September 5, 2007

THE LIBERAL PUBLIC ECONOMICS OF OPTIMUM INCOME TAXATION AND DISTRIBUTION

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Abstract:

The hypothesis that individuals' capacities to derive pleasure are held to be relevant to determine the overall general income distribution and taxation seems falsified by a number of tests. The alternative principle of equal liberty implies a very simple structure of taxation, distribution and transfers, rich of various remarkable meanings. This policy, efficient and easily implementable with large support, amounts to associating a few classical and existing fiscal structures.

Keywords: Taxation, Income distribution, Fairness, Liberty.

J.E.L. classification: D31, D60, D63, H21.

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1. Utility or liberty for macrojustice ?[1]

1.1 The principle of optimality

What should the distribution, taxation and transfers of income be? This is a main question of economics, and even more of public economics. Answering it requires, before anything else, selecting the criterion of optimality. If the purpose of such a study is application, for instance in fiscal policy, the properties of this criterion have to be those accepted or desired by the people who influence this application, such as officials or voters and, in particular, these properties cannot avoid abiding by the general opinions of the population. The crucial issue is the distribution among people and, therefore, the definition of its fairness. One school of economic thought (James Buchanan, Public Choice) rightly emphasizes that public policy results from individuals' preferences; however, people want fairness and justice, this is the main dimension of their political opinions, and the "social contract" between their interests for which they can settle should be in terms they deem appropriate to define this fairness in their community. The basic point in this respect is the choice of the items of the individuals' situation that are directly considered and compared to make this distributive judgment. People's distributive judgments in general focus on different kinds of such items depending on the specific type of distributive problem. In particular, individuals' psychological and physiological capacities for enjoyment, pleasure, satisfaction or happiness are deemed relevant when the question is the relief of suffering, or in common cases of the distribution among people who know each other (e.g. within a family). However, these capacities happen to be considered irrelevant for the evaluation and policy of the overall distribution in a large society in which the issues of suffering from any remaining misery are taken care of by specific, ad hoc policies or insurance schemes. As noted shortly, the evidence in this respect seems overwhelming (Section 1.4). The items directly evaluated or compared for this policy are, in fact, some individuals' means or rights. The corresponding equality of the relevant liberties happens to lead to a structure of distribution and taxation which is simple, rich in many ethical meanings, made of a few elements actually used by various policies, and more easily implementable than other overall policies.

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[1] This study has benefited from discussions with more people than I can possibly record here. Yet, I have been particularly helped by suggestions by Marx Fleurbaey, Nick Stern, Edmund Phelps, William Thomson, and the participants in the Conference on Macrojustice of Spring 2006 (Claude Gamel, Michel Lubrano, Alain Leroux, Pierre Livet, François Maniquet, Erwin Ooghe, Alain Trannoy, Alain Wolfelsperger) – proceedings forthcoming in Gamel and Lubrano, 2008.

It should also be noted that one country takes individuals' wage rates as base of the income tax, in the form of an exemption of overtime labour over a moderate duration (Section 1.2). Hence, using this base is de facto possible. The corresponding uncertainty has a structure different from that about full earned income, but it appears not to be larger on average. Moreover, the distributive policy derived here is based on actual, observable wage rates (and it happens to induce people to work with their most highly remunerated skills) (Section 5.2). In addition, the items most difficult to know about, individuals' comparable utilities, turn out not to be relevant for the distribution in question (previous paragraph and Section 1.4). Therefore, and since no second best can be determined if the first best is not defined to begin with, the appropriate strategy seems to be to present the optimum taxation, distribution and transfers according to actual normative views, and their properties, in leaving for other studies the practical refinements introduced by the exhaustive analysis of issues such as tax evasion, cheating, checking and best penalties, the gathering of the needed information and its costs, imperfect information and taxation in uncertainty.[2]

1.2 Welfarist taxation of earned income

Various theories of optimum income taxation or distribution have been proposed. The best known, by far – which is also one of the most celebrated studies in economics – is certainly that of Jim Mirrlees (1971). However, it seems to face a major challenge: its implementation. Why, indeed, is this beautiful theory on an essential policy issue still waiting for the beginning of an application after 36 years? What would it require to remedy this unemployment and hence make it as useful as it seeks to be? This theory takes earned income as tax base because "the natural, and one would suppose the most reliable, indicator of a man's income-earning potential is his income." Then, it derives the optimum income-tax schedule from the maximization of a function of individual utilities with identical utility functions.

[2] See Kolm 2004, Chapter 10, and the volumes edited by C. Gamel and M. Lubrano (2008) and M. Fleurbaey, M. Salles, and J. Weymark (2008), especially the contributions by E. Ooghe, M. Fleurbaey, A. Trannoy, L. Simula, and F. Maniquet.

In reality, however, 30% of the income tax base evades the tax, in all countries.[3] Hence, actual incomes are largely not known by the tax authorities.[4] Moreover, in one country (France), overtime labour is exempted from the income tax, over a limited official labour duration.[5] This amounts to taking the wage rate – the market value of productive capacities – as tax base. The fiscal administration needs to know neither the total income earned nor the actual labour duration. The abundant unreported overtime "black labour" ceases to be unlawful evasion and even facilitates taxation. This tax does not induce the Pareto inefficiency that results from taxing labour duration also. This can be reinforced by exempting productivity premia and premia for previous formation when they exist, for the intensity and formation dimensions of labour.[6] Declarations are submitted to the usual checkings and crosscheckings with random deeper inspections and notable penalties in case of fraud. This de facto restricts cheating on wage rates or labour duration to some very small firms. As in all developed countries, 9/10 of labour income consist of wages for which there is a pay sheet – an official legal document for which false report is punished. A pay sheet presents all the needed information: wage rate, total pay, labour duration, overtime work and pay, type of work which often implies formation and intensity, sometimes previous formation, premia, etc. Type of occupation, qualification, educational level, sales and profit, and other information are also used for some estimates. For the large majority of jobs, labour duration is well-defined, observable and contractual. In fact, Mirrlees also states that duration is observed along with earnings, and he suggests various ways of estimating "income-earning potentials." Finally, reality also differs from his noted model in that individuals have different utility functions.

These remarks suggest that the useful use of this model is to take it as base or starting point and to build the theory of optimum taxation by introducing more realistic assumptions (this function would make it the "standard model" of optimum taxation, in the sense used in physics). This is indeed what many important studies did, and what Mirrlees himself did to

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[3] See for instance Slemrod (2002) for the US.

