questions for me to have any chance to be fair. Yet, I have to mention John Rawls, Kenneth Arrow, John Harsanyi, Tony Atkinson, François Bourguignon, Edmund Phelps, Jim Mirrlees, William Thomson, Hervé Moulin, Maurice Salles, Kotaro Suzumura, Nick Stern, Bertil Tungodden, Alain Leroux, Claude Gamel, Erwin Ooghe, Marc Fleurbaey, François Maniquet, Michel Lubrano, Pierre Livet, Alain Trannoy.

[2] Or do not look for your lost keys under the streetlamp because there is more light if you lost them elsewhere.

The basic principle used, about various items and in various ways, is that of unanimity: if everybody in society favours a feature of policy, with sufficient information (and in particular reflection), this feature has to be implemented (*vox populi*, *vox dei*). This "has to" has a factual dimension: since everyone wants this – voters, politicians, officials, etc. –, this will be implemented if awareness of the issues, ways and means is sufficient. It also has a moral dimension by reference to democracy and collective liberty. Note that a scholar member of the society also shares this view. Of course, the society includes everyone concerned by the measure (hence the rule forbids that some people harm others).

2. Summary

Part II presents the basic facts and values. The unanimity principle, supported by the basic rules of our societies and reflective philosophy (Rawls) entails that optimum income taxation and overall distribution cannot be derived from considerations of welfare (Section 3). Hence, they are determined by concepts of equal liberty (4). This saves one from the enormous difficulties of having to know utilities and a Social Welfare Function for macrojustice (5). The basic "social freedom" – the classical freedom from forceful interference – is non-rival and hence held at satiety, and it is implemented, along with Pareto efficiency, by allocating given resources (6). The main resource to be allocated by macrojustice, by far, consists of human productive capacities, whose use-right should belong to their holder while their value or rent be allocated in various ways (7).

Part III shows the solution and its various meanings. Equal full liberty that respects social freedom and Pareto efficiency irrespectively of preferences has to be, in the space of the two goods income (consumption) and leisure-labour, either social freedom (free exchange and labour) from an equal allocation, or the relevant equal freedom of choice provided by domains of choice that can be different. Both come to the same (8). The result has a number of other equivalent highly meaningful properties, such as, in particular: equalization of incomes of the same labour; a universal basic income financed with the same labour of each person; general equal labour reciprocity in which each gives to each other the product of the same labour; a concentration towards the mean of total incomes (disposable income plus the value of leisure); Plato-Aristotle's and Rawls's full theories of justice; and, finally, a flat tax with exemption over a given labour and an equal credit or rebate, which can be implemented by a series of simple classical reforms (9).

Part IV specifies the field of macrojustice (10) and shows that people reveal the value of their capacities in working (incentive-compatibility, 11). In Part V, the policy is extended to multidimensional labour (12) and to involuntary unemployment (13).

Part VI shows that the needed information is available or obtainable by standard fiscal procedures (14), and how the degree of redistribution obtains from the analysis of the social-moral opinions in the society (15). In Part VII, the distribution is integrated in the whole of public finance (16). This simple first-best liberty-based optimum taxation and distribution – a basic income plus a flat tax on a given labour (exempt overtime) – rejoins, completes, and vindicates classical pragmatic proposals (17).

II. BASIC FACTS AND VALUES

3. Non-welfarism for macrojustice and overall distribution

3.1 The income tax

The income tax and the main policies of income support are in the field of macrojustice and important or main tools for it. Now, *nobody thinks that someone should pay a higher income tax than her neighbour because she enjoys less the dollars taken away or more the dollars left*. This rules out utilitarianism (highest sum of individual utilities), and ideals of equal utilities, respectively. It clearly also rejects cases in between of classical "social welfare functions." Basically, this view is that utility meaning enjoyment is irrelevant for this issue, that it is a private matter and should not be a concern of this public policy.

More generally, people are unanimously deemed accountable for their tastes for this issue (not "responsible" for them in so far as they cannot change them easily or at all).[3]

Consequently, an income tax derived from the maximization of a classical social welfare function, function of individual utilities, cannot be implemented, since all policy makers and their electorate oppose it.

[3] A discussion of this issue can be found in Kolm 2004a, pp. 101-104.

3.2 Basic principles

This is in line with the basic principles of democratic societies, which state freedoms, basic rights and means. "Men are free and equal in rights." They should be secured the means to "pursue happiness" as they see fit, rather than levels of happiness. Hence, other views simply are, in fact, anti-constitutional.

3.3 Overall distribution

This holds for all overall distribution. Should the European Union transfer vast amounts from Sweden to Italy because the Swedes are particularly good at production while Napolitans seem to be particular gifted for enjoying consumption? Or to Portugal because the Portugese seem to have a kind of congenital or cultural sadness (*saudade*) which may have to be soothed? If not – as, I think, everybody answers –, neither utilitarianism nor maximin in "utility" (nor certainly anything in between) are in order. Transfers for alleviating poverty or specific needs obey other rationales.

3.4 Reflective philosophy

John Rawls reaches and vindicates the same conclusion:
"The question of attaining the greatest net balance of satisfaction never arises in justice; this maximum principle is not used at all" (1971). "Justice rejects the idea of comparing and maximizing satisfaction. Desires and wants, however intense, are not by themselves reasons in matters of justice. The fact that we have a compelling desire does not argue for the propriety of its satisfaction any more than the strength of a conviction argues for its truth" (1982).

Because Rawls advocates a maximin in "primary goods" – the "difference principle" – an economic literature has called "Rawlsian" a maximin in utility. Rawls's own opinion about that is: "To interpret the difference principle as the principle of maximin utility (the principle to maximize the well-being of the least advantaged person) is a serious misunderstanding from a philosophical standpoint" (1982). In Kolm (1971), the leximin in interpersonally comparable "fundamental" utility (a comparative concept later praised by Rawls), or

"practical justice", is balanced by the development of a principle of equal freedom (equity-no-envy).[4]

4. Liberism

If welfare is not the relevant reference for macrojustice, what is this reference? In economics, if, in choice theory, one takes utility off, there remains the possibility set and the freedom to choose in it. From the standpoint of philosophical anthropology, man is both a sentient being feeling pleasure and pain, and an agent capable of free choice and action. Discarding welfare, there remains freedom (to which concepts of responsibility and – often – of merit and desert are related). Hence, the answer is liberty. Moreover, rationality implies an ideal (or *prima facie*) equality in the relevant variables.[5] Therefore, the relevant basic principle is equal liberty. This is in line with the basic rights of our constitutions. This is also Rawls's conclusion:
"A principle of equal liberty". "A just social system defines the scope within which individuals must develop their aims, and it provides a framework of *rights and opportunities* and the *means* of satisfaction within and by the use of which these ends may be equitably pursued" (1971).

5. Information and micro/meso justice

This conclusion calls for two remarks.