[4] Mirrlees notes the case of "certain kinds of income from self-employment, in particular work done for the worker himself and his family" and that "in some countries, the extent of uncertainty about incomes is very great."

[5] 35 hours a week or 1607 hours a year or, for executives and others whose daily hours of work are unclear, 218 days per year. Similarly, for part-time labour, the tax exemption concerns the so-called "complementary hours." This tax reform was adopted from a presentation of the result of the present study. There was also previously a tax that demanded each person to pay the proceeds of the same labour time (for subsidizing dependent people).

[6] The tax treatment of education is discussed in Appendix A.

begin with. His article ends with noting that the tax can also take account of labour duration which, with earned income, determines the wage rate, and that "we have other means of estimating a man's skill-level."[7] In later works, Mirrlees studies optimum lump-sum transfers (1986) and taxation of uncertain incomes (1990). In his review of the field (1986), he rejects the hypothesis that individuals have identical utility functions: "Since this case does not seem to me especially interesting or useful, it will not be given much attention."

Then, however, if "The central element in the theory is information; public policies apply to individuals only on the basis of what can be publicly known about them" (*id.*), this improved standard model raises a question of informational consistency and may even seem quite bizarre: it would be fully impossible to know wage rates, but the government would have full knowledge of individuals' utilities, that is, of their tastes and of their capacities to enjoy. Now, what is more private than individuals' tastes and contentment (and a fortiori aptitudes at it)? In order to pay lower taxes or receive more subsidies, self-interested individuals subject to such a tax would lie about these psychological characteristics, send false messages about them. They would distort their choices the result of which could be used to infer them. This would jeopardize economic efficiency and fairness. Moreover, the social welfare function requires comparisons of individuals' utilities or of their variations, and often their cardinality; this adds, to the question of information, a deeper one about possibility and meaningfulness.[8] In addition, these utilities would have to be cleaned of perverse social sentiments (malevolence, malice, spite, *schadenfreude*, envy, jealousy, sentiments of superiority), perhaps of positive ones (benevolence, altruism, sense of fairness), probably for expensive or cheap tastes (see below), and of irrationalities (e.g. in time preference). A choice should be made among the person's various selves (in time or otherwise). Most of these operations imply some arbitrariness.[9] Finally, the choice of a social welfare function requires solving Arrow's impossibility problem. Mirrlees does point out informational difficulties, of course. The State's information about individuals' utilities "is certainly not the case" (1971), and, even in this case of identical utilities: "This simple consumption-leisure utility function is

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[7] Both Voltaire (1768) and Mirrlees propose – jokingly – a tax on intelligence because people are so proud of theirs that they will not hide it and evade the tax. Mirrlees can use the I.Q. However, Voltaire reports that the king to whom this idea was proposed answered his adviser: "I have to exempt you from this tax."

[8] What is meaningful and what is not in matters of comparisons of variations of utility and of interpersonal comparisons of utilities or of their variations is presented in Kolm 1996 (Chapters7, 12 Appendix A, and 14).

[9] The exception is the case of comparative social sentiments (Kolm 1995).

a heroic abstraction from a much more complicated situation, so that it is hard to guess what a satisfactory method of estimating it would be" (*id*.).

However, Mirrlees's 1971 choice of the assumption of identical utilities is not for simple convenience. He gives a tangible reason for it: "Differences in tastes… raise rather different kinds of problems, and it is natural to assume them away." This is, indeed, a common view – as a number of examples will suggest shortly – which applies indissociably to the rates of substitution between goods and to the satisfaction derived from them which induces these rates. This was also the basis of what is perhaps the only more famous study of the ethics of distribution, published the same year, John Rawls' *A Theory of Justice* (1971) (whose solution is not a maximin in utility, as we will remind ourselves shortly), as well as the position of many thoughtful philosophers. The point is that differences in tastes and utilities are seen as sometimes relevant for distributive justice, and sometimes not, depending on the specific question, and, in a society in a normal situation, the income tax appears to be considered as belonging to the second category. Comparisons of individuals' utilities or welfare happen to be more seen as relevant to determine interpersonal distribution, the more they refer to suffering rather than to pleasure, and the more the distribution is done among people close to one another (who have empathy for the others' welfare). This is not the case for the overall distribution of general income in a large society not in a situation of distress (society-wide disaster, famine, war, flood, draught, etc.).[10]

1.3 An overview

The next section will present a variety of tests of the hypothesis that the comparison of individuals' utilities or of their variations ("welfarism") [11] is actually considered to be the way to define the best overall distribution of income. It turns out to be essential to distinguish the question of "macrojustice," concerning the overall allocation of the value of the bulk of society's resources among most people according to general rules (including property rights, the income tax and its equivalents, and general income supports), from the multifarious cases

[10] Models of optimum non-linear schedules of public utility prices (e.g. Kolm 1970a, 1970b) had a formal similarity with Mirrlees's optimum income tax model, but preferences about the specific goods are relevant for this problem of specific second-best efficient allocation, and utility functions were taken as both different across individuals and uncertain for the optimization.

[11] A term coined by Hicks (1959) for criticizing the reference to welfare in cases in which liberty is the relevant final social value.

of "microjustice" concerning allocations that are particular and specific according to people, circumstances, reasons or goods.[12] The present topic is macrojustice for a large society in a normal situation, excluding cases of disaster when most people are in a state of suffering.

It turns out that actually (i.e. in "real life", not in scholars' models), this situation is not evaluated by welfarist criteria (which may remain for some specific issues of microjustice). Therefore, policy proposals derived from welfarist criteria cannot be implemented. As noted, welfarist criteria of any kind (including limiting cases of maximin and utilitarian comparisons of variations) are applied when utility means lower suffering or, often, among people who sufficiently know one another. Pain and proximity are the touchstones of their actual domain of application.[13] In contrast, for the distribution considered here, individuals' mental and physiological capacities to find pleasure or enjoyment – their hedonistic or eudemonistic capacities –, represented by their utility functions, are not considered relevant; they are not viewed as capable to provide valid reasons for people to yield or to receive more or less of these transfers; people are seen as accountable for their own such capacities.[14]

Such irrelevance of individuals' utilities would imply that the policy maker need not care about them. This is a bonus of extraordinary value given the various difficulties (and lack of sense) of knowing, choosing, comparing, measuring and aggregating them, and people's possible reactions.

The irrelevance of individual subjective contentment for some distributive judgment which keeps the reference to individuals implies that the direct evaluation bears on individuals' means (of satisfaction or action), possibilities, or liberties. There (classically) are two relevant kinds of freedoms: freedom from forceful interference or "social liberty," and,

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[12] It is sometimes also fruitful to distinguish a field of "mesojustice" about the distribution of specific but important goods that concern everyone (health and education, for instance).

[13] For instance, welfarism is often considered relevant for medical choices (e.g., for allocating a rare organ for transplant), or for intra-family distribution. Welfarism is notably retained when it is "dolorism" or "familism." Finally, the scope of judgments based on welfarism happens to be about that of altruism with its two motives of compassion and empathic proximity.

[14] Note that one can consider individual happiness to be important, very important, or even the most or the only important thing in the end, while holding that the fair interpersonal distribution of some means of it need not be determined by interpersonal comparisons of levels or variations of happiness, even if these comparisons are possible and meaningful (the selection of a Pareto-efficient state need not be defined and determined by a welfarist criterion; it can for instance be by a distribution of given resources plus an efficient free market).

adding the various available means, freedom to choose among a variety of actions or allocations. The classical and constitutional social liberty (discussed shortly) implies unfettered free exchange. The distributive policy respects it if and only if it is based on variables that the individuals cannot influence, i.e. on given "natural" resources. Then, with correction of "market failures" if necessary, society ends up in a Pareto-efficient state. This also is desired, not only because no other possible state gives more welfare to all individuals, but also because no such state is preferred by all, a condition of democracy.[15] The most important of given resources in economic value are human productive capacities, by very far (as noted soon).

The various possible ways to define a principle of equal liberties (Section 3) will lead to the same simple distributive scheme which has a number of different meaningful properties (Section 4). It amounts to sharing equally the product of the same partial labour ("Equal-Labour Income Equalization" or ELIE); to a net tax with two bonuses, an exemption of overtime labour over some duration and an equal credit or rebate – this shows the blueprint for reform –; to an egalitarian equal pay for some equal partial labour plus a non-taxation of income earned by the freely chosen rest of labour (these two parts can vary according to the sense of solidarity in the society); to a universal basic income financed by some equal partial labour of all; and to each individual yielding to each other the proceeds of the same labour in a general equal labour reciprocity. Multidimensional labour and non-linear earnings, and the cases of unemployment, will be included (Appendices A and B). Further specification of macrojustice and the property of incentive compatibility (Section 5), and the issues of the degree of redistribution and of the place of the result in public finance (Section 6), will complete the presentation.

1.4 Tests of welfarism for macrojustice[16]

[15] In a competitive electoral democracy, for instance, if the state of society is not Pareto efficient a contending party can propose a program that wins the election with the unanimity of the votes.

[16] All-purpose or universal welfarism (i.e., evaluating all social issues, including their distributive effects, by comparison of individuals' welfare only) still seems to be the dominant normative hypothesis in public economics, but this is not the case for normative economics at large, and it is a minority view in political philosophy and in the other social sciences. These latter disciplines mostly assert that they abide by the non-dogmatic practice of deriving from analysis or opinion the normative criterion that can be used for each type of question.

A normative study can be applied only if people who actually influence its implementation sufficiently adhere to its normative criterion (they can be voters, people at large, politicians, tax officials, etc.). The "standard model" of optimum income taxation is probably proposed for application. Therefore, it rests on the hypothesis that welfarism is an accepted principle for macrojustice. Does any test falsify this hypothesis, or not? Here are a few tests among many possible ones.

1.4.1 The European Union test

If, as it is said, the people of Northern Europe are better at producing and those of Southern Europe more skilful at enjoying consumption, should the European Union set up a vast program of intra-European North-South income transfers? Should it tax the industrious Swedes for subsidizing the Napolitans who make a feast from a meal? This would be the injunction of utilitarianism. Or perhaps, on the contrary, should this tax subsidize the Portuguese reputedly afflicted by a kind of mild sadness, in order to soothe their *saudade*? This would be required by a maximin in utility. However, everybody should help the victims of uninsured occurrences causing insufferable misery; but these are cases of specific microjustice aiming at the relief of suffering.

1.4.2 The earned income and legitimate ownership test

"I take the 10 euros you just earned because I like them more than you do." Is this a good reason? Or perhaps, on the contrary, "I take your earnings because you like your euros left more than I like mine." Is this a better reason? Am I entitled to (or should I) take your money because it pleases me more than it pleases you? Or perhaps, on the contrary, because you enjoy your money left more than I am able to enjoy my own? These two opposite consequences of comparing our tastes for income are respectively utilitarianism and maximin in utility, the two polar cases of welfarism. If, however, your 10 euros enable me to buy the drug that saves my life, most people will excuse the theft; but this is a case of specific microjustice for the alleviation of suffering.

1.4.3 The taste, preference or desire tests

Should you finance somebody's beverage because her special taste for cheap beer permits her drinking to produce utility at low cost (as utilitarianism requires)? Or because she only likes expensive wine (as egalitarian maximin or other welfarist principle may demand)? Nevertheless, you should probably give water to your thirsty neighbour, to relieve her pain cheaply. Rawls (1982) points out yet another aspect, for "social justice": "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 its satisfaction any more than the strength of a conviction argues for its truth."

1.4.4 The income tax test

Should you pay a higher income tax than someone else because you like the euros taken away less than she does or, on the contrary, because you like the euros left more than she does – as utilitarianism and maximin in utility tend to require, respectively? Are, in fact, these considerations relevant for this issue? To begin with, do these comparisons of enjoyment make sense, are they possible? At any rate, should you pay more or less because you have a cheerful character, or because the other has a cheerful character (which may lead one to enjoy a euro more or to regret its absence less – opposite effects again)?