First, what a relief, from the point of view of information! Welfarist optimum taxation has to know all individuals' utilities, generally cardinal utilities meaning satisfaction, which has no meaning,[6] and interpersonal comparisons whose possibility is limited. It has to clean these utilities for perverse social sentiments (malevolence, spite, malice, *schadenfreude*, envy, jealousy, sentiments of superiority), perhaps for positive ones (altruism, sense of fairness), probably for expensive tastes, and probably for irrationalities (e.g. in time preference). It has

[4] If all individuals choose from identical possibility sets, no one prefers another's allocation to her own (since she could have chosen it). Conversely, if no one prefers another's allocation to her own, the individual allocations can be chosen by the individuals from identical possibility sets (any set including the individual allocations and any other allocation that no individual prefers to her own).
[5] See Kolm 1996a, Chap.2, 1998 (translation of 1971), Foreword, Section 5.
[6] Except in the small, locally. See Kolm 1996a, pp. 360-366.

to choose between the persons' various selves (in time, or the id, the ego, or the superego). Most of these operations imply some arbitrariness.[7] Indeed, the very existence and meaning of preferences or utility in the flow of human psyche are intrinsically dubious. Even with the most favourable view, "The simple consumption-leisure utility function is a heroic abstraction from a much more complicated situation so that it is quite hard to guess what a satisfactory method of estimating it will be" (Mirrlees, 1971).

Second, this irrelevance of welfarism is for macrojustice. Welfarism is relevant for many cases of micro (or meso) justice. If you give the toy to your daughter rather than to your son because she enjoys it more than he does, your are a kind of family utilitarian. Healing someone deeply depressed may be a maximin in welfare. Courts compute *praetium doloris* for compensating torts. Yet, favouring a unique principle for all cases of justice is also unanimously opposed (this was a mistake of classical utilitarians). Justice divides in "spheres" (Walzer, 1983). And the domain of macrojustice is, in volume, much more important than others.

Two kinds of freedom are relevant here: social freedom, and, given social freedom, real freedom, means, and freedom of choice and its domain. The former refers to the nature of the constraint, and the second to the domain of possible choice.

6. Social freedom and Pareto efficiency

Social freedom is the basic, constitutional rule of our "free" democratic liberal societies. It means that individuals' acts should *prima facie* be free from forceful interference by others individually, in groups, or in institutions. Individuals can only be forced not to force others.[8] Free exchange is possible and is important. Social freedom implies the respect of the intended consequences of individuals' respectful actions – such as rights they can create.

Social freedom may have to be obeyed because it is the meaning of constitutional basic rights. Moreover, it is wanted by practically everybody in societies where it prevails. It can also be intrinsically defended for its meaning of absence of direct violence (especially

[7] This is not the case for comparative sentiments, such as envy (Kolm 1995a). Note that Bentham includes altruism (pleasure derived from others' pleasure) in his utilitarian sum.
[8] Of course, constraints can also be necessary for palliating lack of information (safety regulations), in case of insanity, and so on.

since – as we will see – it can be considered as compatible with a distribution banning poverty). Finally, it can be justified by a logical requirement. Indeed, consistent individuals want not to be prevented to do what they want to do, that is, they want social freedom for themselves. Yet, their opinion of justice in society has to be impartial, from the nature and definition of a concept of justice. Hence, this opinion has to want social freedom for everybody, if this is possible, and it is possible.

Indeed, social freedom is non-rival. Each individual can have it at satiety, for all her actions that respect others. Hence, social freedom is equal for all in this sense. Incompatibilities and conflicts among individuals' actions are due to issues about the allocation of other means (in particular of other rights), and this allocation results from the question of allocation of resources (several actions of an individual can also compete for this individual's means of various kinds).

Pareto efficiency is also certainly a necessary criterion. Can a society be free and democratic if there exists another possible state that everybody prefers? At least, a contending party can propose another policy and win by a unanimous vote. Can a state be optimal if another possible state enhances everybody's welfare (even if the sharing is not determined by questions of welfare)? This considers all actual constraints (including issues of information, transaction, possibilities of coercion or exclusion, etc.). Yet, Ronald Coase (1960) asserts that, if all this is taken into account, Pareto efficiency always prevails. If this is true, then any policy proposal that does not secure Pareto efficiency has no chance to be implemented.

Social freedom implies a free market which implies Pareto efficiency (with correction of "failures" by the "allocation branch" of the public sector if Coase's argument is wanting). Public distribution respects social freedom and, with efficient social freedom in the private sector, Pareto efficiency, if it is based on inelastic items – items not affected by individual actions. If it allocates economic value, this happens when it is the value of the non-produced "natural" resources given to society (as far as possible).[9]

7. Capacities and labour income

[9] The violation of Pareto efficiency by measures based on inelastic items is a basic topic of elementary economics. The issue of information will be presented in Sections 10 and 14.

Human given capacities constitute, by very far, the largest part of societies' resources in economic value. The products of labour, capital, and other natural resources are often like 80,18 and 2 in order of magnitude. Yet, capital is itself produced, and hence labour accounts for about 97,5% of the value of output (Locke (1689) says "9/10 or even 99/100"). Moreover, the capacities not used by labour are not counted (although residential land is). Non-human natural resources are allocated in various ways including by criteria of microjustice (e.g. proximity); they are usually owned and have had several owners; they (notably new ones) or their value can be equally shared, used for specific services, or provision the public budget.

Practically, capital income is labour income plus free exchange if the capital originates from savings from labour income. Hence, the remaining conceptual issue about capital income is the ethical and tax treatment of bequest. Another intertemporal question raised by distributive reforms is the treatment of wealth accumulated in the past under different rules. These classical questions will not be touched in this short paper.

Finally, in the rights concerning an asset one classically distinguishes the right to use this asset, or use-right, and the value of the possibility to use it, or rent. This distinction is essential for human capacities because social freedom implies that the use-right belongs to the holder of the capacity (who can rent it out for a wage). Full self-ownership is the case where the whole rent also belongs to the holder of the capacity. This allocation may be favoured by a concept of selfhood (as for the case of tastes and capacities to enjoy, for macrojustice, although they are still more intimate items than productive capacities), but it can also be criticized on the grounds that the individuals do not deserve their given capacities, that they are not responsible for them. The general case can be a compromise between these two powerful values.

Hence, the essential of distributive justice in macrojustice concerns the allocation of the value or rent of individuals' given productive capacities.

III. SOLUTION

8. Equal total economic freedom

8.1 Possibilities

There remains to consider the consequences of equal total economic freedom, given social freedom and Pareto efficiency. First of all, equal economic freedom should be defined. Since there is (equal) social freedom to choose, exchange and earn, the remaining equality concerns the *initial given conditions*. It can take three forms:

1 – Equal allocation.

2 – Identical domains of choice.

3 – Equal freedom provided by different domains of choice.

8.2 The simple case, notations

We consider now the simple case of unidimensional labour and constant individual wage rates (linear production function), because it is an important case, it simplifies a little the presentation, the concepts and results extend straightforwardly to the general case of multidimensional labour (duration, intensity, formation, etc.) and non-linear production as it will be shown (Section 12), and the general case can often be reduced to the simple case in defining a duration of labour qualified for its other characteristics (*id.*). The case of involuntary unemployment will be considered in Section 13.