In fact, has the Internal Revenue Service ever thought about sending questionnaires to inquire about these relative propensities or capacities to enjoy? Or does it think that this would be irrelevant and, perhaps, abusively intrusive; that these psychological characteristics are private matters and not the concern of overall and general public policy and the income tax; that, for this question, people are accountable for their own tastes, entitled to their beneficial effects and having to endure non-pathologically less favourable ones; and that such normal differences in tastes could not give rise to compensating claims on others' incomes or liabilities towards them?[17]

1.4.5 The implementability test

The welfarist theory of the optimum income tax is about a very important topic. It is very well known (and justly admired) by economists who want their work to be useful and seek

[17] Any more than, for instance, physical beauty.

application. Some eminent contributors to it have even had major economic responsibilities at world and national levels. Why, then, is this remarkable theory still waiting for the beginning of an application after nearly four decades? Can it be applied, at least in a democracy? To begin with, would officials and voters endorse its welfarist ethic? Or in fact do they discard it – for this application – when it is explained to them?

1.4.6 The distributive opinion test

The opinions about overall distribution that exist in society have two polar positions; policies apply some mixture of them or compromise between them, and individuals also often endorse more or less some mixture. One polar position is income egalitarianism. It sees equality in incomes as the ideal. Since individuals have different utilities, this cannot result from any kind of welfarism. The other polar position holds that earned income should belong to the earner ("classical liberalism"). It is not welfarist either. Hence, welfarism seems absent from actual moral positions about the overall distribution in macrojustice.

1.4.7 The Rawls (and many other scholars) test

John Rawls is the most famous of contemporary philosophers. His basic work, *A Theory of Justice*, is an indictment of welfarism for macrojustice (his "social justice" – he uses the term "macro" once).[18] He says he presents his own theory because a critique is fully convincing only if an alternative is proposed. Some economists hide this fact in calling "Rawlsian" a maximin in utility. But Rawls' maximin (his "difference principle") is in "primary goods," not in utility. This most basic point is unambiguous: "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).[19] Hence, his remarks that "Justice as fairness rejects the idea of comparing and maximizing satisfaction" and "The question of attaining the greatest net balance of satisfaction never arises in justice; this maximum is not used at all" (1971), intend to point out a commonsense and moral inappropriateness of welfarism. Therefore, Rawls naturally acknowledges: "A principle of

[18] His view on this point is shared by a large number of scholars in the various disciplines (among others Dworkin, 1981, but also "classical liberals"). Yet the rest of their conception, as that of Rawls, raises problems.

[19] The leximin in interpersonally comparable utility is the eudemonistic "practical justice" in Kolm 1971, discussed by Rawls.

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" (id.).[20]

1.4.8 The constitution test

The basic principle of our societies, the transgression of which is unlawful and punished, is given by our constitutions and founding declarations. It consists of liberty and rights rather than welfare. Happiness is essential but private. "Men are free and equal in rights." They should be secured the liberty and means to "pursue happiness" as they see fit, rather than some level of happiness.[21] Property rights are basic, and the legitimacy of someone's property of something is provided not by some beneficial consequence but by the condition of its acquisition, notably free actions and exchanges.

The demanded principle of macrojustice thus seems to require no information about utilities. Obtaining its resulting form requires the following minimal few basic remarks about economic resources and liberties.

2. Economic liberties, resources and capacities

2.1 Liberties

In economics, if, in choice theory, utility is discarded, there remains the domain of free choice. Philosophical anthropology considers man as a dual entity: a sentient being capable of pleasure and pain, and a free agent capable of choice and actions. Thus, if utility is discarded from the value defining a fair overall distribution, there remains liberty. Moreover, rationality

[20] Beyond these general conclusions, however, most of Rawls' more specific proposals are logically problematic for specific reasons. (1) His maximin in "primary goods" (the "difference principle") omits that the bases of transfers and taxation can be much less elastic (hence waste inducing) than they presently are – the issues of defining an index of these goods and of relating this to Pareto efficiency, are much more secondary matters. (2) The theory of the "original position" and of the "veil of ignorance," both in Rawls's version and in Harsanyi's (which gives a kind of utilitarianism or, at least, separable welfarism), are problematic because a selfish individual choice in uncertainty does not have the same structure (and objects) as a choice of justice (see Kolm 1996, pp. 191-194, and 2004, pp. 358-360). (3) The classical theory of equal and maximal real basic liberties does not hold (see note 23 below).

[21] The 1789 Declaration of Rights and the American Declaration of Independence.

in the common sense of "for a reason," or "justified," implies an ideal "equal treatment of equals," i.e., the allocation of the relevant "material" among people who have no different relevant characteristics should ideally, *prima facie*, be equal.[22] Hence, the relevant basic principle would have to be an ideal of equal liberty. The relevant economic liberty refers to two types of freedom, defined by the nature of the constraint and the domain of choice, respectively.

"Social liberty" is the basic, constitutional and legal rule of our "free" democratic 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.[23] Free exchange without forceful interference by a third party is an important application. Social liberty implies the respect of the intended consequences of individuals' respectful actions (including free agreements or exchanges) – such as rights they can create.[24]

Social liberty may have to be respected simply because it is the meaning of the constitutional basic rights and hence violating it should a priori be unlawful and punished. 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 since – as we will see – it can be considered as compatible with a distribution banning poverty). Social liberty is non-rival. Indeed, each individual can have it at satiety, for all her actions that respect others. Hence, social liberty 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 the allocation of

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[22] I.e. in the absence of an overpowering reason, such an impossibility or the joint relevance of another criterion (which may be the ideal equality of something else, or the fact that some unequal states can give more to everyone than all equal ones). This derivation of the rationality of equality requires some elaboration (see Kolm 1996a, pp. 35-38, 1998 (translation of 1971), pp. 34-41, and 2004, pp. 396-399). Yet, Aristotle already remarked that "Justice is equality as everybody thinks it is, apart from other considerations" (*Nichomachian Ethics* and *Eudemian Ethics*).

[23] Constraints on some insufficiently informed or insane person imposing her to do what she would have chosen if she were fully informed or sane can be seen as extensions of this liberty. Another extension is that of public constraints that implement not only actual contracts but also implicit ones (e.g. for financing public goods or internalizing externalities).

[24] Social liberty is the full theory of related notions presented under various names such as "civic or social liberty" (J.S. Mill), "negative freedom" (Kant, J.S. Mill, Berlin), "formal freedom" (Marx), or "process freedom." The term liberty – rather than freedom – is sometimes restricted to social liberty (e.g. by some translators of Kant), but this has not gained general currency.

resources (several actions of an individual can also compete for this individual's means of various kinds).[25,26]

An individual can also have means, possibilities, other rights, and liabilities. The conjunction of her freedoms, means, rights, possibilities, etc. constitute her total liberty.

2.2 Resources

Social liberty and Pareto efficiency require distributive transfers to be based on inelastic variables (as far as possible), that is, on given resources. Intertemporally, capital is produced and these resources are the "natural" ones, human resources used by labour, and non-human natural resources. The latter account for only a very small fraction of the total value of the output.[27] Hence, the problem of macrojustice is that of the allocation of the value of productive capacities.[28]

At a given time, capital income is labour income plus intertemporal exchange if the capital originates from savings from labour income. Hence, the remaining conceptual issue

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[25] Another classical conception wants to associate to each basic right – which is social liberty for a broad kind of application – material means that make it "real," and it wants the resulting freedom to be "equal for all and maximal" (Rousseau, Condorcet, the 1789 Declaration, J.S. Mill, Rawls). Yet, since there is no a priori limit to these associated means (to the size of the cathedral for the freedom of cult, of the various means of communication for the freedom of expression, of private planes and airports for the freedom to move, etc.), this would determine the totality of the allocation of goods, with no rule for choosing among the various goods.

[26] Social liberty can also be supported by a logical requirement. Indeed, consistent individuals want not to be prevented from doing what they want to do, that is, they want social liberty for themselves. Yet, their opinion about justice in society has to be impartial, from the nature and definition of a concept of justice. Hence, this opinion has to want social liberty for everybody, if this is possible, and it is possible from non-rivalry.

[27] As an order of magnitude and for example, the contributions of labour, capital and non-human natural resources to the value of yearly output are nowadays often about in proportion to 80, 18, and 2, respectively. Yet, capital is itself produced, and hence the assignment to the other resources gives an order of magnitude of 97,5% for labour and 2,5% for non-human natural resources. Moreover, labour uses productive capacities but not all of them, whereas "land" includes residential land. This order of magnitude is one of the most ancient and classical economic idea. Locke (1689) says that labour accounts for "9/10 and in fact, if everything is counted, 99/100" of the product (see also Ricardo and Marx, for instance).

[28] Non-human natural resources are allocated in various ways including by criteria of microjustice (e.g. proximity, discovery, first occupancy, best use, needs, or various welfarist criteria); they are usually owned and have had several owners; they (notably new natural scarcities) or their value can be allocated in various ways (including equally shared, used for specific services, or for provisioning the public budget). (See Kolm 1985, Chapter 10, 2004, pp.84-89).

about capital income with social liberty 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.

2.3 Rights in capacities

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 liberty implies that the use-right belongs to the holder of the capacity (who can rent it out for a wage). The rent of a productive asset (notably capacity) is equal to its productivity. However, the rent of someone's productive capacities, for a certain time or labour, may belong to some other person. Then, the former, who has the use-right, pays this rent to the other. She is only the tenant of this part of her capacities (yet, a necessary tenant since she has the use-right from social liberty). If a person owns the rent of her own capacities for a certain time or labour, she has the corresponding ownership since ownership is use-right plus rent. In particular, there can be full self-ownership. A person may both owe some rent of capacities of hers and own rents of others' capacities (a reciprocity of this kind will happen to be the result of the theory of equal liberty).

3. Equal economic liberty

3.1 Possibilities

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

1 – Equal initial allocation.

The other forms describe properties of the given domains of choice.

2 – Socially free individuals are susceptible to choose an equal allocation.

3 – Identical domains of choice.

4 – Equal overall freedom provided by different domains of choice.

We will see that solutions 1, 2 and 4 give the same result, whereas solution 3 is impossible in the sense that it violates Pareto efficiency and social liberty if individuals' preferences are not taken into account (from non-welfarism or ignorance) to define the domain – and it may violate them even without this qualification.[29]

3.2 The simple case, notations

We consider to begin with the simple case of unidimensional labour and constant individual wage rates (linear wage functions), because it is an important case, it simplifies the presentation a little, the concepts and results extend straightforwardly to the general case of multidimensional labour (duration, intensity, formation, etc.) and non-linear production (see Appendix A), and the general case can often be reduced to the simple case by defining a duration of labour qualified for its other characteristics (*id.*). The case of involuntary unemployment will be considered in Appendix B.

There are n individuals, and each is indexed by i and has labour ℓ_i (seen as duration), and hence leisure $\lambda_i=1-\ell_i$ by normalization to 1 of the total relevant time, 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 freely (non-leisure) consumption is

$$y_i=w_i\ell_i+t_i, \qquad (1)$$

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

$$v_i=y_i+w_i\lambda_i=w_i+t_i. \qquad (2)$$

We consider now a balanced distributive budget (Musgrave's (1959) "distribution branch"), and hence $\Sigma t_i=0$.

3.3 Solution 1: Social liberty from an equal allocation

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[29] There are other solutions that extend solution 3 into Pareto-efficient solutions, but they use individuals' preferences even more and have other intrinsic handicaps. One considers individuals' allocations that are equivalent, for each individual, to her best choice in the common possibility set (a case of "equivalence theory" – see Kolm 2004, Chapter 25). Another rests on the property that individuals can choose their allocations on identical domains of choice if and only if no individual prefers any other's allocation to her own (Kolm 1971/1998) and extends it to efficient maximins based on comparisons of potential freedom by inclusion of domains (Kolm 1999b).

3.3.1 A solution

This solution is the classical (equal) social liberty from an equal allocation.[30] Social liberty 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 earnings.

If this initial equal labour is k (leisure $1–k$), it provides each individual i with the income kw_i, and, if this income is transformed into an equal piece of 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

$$t_i=k\cdot(\overline{w}-w_i). \qquad (3)$$

We have $\Sigma t_i=0$. The described operation is "Equal-Labour Income Equalization" (the equal sharing of the incomes produced by a given labour equal for all) or ELIE. Labour k is the "equalization labour."