There are n individuals, and each of them is indexed by i and has labour ℓ_i (seen as duration), leisure $\lambda_i=1-\ell_i$ (by normalization), a given wage rate w_i, and a tax or subsidy t_i ($t_i>0$ for a subsidy and <0 for a tax of $-t_i$). Her labour income is $w_i\ell_i$, her *disposable income* used to buy (non-leisure) consumption is

$$y_i=w_i\ell_i+t_i,$$

and her *total income*, which adds the value of leisure at its market price w_i, is

$$v_i=y_i+w_i\lambda_i=w_i+t_i.$$

We consider a balanced distributive budget (Musgrave's "distribution branch"), and hence $\Sigma t_i=0$. Issues of information will be discussed in Section 14 (Section 11 will show that the result is incentive-compatible in the sense that individuals choose to work with their most highly paid skills in spite of the tax or subsidy, and hence their wage rate reveals this value of their capacities).

8.3 Solution 2

If individuals' choice includes the choice of effort or labour with different capacities, and if the policy maker does not take individuals' preferences into account (from non-welfarism or ignorance), *solution 2 violates both social freedom and Pareto efficiency*. Indeed, social freedom and Pareto-efficiency imply that, at each individual's choice, her rate of substitution is equal to her marginal productivity. Yet, this rate is also equal to the rate of transformation, at this point, of the border of the common possibility set offered to the individuals. This border should thus be non linear with different marginal productivities. Its construction implies taking individuals' preferences into account, and the policy rests on it. If the common possibility set is built without taking individuals' preferences into account, a priori the marginal conditions of Pareto-efficiency and non-interference will be violated – except fortuitously (because individual productivities differ).

There remains solutions 1 and 3: *they give the same result*.

8.4 Solution 1

This solution is the classical (equal) social freedom from an equal allocation. Social freedom implies free exchange. The allocation is that of the two goods, leisure (or labour), and income which can buy consumption (from free exchange). Free exchange is, first of all, of labour for earning.

If this equal labour is k (leisure $1–k$), it provides each individual i with the income kw_i, and, if this is transformed into an equal disposable income with balance of the distributive budget and no waste, each now receives the average $k\overline{w}$, where $\overline{w}=(1/n)\Sigma w_i$ is the average wage rate. Then, individual i is taken away kw_i and provided with $k\overline{w}$ instead, that is, she receives the net subsidy-tax

$$t_i=k\cdot(\overline{w}-w_i).$$

We have $\Sigma t_i=0$. The described operation is “Equal Labour Income Equalization” (ELIE).

Individual *i* freely chooses her actual labour ℓ_i and the corresponding earning $w_i\ell_i$. Equivalently, this can be described as her choosing labour ℓ_i–*k* above labour *k*, and hence earning the corresponding $w_i\cdot(\ell_i–k)$ in addition to the given $k\,\overline{w}$ (we will shortly see that, for macrojustice, $\ell_i>k$ will happen to hold). At any rate, her disposable income and her total income are, respectively,

$$y_i=w_i\ell_i+t_i= k\,\overline{w} +(\ell_i–k)w_i,$$
$$v_i=w_i+t_i= k\,\overline{w} +(1–k)w_i.$$

In 1974, John Rawls, at the instigation of Richard Musgrave, added leisure to his list of "primary goods," thus bringing to two, income (related to wealth) and leisure, the economic primary goods. Rawls's ideal is an equal allocation of primary goods accompanied by basic liberties which consist of social freedom; and he requires a priority for non-wastefulness. Hence, the above ELIE solution is Rawls's solution (as he posed the problem after 1974).[10]

8.5 Solution 3

For defining equal freedom of choice for different domains of choice, consider that domains can present more or less freedom, that these relations constitutes an ordering (the freedom ordering) and – this will suffice here – that this ordering is representable by an ordinal function, the "freedom function." Budget sets can be represented by income and prices. In the present case, the space is that of the two goods income (consumption) and leisure or labour, the budget constraint on individual *i*'s choice is $y_i\leq w_i\ell_i+t_i$ where t_i is *unspecified* yet, or $y_i+w_i\lambda_i\leq v_i=w_i+t_i$, and the prices are w_i for leisure λ_i and 1 for income y_i. In all cases, $y_i\geq 0$ and $0\leq \lambda_i \leq 1$. For comparison, the freedom function can thus be written as $F(v_i; w_i, 1)$. If freedom is real in economists' sense, i.e. invariant when the money unit of measure of values for incomes and prices vary, function *F* is homogeneous of degree zero in its three variables ("real freedom" is also Marx's term for the present concern about freedom of choice, and he labels social freedom "formal freedom" – the basic rights). Representing the prices by a price index, this index is always taken as linear when it refers to market possibilities (as with the

[10] For each *k*, each good is equal for all individuals and no other possible initial allocation is preferred by consensus of interests; balancing the relative importance of each good consists of the social/ethical choice of *k*, as shortly noted (Section 8.19).

classical indexes of Paasche and Laspeyre) and measures purchasing power. Then, if $\pi_i=\alpha w_i+\beta$ is this index with two constant numbers α and β which are non-negative and not both zero,

$$F(v_i;\, w_i,\, 1)=\phi(v_i,\, \pi_i).$$

Since F homogeneous of degree zero and π is linear in the prices (w_i and 1), ϕ is homogeneous of degree zero, and hence

$$\phi(v_i,\, \pi_i)=\phi(v_i/\pi_i,\, 1)=f(v_i/\pi_i).$$

Function f is increasing because functions F, and hence ϕ, are increasing in v_i. Since these functions are ordinal, v_i/π_i is a specification of function f. This is, cogently, individual i's classical purchasing power.

Equal freedom then writes $v_i/\pi_i=\gamma$, the same for all i. For each i, then,

$$v_i=\gamma\alpha w_i+\gamma\beta.$$

Hence, whatever the t_i,

$$t_i=y_i-w_i\ell_i=v_i-w_i=(\gamma\alpha-1)w_i+\gamma\beta,$$

and, denoting $k=1-\gamma\alpha$ and from the balance $\Sigma t_i=0$,

$$\gamma\beta=k\,\overline{w}\,,$$

and finally

$$t_i=k\cdot(\,\overline{w}\,-w_i).$$

This is the same result as that of solution 1.

Moreover, individual i's budget line in space $(\lambda_i,\, y_i)$ is

$$w_i\lambda_i+y_i=v_i,$$

and it contains the point $(\ell_i=k,\, y_i=k\,\overline{w}\,)$ since

$$(1-k)w_i+k\,\overline{w}\,=w_i+t_i=v_i$$

This point, independent of i, is common to all budget lines (which, therefore, constitute a "pencil" of lines).

8.6 Geometry

The result is shown in figure 1, with axes λ_i and y_i, $\ell_i=1-\lambda_i$, budget lines with slopes $-w_i$, transfers t_i and total incomes v_i. The common point, or initial equal allocation, is the point $K(\ell_i=k, y_i=k\overline{w})$. When k varies from 0 to 1, point K describes the segment LM from point $L(\ell_i=y_i=0)$ to point $M(\lambda_i=0, y_i=\overline{w})$. Yet, we will see that only cases where $k<\ell_i$ for full-time employed labour are relevant for macrojustice.