Individual i freely chooses her (full) actual labour ℓ_i and the corresponding earnings $w_i\ell_i$. Equivalently, this can be described as her choosing labour $\ell_i–k$ 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 the problem of macrojustice, $\ell_i>k$ will happen to hold). At any rate, her disposable income and her total income are, respectively,

$$y_i=w_i\ell_i+t_i=k\overline{w}+(\ell_i–k)w_i, \qquad (4)$$

$$v_i=w_i+t_i=k\overline{w}+(1–k)w_i. \qquad (5)$$

3.3.2 First properties

Formulas (3), (4) and (5) show remarkable properties in themselves. Form (4) shows that each individual income is made of two parts, an egalitarian part in which all individuals receive the

[30] See Kolm 1971.

same income $k\overline{w}$ for the same labour k, and a liberal-self-ownership part in which each individual i receives the full product of her extra labour (ℓ_i–k) at her wage rate w_i, (ℓ_i–k)w_i. The equalization labour k is the cursor making the division between these two parts. Moreover, form (4) shows that y_i is close to $k\overline{w}$ if w_i is small, whatever ℓ_i. At any rate $y_i \geq k\overline{w}$ if $\ell_i \geq k$, which will happen to be the case relevant for macrojustice (see Section 5): there is a minimum income $k\overline{w}$ (hence a consensus about a minimum income implies a consensus about coefficient k, given that the properties that imply the structure ELIE are generally wanted).

Formula (3) shows that this distributive scheme amounts to a universal basic income $k\overline{w}$ financed by an equal labour k of all individuals, or according to capacities (each individual i pays her earnings for this labour, kw_i, which is also according to her capacities w_i).

The way in which the result has been obtained shows that the result amounts to each individual i yielding to each other the sum $kw_i/n=(k/n)w_i$, that is, the proceeds of the same labour k/n. This is a general equal labour reciprocity.

Formula (4) shows that an individual's total income is the weighed average between her productivity w_i and average productivity $\overline{w}$, with k and 1–k as weights.

3.3.3 Rawls's final solution

In 1974, John Rawls, at the instigation of Richard Musgrave (1974), added leisure to his list of "primary goods," thus bringing to two, income (related to wealth) and leisure, the economic primary goods.[31] Rawls's solution consists of basic liberties, whose best description is social liberty which is full and hence equal for all and maximal, and an ideal of an equal initial allocation of primary goods in so far as this is not wasteful. The above solution consists of an initial allocation where all individuals have the same quantity of each good, 1–k for leisure and $k\overline{w}$ for income, from which each individual freely trades labour for income in application of social liberty. No individual can have more of one good in her initial allocation without any other initial allocation of any good to any person being lower, and the final

[31] The expression "free time," rather than "leisure," would probably suggest better what seems to be valid in this addition, and would better fit Rawls's conception of primary goods as means.

outcome is Pareto efficient. This result can thus be said to be Rawls's full solution (as he posed the problem after 1974).[32]

3.3.4 The geometry of ELIE

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 initial equal allocation is the point common to all budget lines $K(\ell_i=k, y_i=k\overline{w})$. 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, only cases where $k<\ell_i$ will turn out to be relevant for macrojustice. The particular case $k=0$, and hence $t_i=0$ and $y_i=w_i\ell_i$ for all i, corresponds to the full self-ownership of "classical liberalism" (this is for example the position of – among scholars – F. Hayek, M. Friedman, R. Nozick, and J. Locke). The choice of the coefficient or "equalization labour" k will be considered in Section 6.1.

< Figure 1 about here >

3.4 Solution 2: Socially free individuals are susceptible to choose an equal allocation

Individuals who have social liberty and prefer higher income (consumption) and leisure choose an allocation on their budget line. If there is one individual allocation that they all are thus susceptible to choose, these lines pass through the same point representing this allocation.[33] Equation (2) with some given t_i represents this budget line for individual i, and if this common point is $\ell_i=k$ ($\lambda_i=1-k$) and $y_i=\eta$, it entails

$$\eta+(1-k)w_i = w_i+t_i \qquad (6)$$

or

$$\eta= kw_i+t_i \qquad (6')$$

For a balanced distribution $\sum t_i =0$, and summing equation (6') for all i implies $\eta= k\overline{w}$, hence form (3) for t_i.

3.5 Solution 3: Identical domains of choice

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[32] Coefficient k reflects the relative moral/social value attached to these two primary goods, and the choice of such a weight is a classical Rawlsian problem (see also Section 4-8).
[33] This form is a crucial axiom in Maniquet (1998).

3.5.1 Properties

If individuals' choices include the choice of effort or labour and they have different capacities, and if the policy maker does not take individuals' preferences into account, presenting identical domains of choice to all individuals violates both Pareto efficiency and social liberty (and hence it should be impossible in a democracy and it violates the basic rights).[34]

Consider, indeed, the five conditions:

(1) Individuals freely choose in identical domains of choice.

(2) They do not all have the same productivity.

(3) Their preferences or utilities are irrelevant or unknown to determine the domain of choice.

(4) Pareto efficiency.

(5) Social liberty.

Then, the two following results hold:

1) Properties (1), (2), (3), and (4) or/and (5) cannot hold jointly.

2) Properties (1), (2) and (4) or/and (5) may not hold jointly.

3.5.2 Proof of result 1)

The proof results from the conditions necessary for building such a common domain of choice. In the space of leisure or labour and disposable income (consumption), at an achieved state, (1) Pareto efficiency and social liberty imply that each individual's marginal rate of substitution is equal to her marginal productivity (w_i); and (2) because this individual freely chooses in the domain offered to her, this state is on the domain's border *B* and the marginal rate of substitution is equal to the border's rate of transformation. Hence, at this state this latter rate is equal to the individual's marginal productivity. If these productivities are identical and constant, this border can be a straight line with this slope. If not, this border should respect the following condition. Call E_i the "curve" (more generally, set of points) where individual *i*'s rate of substitution is equal to w_i (an Engel curve). Then, border *B* should

[34] This is for instance done by proposals of equality of opportunity understood as identity of possibility sets.

cut each E_i at a point where its slope should be w_i ($-w_i$ if the variable is leisure). This condition depends on the curves E_i, which are derived from the individuals' preference orderings or utility functions. This border, and hence the common domain, cannot be built without these preferences or utilities. Figure 2 illustrates this condition.[35]

< Figure 2 about here >

3.5.3 Proof of result 2)

A set of individual allocations can result from individual choices on identical domains if and only if no individual prefers another's allocation to her own (Kolm 1971).[36] Moreover, this latter property may be inconsistent with Pareto efficiency (Pazner and Schmeidler, 1974, whose example is a case of the present simple model). Finally, social liberty with perfect markets implies Pareto efficiency.