<Figure 1>

9. Meanings and equivalent properties

A classical and basic meta-principle in social ethics is that a principle should be evaluated from all its angles and possible meanings (see, for instance, Plato's "dialectics" in *Republic*, and this relates to Rawls's "reflective equilibrium"). The result obtained has some twenty important meanings, different although they are logically equivalent. Each could be taken as the justification of the distributive scheme. They regroup into several types of issues.

I – Equal liberty

1. Social freedom from an equal allocation.

2. Equal freedom of choice (for possibly non-identical domains).

3. Rawls's solution with leisure (post 1974).

II – ELIE

4. Equal labour income equalization: redistribute equally the product of the same labour k of all individuals. k is the "equalization labour."

5. Equal pay for equal work for labour k (the rate is the average wage rate $\overline{w}$).

6. From each according to her capacities, to each equally (where "according to" is taken to mean, as it most commonly does, in proportion of): take kw_i proportional to w_i and give the same $k\overline{w}$.

7. Everyone works for everyone for the same labour (k) and for herself for the rest.

III – Desert and merit

8. Each earns according to desert for labour k and to merit for the rest.
Desert means according to labour or effort, whereas merit means according to labour or effort and personal capacities. Now, $y_i=k\overline{w}+w_i\cdot(\ell_i-k)$. The first term is according to labour k (with the same wage rate $\overline{w}$ for all). The second term is according to labour ℓ_i-k and productive capacity w_i. They corresponds to the classical principles "to each according to his work" and "to each according to his deeds," respectively.

IV – Financed universal basic income

9. Equal universal basic income financed by equal labour (equal sacrifice): The basic income $k\overline{w}$ is financed by labour k from each (individual i pays the proceeds kw_i).

10. Equal universal basic income financed according to capacities (i.e. in proportion kw_i of w_i for individual i).

A universal basic income is often proposed, but specifying its financing is Achilles's heal of such schemes: the financing should be fair, sufficient, and it should not induce Pareto-inefficiency. ELIE satisfies these conditions.

V – Reciprocity

11. General equal labour reciprocity: Each individual hands out to each other the product of the same labour ($r=k/n$). Indeed,

$$t_i=\sum_{j\neq i} rw_j-(n-1)rw_i=k\cdot(\overline{w}-w_i).$$

This property of general fairness is favourable to the acceptance of this scheme from sentiments of reciprocity.[11]

12. Each owns the rent of the same amount of each other's capacities (r).

VI – Progressive transfers, total concentration

13. Equal partial compensation of productivity differences: Each individual yields to each other less productive the same fraction of the difference: $r\cdot(w_i-w_j)$ from *i* to *j* if $w_i>w_j$. It suffices to consolidate the two transfers of the general equal reciprocity in each pair of individuals. Hence, ELIE amounts to a set of "progressive transfers" for total incomes. This set is, in fact, quite specific (property 15).

14. Each individual's total income is the weighted average between average productivity and this individual's productivity, with weight *k* and 1-*k*:

$$v_i=k\,\overline{w}+(1+k)w_i.$$

15. A concentration of total incomes: This formula also says that the set $\{v_i\}$ is a uniform linear concentration towards the mean of the set $\{w_i\}$, with degree *k*. This is one of the most unambiguously inequality-decreasing transformation.[12]

VII – Tax structure and reform

16. The distribution amounts to an income tax with a flat tax with exemption over a given labour and an equal credit or rebate: The credit or rebate is $k\overline{w}$, and, if ℓ^o is a labour such that $\ell^o<\ell_i$ for the ℓ_i relevant for macrojustice (see Section 11), the tax rate is k/ℓ^o and labour above ℓ^o is exempted from taxation, so that individual *i* pays $(k/\ell^o)w_i\ell^o=kw_i$.

17. Tax reform

The ELIE distributive structure can be obtained from actual income taxation by a series of a few simple and classical tax reforms:

---

[11] Cf. Kolm 1984, 2006a.
[12] Cf. Kolm 1966a, 1999.

- A *negative income tax* or *income tax credit* for low incomes, which exists in many countries.
- *Flatten* the tax schedule, which is often advocated for a reason of simplicity, and is for instance implemented in the 9 fastest growing European countries.
- Replace actual labour by a *given labour* in the tax schedule, which is obtainable by *exempting* earnings over a given labour not exceeding most actual labours.
- If the scheme concerns the "distribution branch" in "functional finance," *balance* the budget.

VIII – Other meanings

18. Bi-numéraire equal sharing of the value of productive capacities.

An equal sharing of the value of productive capacities depends on the unit of measure because individual productivities differ. If the amount of an individual's capacities is measured in labour input that use it, each individual has 1 and the given allocation without any kind of transfer is equal. Yet, if this amount is measured by the corresponding output, the total initial endowment of individual i is w_i. Both goods – income-consumption and leisure-labour-lifetime – can be taken as numéraire. Amounts of both are classically compared across individuals. The general solution is to measure a fraction of the capacities, say k, in income-value, and the rest, 1-k, in labour-value. For individual i, the equalization of the first share transforms income kw_i into $k\overline{w}$, and the second share is already equal for all in labour-value, 1–k. The result is the net income transfer $t_i=k\cdot(\overline{w}-w_i)$. One can also directly write the total income of individual i from the two parts, $v_i=k\overline{w}+(1-k)w_i$.[13]

19. Diorthic justice

It is securing that the obtained result abides by the most influential theory of justice of all times. According to Plato (*The Laws*) and Aristotle (*Nicomachean Ethics* and *Eudemian Ethics*), everybody thinks that justice is that everyone is accountable for her acts and their consequences, and what is given to society is equally shared. Chosen actions are here labour ℓ_i. Their remuneration should follow the rule of "geometric equality," i.e. in proportion to the individual's "merit" (*axia*) which, in the particular "commutative justice" to which exchange belongs, means measured by the other party's willingness to pay, hence as $w_i\ell_i$.[14] This is

[13] With ELIE as the solution of Rawls's full problem, k thus measures the relative importance attached to the two economic primary goods: income relative to leisure-labour.
[14] Note that this classical Greek definition of merit in exchange focusses on demand whereas the modern definition (Section 8.8) focusses on supply, but they come to the same.

social freedom. The value of given capacities should be shared according to "arithmetic equality," i.e. equally, in "distributive justice" (see above). When the items cannot be transferred, as with personal capacities, the sharing is implemented by equivalent compensations in *diorthic justice*.

III. CONCENTRATION AND IMPLEMENTATION

10. Degree of inequality reduction

A concentration transformation of a distribution is, in a sense, the most inequality reducing transfer structure. Hence, the inequality-reducing effect of a redistribution is meaningfully measured by the coefficient of the concentration which produces the same effect on some measure of inequality. For a redistribution and an inequality index, the "equivalent ELIE" produces the same "decrease" in inequality in total income: its k is the degree of inequality reduction or equalization of this redistribution.[15]

Consider now the three following facts and judgments.

(1) Present redistributions in nations amount to equally redistributing the income of 1 to 2 days per week (from the USA to Scandinavia). Hence, de facto – even for the most redistributive policy a country could actually achieve –, for *normal full-time labour* one has $\ell_i > k$ (we will particularly see the cases of unemployment).

(2) Moreover, people generally understand that highly remunerated people be taxed for helping people who do not have this luck, but only if this is an actual gain. They do not agree

[15] *This degree of inequality reduction of a redistribution is equal to the relative decrease in the absolute form of any synthetic index of inequality* (Kolm 1966b). Indeed, for any distribution of incomes (or other quantity) x_i whose set is x and average $\bar{x} = (1/n)\Sigma x_i$, one can, for an index of inequality, distinguish the absolute form $I^a(x)$ and the relative form $I^r(x) = I^a(x)/\bar{x}$. A *synthetic* inequality index is such that $I^a(x)$ is *equal-invariant* (invariant under any equal variation of all the x_i) and $I^r(x)$ is *intensive* (invariant under any multiplication of all the x_i by the same number). Then, the absolute form is also *extensive* (linearly homogeneous). A concentration of coefficient k of the distribution amounts to an equiproportional decrease of all x_i in proportion k, which similarly decreases the absolute index, and an equal increase that restores the total sum or the mean, which does not affect this index. Hence the noted property. Examples of such indexes are $\Sigma * x_i - x_j *$ (absolute Gini), $\Sigma(x_i - \bar{x})$, and the variance.

with a tax on earning capacities that entail no earning because they are not used, that is, with a tax on leisure in measuring its value by the earning this time could provide were it used at labour (taxing for inducing work is something else and has to be justified). ELIE with $k>\ell_i$ would so imply demanding the unjustified $(k-\ell_i)w_i$ or, if the redistribution is taken into account, $(k-\ell_i)(w_i-\overline{w})$ for $w_i>\overline{w}$. This implies $k<\ell_i$.

(3) The very few productive individuals who choose to work very little choose not to benefit from society's supply of a favourable wage, and hence do not have to be taxed for this advantage. They choose to drop out of the cooperative venture of collective production (and division of labour), from its advantages, and, hence, from its liabilities. They are not, as Rawls (1982) puts it, "fully cooperating members of the society engaged in social cooperation over a complete lifetime for mutual advantage," and hence are not party in the sharing of benefits.

These last two remarks mean that what is at stake concerns the actual advantages that people actually derive from their productive capacities and society's demand for them, rather than these capacities and demand per se – hence as available or potential earnings.

The cases where the chosen ℓ_i is lower than k are particular cases: part-time jobs which are often second wages in families, partial or full unemployment shortly considered, the few excentric productive people who drop out of cooperative social production, victims of particular handicaps, etc. These particular cases deserve particular criteria and treatments. They are, therefore, out of the scope of overall distributive justice in macrojustice.[16]

[16] For instance, for the very few able people who choose to work very little, there are three classical proposals. (1) They should earn their sandwich, "he who does not work does not eat" (Saint Paul, Rawls). (2) They should have a "right to laziness" (Paul Laffargue) and perhaps receive a basic income(utilitarianism may support this position, which is eloquently defended by van Parijs (1995)). (3) They should help other people in working a little; relatedly, if they had to pay for their possible advantage in capacities and earnings, whether they choose to actualize it or not (which is their responsibility), they would pay $-t_i=k\cdot(w_i-\overline{w})$, for which they should work $k\cdot[1-\overline{w}/w_i)]$; however, if they still choose $\ell_i<k$, we will see that they may have an interest in hiding their skills and their value w_i (diplomas, previous jobs, etc. often make some estimate possible). Note that freedom of choice should a priori refer to the full domain of possible choice in the space of income and leisure and not to a subset of it (such as the case $\ell_i=0$ for justifying solution (2)). Finally, note that there are other distributive units than nations; for instance, in a family $k=1$, but the transfers are by gifts rather than taxes (each likes others' enjoyment and consumption).

Finally, for all these related reasons, distributive macrojustice is only concerned with normal full-time labour and $\ell_i > k$ (the cases of unemployment will be added).

Therefore, for macrojustice,

$$y_i = w_i \ell_i + k \cdot (\overline{w} - w_i) = w_i \cdot (\ell_i - k) + k\overline{w} > k\overline{w} .$$

That is, there is a *minimum income* of $k\overline{w}$.

The case $k=0$ is full self-ownership. A case of $k=2.5$ days a week for a nation would correspond to a very high redistribution (there can, in addition, be various policies of more specific microjustice or mesojustice).

11. Incentive compatibility

If w_i denotes the highest wage rate individual i can obtain, this individual can also generally earn various rates $w'_i < w_i$ in not using her best (most highly paid) skills at work.[17] She may make such a choice if she thinks that the fiscal authority bases her taxes and subsidies on this actual and observed w'_i, in order to diminish the tax or transform it into a subsidy if $w_i > \overline{w}$, or to augment the subsidy if $w_i < \overline{w}$ (hence she would benefit whatever $\overline{w}$ if $k>0$, and therefore she need not know $\overline{w}$ for behaving in this way). The individual may think that the government would take the observed w'_i as base either because it mistakes it for the value of capacities w_i, or because it deems the actual w'_i to be the appropriate basis, or any mixture of these reasons.

Individual i thus chooses both labour ℓ_i and skills that earn $w'_i \leq w_i$, which maximize some increasing ordinal utility function

$$u^i[(\ell_i - k)w'_i + k\overline{w}', 1 - \ell_i],$$

where $\overline{w}' = (1/n)\Sigma w'_j$.[18] The derivative $\partial u^i / \partial w'_i$ has the sign of $\ell_i - k + k/n$ if individual i takes the w'_j for $j \neq i$ as given (no collusion), but whatever they are. Therefore, individual i

[17] See Dasgupta and Hammond (1980).

[18] Choosing a more remunerated but more painful or disagreeable activity is considered as working more, and a corresponding full analysis has to consider, in a framework of multidimensional labour (see below) the relevant dimension(s) that affect both the productivity and the painfulness or intrinsic attractiveness of labour.

chooses $w'_i=w_i$ if $\ell_i > k\cdot[1-(1/n)]$. This is the case for macrojustice where $\ell_i > k$. Hence, *the individuals choose to work at their best skills and thus to "reveal" their capacities and to exhibit their economic value*. The government can understand this (it does not need to know individuals' utilities, but only that individuals prefer higher disposable incomes). Hence, it does not need to raise questions about basing its taxes and subsidies on actual and observed $w'_i<w_i$ since using the observed wage rates as base makes them be the w_i. And the individuals can in the end know this conclusion.