3.6 Solution 4: Equal liberty of unequal domains

To define equal freedom of choice for different domains of choice, consider that domains can offer more or less freedom. Using these relations usually implicitly implies their transitivity, which we assume. Domains of choice are thus ranked by a (weak) ordering, the freedom

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[35] More precisely, in the space (λ_i (or ℓ_i), y_i), call D such a common possibility set, B its border limiting it towards larger λ_i and y_i, and $t(\lambda_i, y_i)$ the set of slopes of the tangents to B at point $(\lambda_i, y_i) \in B$ ($|t| = 1$ if B is smooth). Call $u_i(\lambda_i, y_i)$ individual i's utility function assumed to be increasing and differentiable, u_1^i and u_2^i its two first derivatives, and $s_i(\lambda_i, y_i) = u_1^i(\lambda_i, y_i)/\ u_2^i(\lambda_i, y_i)$ the corresponding rate of substitution at point (λ_i, y_i). Denote (λ_i^*, y_i^*) for all i the realized state. Pareto efficiency and social freedom imply $s_i(\lambda_i^*, y_i^*) = w_i$. Individual i's free choice on D implies $(\lambda_i^*, y_i^*) \in B$ and $-s_i(\lambda_i^*, y_i^*) \in t(\lambda_i^*, y_i^*)$. Hence, $-w_i \in t(\lambda_i^*, y_i^*)$. Call $E_i = \{(\lambda_i, y_i): s_i(\lambda_i, y_i) = w_i\}$ individual i's relevant Engel curve. Therefore, B must satisfy the condition that, at its intersection with E_i, $(\lambda_i, y_i) \in B \cap E_i$, one has $-w_i \in t(\lambda_i, y_i)$. If all w_i were equal, any straight line with slope $-w_i$ can be such a B, whatever the E_i. Yet, if not all w_i are equal, the construction of B and D, to satisfy the condition, must take curves E_i into account, and, therefore, must take individuals' utility functions u_i into account. Therefore, if B is built without consideration of the u_i and the w_i are not all equal, the result violates Pareto efficiency and social liberty, except fortuitously. Note that the various solutions correspond to various distributions.

[36] Choices in identical domains clearly imply the absence of preferences for another person's allocation (which the former individual could also have chosen); and when this property of preferences holds, the set of individual allocations constitute a domain of choice in which each individual's allocation is one that this person prefers.

ordering. This ordering will be assumed to be representable by an ordinal function, the "freedom function," since this will suffice here. If D is a domain of choice, the freedom function $F(D)$ is such that, if D' is another domain, $F(D)= F(D')$ if D and D' offer equal freedoms, and $F(D')>F(D)$ if D' provides more freedom than D. Let us apply this to the budget sets considered here. A generic individual can provide labor $\ell \geq 0$, hence enjoy leisure $\lambda=1-\ell \geq 0$, and consume consumption goods bought with income $y \geq 0$. Let us choose an arbitrary unit of account for which the price of consumption goods or income is p (p=1 when they are taken as numéraire). Then the individual's wage rate is pw in which w is her real wage rate (i.e. in terms of income or consumption goods, in purchasing power for these goods), given to her. Her total income writes pv and has real value (*idem*) v. She chooses her leisure λ (hence her labour $\ell=1-\lambda$) and her amount of income or consumption y in her budget set defined by

$$py+pw\lambda \leq pv, \quad \lambda \in [0,1]. \tag{7}$$

This budget set is classically characterized by income and prices, which are here the individual's total income pv, and the two prices p and pw. Hence, the freedom function can be characterized as $F(pv; p, pw)$. The freedom offered is a property of the domain in real space (y, λ). That is, it is a real concept in economists' sense. Therefore, it does not depend on the chosen unit of account, and hence on the level $p>0$. That is, function F is homogeneous of degree zero in its three variables pv, p and pw. To describe market possibilities when incomes and prices can vary, the prices are usually summarized by a price index which is always taken as linear (as with the classical indexes of Paasche and Laspeyre and those derived from them). Write this index as

$$\pi=\alpha p+\beta pw \tag{8}$$

where α and β are constant numbers non-negative and not both zero. One has

$$F(pv; p, pw) \equiv \phi(pv, \pi)= \phi(pv, \alpha p+\beta pw). \tag{9}$$

Since π is proportional to p, and level ϕ, equal to level F, does not depend on p (i.e., on the choice of the unit of account), there results that function ϕ is homogeneous of degree zero in its two variables. Dividing these two variables by π (for $\pi>0$), one has

$$\phi(pv, \pi)=\phi(pv/\pi,1)=\phi[v/(\alpha+\beta w),1]=\varphi[v/(\alpha+\beta w)] \tag{10}$$

by definition of function φ. Since functions F, ϕ and φ are ordinal and are increasing functions of v, $v/(\alpha+\beta w)$ is a specification of function φ (this is real (total) income, fittingly

usually called purchasing power). Therefore, the *pv*, *p* and *pw* that provide equal freedom are such that

$$v/(\alpha+\beta w)=\gamma \qquad (11)$$

for some given γ, or

$$v=\alpha\gamma+\beta\gamma w. \qquad (11')$$

Hence, individuals *i* with possibly different wage rates w_i have the same freedom if their total real incomes *v* are

$$v_i=\alpha\gamma+\beta\gamma w_i, \qquad (11'')$$

respectively. This implies that individual *i* receives the net transfer

$$t_i=v_i-w_i=\alpha\gamma+(\beta\gamma-1)\,w_i. \qquad (12)$$

But $\Sigma t_i=0$ entails

$$(1-\beta\gamma)\,\overline{w}=\alpha\gamma. \qquad (13)$$

Then, denoting $1-\beta\gamma=k$,

$$t_i=k\cdot(\overline{w}-w_i). \qquad (3)$$

This is the *same result as that of solutions 1 and 2*.

Moreover, individual *i*'s budget line in space (λ_i, y_i) is

$$w_i\lambda_i+y_i=v_i, \qquad (2)$$

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

4. Equivalent properties and normative meanings

Judging something can, and a priori should, be done according to its various properties. The obtained distributive scheme has in particular a number of characteristic (necessary and sufficient) properties or sets of properties, which have (more or less) different *meanings* (the key issue). Each can be taken as the scheme's definition, and as its justification (or it can participate in it). Looking at the result from these different angles is necessary for fully

"understanding" and finally evaluating it.[37] There are more than twenty such different (although logically equivalent) meanings, which regroup into several types of issues.