IV. GENERALIZATION

12. Multidimensional labour, nonlinear production

Labour has a priori various dimensions, such as duration, previous education and training, intensity (strength, concentration), speed, etc. Moreover, output may not be a linear function of labour. Let ℓ_i denote a multidimensional labour of individual i, and $p_i(\ell_i)$ the corresponding earning.[19] All the reasonings, results and meanings presented for the simple case can be repeated for this general case practically identically. The equalization labour k is now multidimensional. The tax-subsidy is

$$t_i= \bar{p}\,(k)-p_i(k)$$

where $\bar{p}\,(\ell)=(1/n)\Sigma p_i(\ell)$, and individual i's disposable income is $y_i=p_i(\ell_i)-p_i(k)+\bar{p}\,(k)$.

This multidimensional case can often practically be reduced to a unidimensional case with labour duration adjusted for the other characteristics of labour. Indeed, labour can generally be considered as a flow, and as steady in some given period (which can be taken as short as one wants). Then, if ℓ'_i is the duration of labour ℓ_i and ℓ''_i the set of its other parameters, p_i can be written as $p_i(\ell_i)=\ell'_i\,\pi_i(\ell''_i)$. If individuals' particular productivities are of the classical type $\pi_i(\ell''_i)=a_i f(\ell''_i)$, $p_i(\ell_i)=w_iL_i$ where $L_i=\ell'_i\,f(\ell''_i)$ is individual i's "labour duration augmented for the other characteristics of labour", and $w_i=a_i$ is the corresponding competitive wage rate.[20]

[19] For macrojustice, the effects of other persons' labour on an individual's earnings pass through the prices.

[20] The educational input can also be taken into account in "spreading" the formation time on the

13. Unemployment

Situations of unemployment raise particular specific issues, but, given their importance, they can be related to the general results for macrojustice. If w_i=0, individual i's labour is neither supplied for income nor demanded, and yet the formula $t_i=k\cdot(\overline{w}-w_i)$ gives $y_i=t_i=k\overline{w}$, the minimum or basic income. If w_i is low, t_i and y_i are close to $k\overline{w}$, whatever ℓ_i. Hence, the general principle can be applied to these cases (apart from the other policies of formation, education, taking care of handicaps, etc.).

In involuntary unemployment, the individual faces a constraint $\ell_i \leq \ell_i^o$. It can be partial or total (duration zero). It can be for duration or for other dimensions (for instance as underqualification for formation). The reasons for discarding cases $\ell_i < k$ from macrojustice may not hold any longer for this case: these people do not voluntarily abstain from participation to social production, and their number may not be small. Of course, good macroeconomic policy in the first place, unemployment insurance, and specific policies about the labour market and formation are in order. Yet, the obtained distributive policy importantly diminishes causes of involuntary unemployment in two ways, and can integrate aid to the unemployed. Indeed, basing taxes and subsidies on items less elastic than actual labour has this effect. Moreover, the support to low wages provided by the obtained scheme supersedes, to everybody's benefits, a number of public or private wage rigidities which are important causes of unemployment (minimum wages, collusions, etc.).[21] However, the general results for macrojustice can also apply to the case of involuntary unemployment, in using the logical device of considering someone who cannot work more as someone who cannot earn more in working more (and works for earning). What the market presents to the individual is then described solely in terms of remuneration (which, however, should not be a linear function of labour for partial unemployment).

The outcome will be that someone involuntarily unemployed at $\ell_i^o \leq k$ (in particular totally unemployed) has income $\tilde{p}(k)$ where $\tilde{p}(k)$ derives from the average $\overline{p}(k)$ in replacing the $p_i(k)$ of such individuals by $p_i(\ell_i^o)$ (0 for full unemployment).

---

ulterior labour (that uses its benefits) (see details in Kolm 2004a, chapter 8).

[21] See Kolm 2004a, Chapter 7.

This results from the application of the noted device in replacing the function $p_i(\ell_i)$ by its truncation at ℓ_i^o (written for a unidimensional case for simplicity)[22]: $P_i(\ell_i)=p_i(\ell_i)$ if $\ell_i \leq \ell_i^o$ and $P_i(\ell_i)=p_i(\ell_i^o)$ if $\ell_i \geq \ell_i^o$, with $p_i(0)=0$ for full unemployment. Then, applying the ELIE scheme to functions P_i gives $t_i=\overline{P}(k)-P_i(k)$ and $y_i=P_i(\ell_i)+t_i=P_i(\ell_i)-P_i(k)+\overline{P}(k)$. If $\ell_i=\ell_i^o$ and $\ell_i^o \leq k$, $P_i(k)=p_i(\ell_i^o)=P_i(\ell_i^o)=P_i(\ell_i)$, and therefore $y_i=\overline{P}(k)=\tilde{p}(k)$. This is in particular the case for full unemployment, $\ell_i^o=0$.

V. INFORMATION AND COMMUNITY

14. Information

As we have noted, the obtained distributive scheme fortunately avoids the extraordinary difficulty of knowing individual utilities and a welfare function, which raises many questions of information, existence, meaning and ethics. In fact, a macrojustice policy derived from these items is actually rejected by everybody (and hence cannot be implemented), by our basic rules, and by reflective philosophy. Taxing earned incomes is an intention of actual policy, but this is done with vast uncertainty and ignorance, since about 30% of this base evades the tax (Slemrod (2002) for the US, and the figure is similar elsewhere).

In contrast, we have seen that ELIE schemes are incentive-compatible: individuals work at their best skills and hence reveal them and their market value w_i. Then, an easy way of levying the taxes kw_i (equally redistributed) is to exempt overtime labour above some reference labour not higher than most full-time labours, from a flat tax: if ℓ^o is this labour, the rate is k/ℓ^o. This exemption of overtime work is presently an important political proposal in France (where there also exists a tax of the earnings during a given time for financing the support to senior people). Tax reports can be checked as usual. Jim Mirrlees ends his famous 1971 paper by the remark that since we tax earned income $w_i\ell_i$ and observe labour duration ℓ_i, we know the capacity w_i and can as well tax it. In fact, what is public knowledge in a market are the prices rather than the values and quantities exchanged (here the w_i rather than the $w_i\ell_i$

[22] A particular case can be $p_i(\ell_i)=w_i\ell_i$.

and ℓ_i). Who has chosen her education as a result of a meditation about which marginal tax rates will prevail three decades later? At any rate, incentive compatibility also works for education. Educational levels are usually known (diplomas) and showing them serves the individuals' interests, and they have an observable market value (see, e.g., Jacob Mincer's work). There are sometimes premia for formation or for intensity of work: exempting them from the tax amounts to taxing corresponding capacities. Simple job specification often implies formation and intensity, which have observable market value. Now, 9/10 of labour is wage labour (in developped countries), and pay sheets often indicate wage rate, time worked, overtime work and pay, job specification, premia for formation and intensity, etc. For other labour (1/10), the usual procedures and routines of fiscal administration can be used: classification of labours and comparisons with others, standards of the profession, reports, multiple reports, recoupments, checking, penalties for false report, estimates, etc. For all types of labour, it is not very different to check income that is not reported or that is falsely reported as overtime or as premium (the latter may be easier since, at least, some trace of this income exists).

15. The degree of redistribution

Coefficient *k*, technically the equalization labour, is a degree of redistribution, equalization, and solidarity with regard to the unequal endowments of productive capacities. The value k=0 corresponds to full self-ownership and an absence of redistribution from it, and redistribution increases with *k*. Specifically, *k* is a degree of common ownership of the value or rent of given productive capacities (and 1–*k* is a corresponding degree of self-ownership). The structure of ELIE has been derived from properties which are essentially unanimously wanted. Could this also hold for the level of coefficient *k*, given that it has opposite effects on the interest of individuals according as their w_i is above or below the average $\overline{w}$ (since $t_i=k\cdot(\overline{w}-w_i)$)? Now, everybody – it seems – agrees that there should be some redistribution for helping people with insufficient earning capacities, or for diminishing the effects of inequality in this respect. More precisely, in a given society, there usually is some kind of consensus about what the minimum income should be. Since this level is $k\overline{w}$ with ELIE and $\overline{w}$ is given, this common view determines a coefficient *k* (the poor can also benefit from more specific measures of mesojustice or microjustice).

For more direct inquiries, however, although the opinion of an individual "small in a large number" has in itself no actual influence – and hence no influence on this individual's self-interest –, people's expressed views are often influenced by their interest, even though people also have a social-moral judgment (the view of the "impartial spectator in their breast" as Adam Smith's (1759) puts it). Yet, ELIE provides a neat possibility of obtaining people's social-moral views clean from their self-interest. It suffices to consider the opinion of individuals with an average wage rate $w_i = \overline{w}$. Indeed, for them t_i=0 whatever k: their interest is not affected by the level of k. Their opinion about this level thus a priori only expresses their social-ethical view. This would a priori provide an unbiased sample of these views in society.

Individuals' social ethical views are a priori globally closer to one another than their interests in questions of distribution (less polarized for an ELIE), because they are altruistic and impartial (by nature and definition of a conception of justice).[23] Yet, they may differ. However, these views depend on the various influences the individuals have been submitted to, their life experiences, their reasoning – and, possibly some given sensibility. Hence, they a priori become more alike when people are informed about others' arguments and know vividly about their experiences. The means are essentially information and social dialog. This has practical limits, but the dissensus can be reduced by showing the results of a number of analyses: a theory of dialog showing the tendency of the "ideal speach" (Habermas), the derivation of the individuals' own impartial views from their preferences and conducts about people close to them, theories of impartial judgments such as the theories of the "original position" or "moral time-sharing" (each individual assumes she is all individuals successively in time) corrected for the serious defects of their classical presentations, and so on.[24]

The distributive coefficient k depends on the society. It expresses the degree in which it considers itself a community of resources. We have noted the levels of k of the ELIE equivalent to the present-day national distributions. These actual distributive policies are generally the irrational result of the accumulation of successive measures adopted under political opportunities. Simply reforming them – and notably the income tax and the main aids to low incomes – towards an ELIE with a similar coefficient k can be done with everybody

[23] See Kolm 2004a, Parts 4 and 5.
[24] All these analyses, others for the same purpose, and their results, are presented in Part 4 of the volume Kolm 2004a.

gaining at each step.[25] Yet, the social and political dialog about the degree of community, solidarity and redistribution will go on. Moreover, there can be, and often are, various communities of redistribution for the same person – for instance at levels of a region, a nation, or supranational (e.g. the European Community). Then, there can be an ELIE and a *k* for each community, with a net addition of the transfers, and possibly some evolution and shift in time.

VI. POLICY

16. Place in public finance

If distributive justice is achieved, the financing of other public expenditures should be by benefit taxation. Then, in fact, a number of services can often be more efficiently provided by sufficient personal income and a market with the required public regulations and complements. This is for instance often the case for housing, health, or education, with the proper information, insurance, loans, protection of children, and care of the externalities and intrinsic value of information and culture. Other principles of financing are also classically proposed. One of them is taxation "according to capacities" which, for earned income, should be capacities to earn, i.e., in proportion to w_i. Another principle is "equal sacrifice", which, if it does not simply means equally in income, should be equal sacrifice in labour. These two classical principles are in fact equivalent: each individual *i* pays $w_i L$ where L is both the coefficient of proportionality and the equal labour. This is in fact the ELIE financing of the basic income $k\overline{w}$, and each taxpayer *i* then pays the product $(k+L)w_i$ of her labour $k+L$, the same for all. Of course, all these financing principles can be jointly present.

17. Conclusion

The foregoing analysis has obtained and philosophically and logically vindicated the macrojustice policy that can be presented as consisting of: a *basic income*, plus a *flat tax*, on a *given labour* (*exempt overtime*).

This has been obtained from unanimously demanded features.

[25] Kolm 2004a, notably Chapter 7. This is a factual result rather than a theoretical necessity since ELIE solutions are only a subset of the Pareto-efficient states.

This policy is more easily implementable than present taxes and aids.

It is simple, clear, understandable, meaningful (e.g. a basic income financed by equal labour, and all the other meanings presented in Section 8), and implementable progressively or rapidly by largely supported reforms.

When leading welfarist fiscalists see that their "second best" proposals are complex, not understood by the public and politicians (who would probably disagree if they understood), with a regressive tax for high incomes, high administrative costs, and informational and conceptual difficulties (utilities), they often propose, as realistic simple third best, a flat tax plus either – they are equivalent – a basic income (Atkinson 1995) or a negative income tax (Mirrlees 1986). Add a given labour as base (exempt overtime), and this is ELIE. Expert pragmatic third best drives them towards the liberty-based first best implied by unanimous moral judgments.

References

Arrow, K.J. 1963. *Social Choice and Individual Values*. New York: Wiley. New Haven: Yale University Press.

Atkinson, A.B. 1995. *Public Economics in Action: the basic income/flat tax proposal*. Oxford: Oxford University Press.

Coase, R.H. 1960. The Problem of Social Cost. *Journal of Law and Economics* 3: 1-44.

Dasgupta, P., and P.J. Hammond. 1980. Fully Progressive Taxation. *Journal of Public Economics* 13: 141-54.

Kolm, S.-Ch. 1966a. *Les choix financiers et monétaires (théories et techniques modernes)*. [Monetary and Financial Choices]. Paris: Ed. Dunod.

Kolm, S.-Ch. 1966b. The optimal production of social justice. In International Economic Association Conference on Public Economics, Biarritz. Proceedings ed. by H. Guitton and J. Margolis. *Economie Publique*, Paris: CNRS, 1968, pp.109-77, and *Public Economics*, London: MacMillan, 1969, pp.145-200. Reprinted in *The Foundations of 20th Century Economics, Landmark Papers in General Equilibrium Theory, Social Choice and Welfare*, selected by K.J. Arrow and G. Debreu, 2001, Cheltenham: Edward Elgar, pp. 606-644.

Kolm, S.-Ch. 1971. *Justice et équité*. Paris: Cepremap. Reprint, Paris: CNRS, 1972. English translation, 1998, *Justice and Equity*. Cambridge MA: MIT Press.

Kolm, S.-Ch. 1973.A note on optimum tax evasion. *Journal of Public Economics* 2.

Kolm, S.-Ch. 1984. *La Bonne Economie: La Réciprocité Générale*. [The Good Economy: General Reciprocity]. Paris: Presses Universitaires de France.

Kolm, S.-Ch. 1995a. The economics of social sentiments: The case of envy. *Japanese Economic Review* 46: 63-87.

Kolm, S.-Ch. 1995b. The modern theory of justice. *L'Année Sociologique* 5: 297-315.

Kolm, S.-Ch. 1996a. *Modern Theories of Justice*. Cambridge MA: MIT Press.

Kolm, S.-Ch. 1996b. The theory of justice. *Social Choice and Welfare* 13: 151-82.

Kolm, S.-Ch. 1999. Rational foundations of income inequality measurement. In *Handbook of Income Inequality Measurement*, ed. by J.Silber. Dordrecht: Kluwer, pp. 19-94.

Kolm, S.-Ch. 2004a. *Macrojustice, The Political Economy of Fairness*. Cambridge: Cambridge University Press.

Kolm, S.-Ch. 2004b. Liberty and distribution: Macrojustice from social freedom. *Social Choice and Welfare* 22: 1-33.

Kolm, S.-Ch. 2006a. Introduction to the economics of giving, altruism, and reciprocity (Chapter 1, pp. 1-122), and Reciprocity: its scope, rationales, and consequences (Chapter 6, pp. 371-541). In S.-Ch. Kolm and J. Mercier Ythier (eds.), *Handbook of the Economics of Giving, Altruism, and Reciprocity*. Amsterdam: North Holland.

Kolm, S.-Ch. 2006b. On real economic freedom. *Social Choice and Welfare*, forthcoming.

Maniquet, F. 1998. An equal right solution to the compensation-responsibility dilemma. *Mathematical Social Sciences* 35: 185-202.

Mirrlees, J. 1971. An exploration in the theory of optimum income taxation. *Review of Economic Studies* 38: 175-208.

Mirrlees, J. 1986. The theory of optimal taxation. In *Handbook of Mathematical Economics*, vol. 3 ed. by K.J. Arrow and M.D. Intriligator. Amsterdam: North-Holland.

Musgrave, R. 1959. *The Theory of Public Finance*. New York: McGraw-Hill.

Rawls, J. 1971. *A Theory of Justice*. Revised edition, 1999. Cambridge MA: Harvard University Press.

Rawls, J. 1974. Reply to Alexander and Musgrave. *Quarterly Journal of Economics* 88: 633-655.

Rawls, J. 1982. Social unity and primary goods. In *Utilitarianism and Beyond*, ed. by A. Sen and B. Williams. Cambridge: Cambridge University Press, pp. 159-85.

Slemrod, J. 2002. Tax systems. *NBER Reporter*, Summer 2002: 8-13.

Slemrod, J., and S. Yitzhaki. 1987. Tax avoidance, evasion and administration. In *Handbook of Public Economics*, vol. 3, ed. by A.J. Auerbach and M. Feldstein. Amsterdam: North-Holland, pp. 1423-70.

Smith, A. [1759] 1976, *The Theory of Moral Sentiments*. Oxford: Oxford University Press.

Van Parijs, P. 1995, *Real Freedom for All*. Oxford: Oxford University Press.

Walzer, M. 1983, *Spheres of Justice*. Oxford: Basil Blackwell.

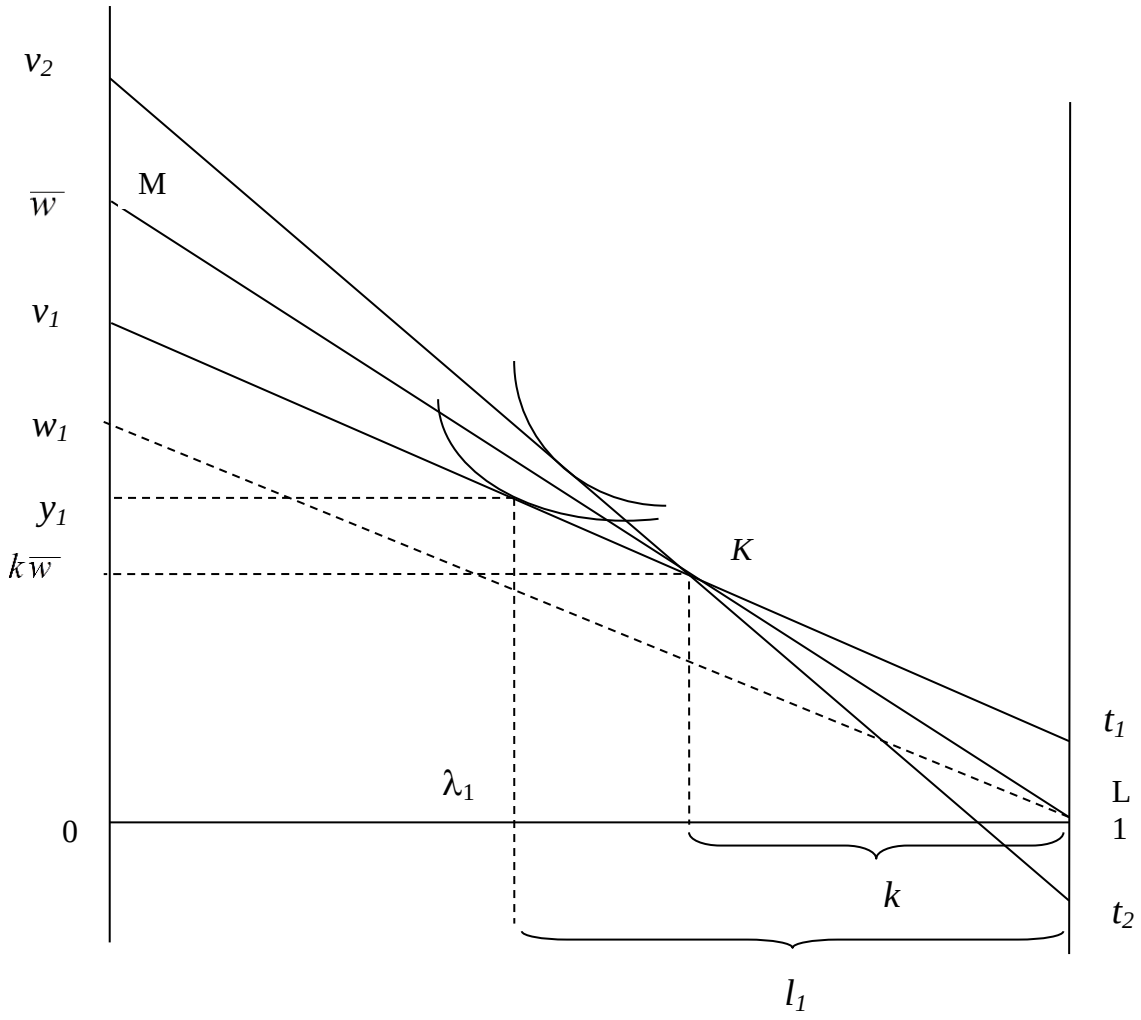

Figure 1