4.1 Equal liberty

The previous remarks have shown the following properties of the result.

1. Social liberty from an equal allocation.

2. Freedom to choose some equal efficient allocation.

3. Susceptibility to choose some equal allocation with social liberty.

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

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

4.2 ELIE

A few other notable aspects are straightforward.

6. Equal-labour income equalization: Redistribute equally the product of the same labour k of all individuals. k is the "equalization labour."

7. Equal pay for equal work, for labour k (the rate is the average wage rate $\overline{w}$). This is one of the most widespread claims of justice. However, it refers here to differences in productivities.

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

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

4.3 Deserts and merit, equality and classical liberalism, work and works

Writing

$$y_i = k\overline{w} + w_i \cdot (\ell_i - k) \qquad (4)$$

has shown a decomposition of income into two parts induced by two different and opposed ethics, which can be seen in various ways.

10. Equality and classical liberalism. The two parts are an equal income $k\overline{w}$ and the market remuneration $w_i \cdot (\ell_i - k)$ of labour ℓ_i–k. These are the two basic and opposed principles of

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[37] The requirement that a principle should be evaluated from all its angles and possible meanings is a classical and basic meta-principle of social ethics, related, for instance, to Plato's "dialectics" in *Republic* and to Rawls's "reflective equilibrium."

overall distributive justice in our world. The level of coefficient *k* favours one or the other and delimitates their respective scopes.

11. Each earns according to deserts for labour k *and to merit for the rest.* Deserts is according to labour or effort, here *k* for the share $k\overline{w}$. Merit means according to labour or effort and to capacities. This is the second part with individual labour ℓ_i–*k* and capacities w_i.

12. To each according to her work (effort, input) and to her works (product, output). This classical distinction refers here respectively to $k\overline{w}$ in proportion to work *k* and to the individual's product $w_i\cdot(\ell_i–k)$.

4.4 Financed universal basic income

13. Equal universal basic income financed by equal labour (equal sacrifice): The result $t_i= k\overline{w} –w_ik$ can be seen as providing the same basic income $k\overline{w}$ to each individual, and financing it by the same labour *k* from each (individual *i* pays the proceeds kw_i).

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

A universal, unconditional and equal basic income has often been proposed by scholars and political figures. Yet, Achilles's heel of such schemes is the specification of their financing which should be sufficient and fair, and should not induce Pareto inefficiency. ELIE satisfies these conditions. The fairness cannot be an equality in money terms since this would cancel out the distributive effect. Hence, without further considerations, it has to be equality in labour provided.

4.5 Reciprocity

A basic principle of fairness is reciprocity (in the framework of macrojustice, this is emphasized by Rawls).

15. General equal labour reciprocity: *Each individual hands out to each other the proceeds of the same labour* ($r=k/n$). Indeed, the ELIE operation amounts to equally sharing the proceeds kw_i of each individual *i*'s labour *k*, hence to yield to each individual the proceeds $(k/n)w_i$ of the labour k/n of each individual *i* (and what an individual yields to herself can be discarded). That is,

$$t_i=k\cdot(\overline{w}–w_i)=r\Sigma w_j–nrw_i=\Sigma_{j\neq i}\, rw_j–(n–1)rw_i. \qquad (14)$$

This property has an aspect of fairness which is bound to be favourable to the acceptance of this scheme from sentiments of reciprocity.[38]

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

4.6 Progressive transfers, total concentration

ELIE belongs to the question of reducing inequalities, in a particularly meaningful and straightforward way (see also note 43).

17. Equal partial compensation of productivity differences: Each individual yields to each less productive individual the same fraction of the difference in their productivities, $r\cdot(w_i-w_j)$ 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 19).

18. Each individual's total income is the weighed average between average productivity and this individual's productivity, with weights k and $1–k$, since

$$v_i=k\,\overline{w}+(1+k)w_i. \qquad (5)$$

19. 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 structure of transformation of a distribution is that which can be said to be the most inequality-reducing.[39]

4.7 Tax structure and reform

The fiscal structure and reform that realize ELIE are very simple, clear, natural, easy to implement, and made of a few elements each of which is classical.

20. An equal tax credit or rebate, and an exemption of overtime labour over some given labour, from a flat tax.

Indeed, the transfer can be written as the net tax

$$-t_i=(k/\ell^o)w_i\ell^o-k\,\overline{w} \qquad (15)$$

for some given labour ℓ^o chosen such that $\ell^o\le\ell_i$ for the chosen labours ℓ_i relevant for macrojustice (see Section 5.1). The first, positive, term is the flat tax with rate k/ℓ^o on the earnings $w_i\ell^o$ of labour ℓ^o, hence with a tax exemption of the corresponding overtime earnings of labour $\ell_i-\ell^o$. The second term is the tax credit or rebate $k\,\overline{w}$ equal for all. This

[38] Cf. Kolm 1984, 2006b.
[39] Cf. Kolm 1966a, 1999a.

tax structure is simple, clear, with two gratifications – an exemption and a rebate. For example, the tax exemption of overtime labour over a low duration is the new general law in France, which has also the equivalent of a universal equal rebate (resulting from an income tax credit).

21. Tax reform.

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

- A *negative income tax* or *income tax credit* for low incomes, which exists in many countries.
- Replace actual labour by a *given labour* in the tax schedule, which is obtainable by *exempting* earnings over a given labour not exceeding actual (full-time) labours.
- *Flatten* the tax schedule, which is often advocated for a reason of simplicity (and incentive)[40] – an ELIE scheme can a priori be made as redistributive as one wants by choosing a sufficiently high coefficient *k*.
- If the scheme concerns the "distribution branch" in "functional finance," *balance* the budget.

Formally, from the income tax on labour income $f(w_i\ell_i)$, one thus successively obtains, with constants $a>0$, $b>0$, c, and $\ell^o>0$: $f(w_i\ell_i)<0$ if $w_i\ell_i<a$; $f(w_i\,\ell^o)$ or $bw_i\ell_i+c$; $bw_i\,\ell^o+c$; and, if $\Sigma f(w_i\ell_i)=0$, $b\,\overline{w}\;\ell^o+c=0$ and hence, noting $b\,\ell^o=k$, $k\cdot(w_i-\overline{w})=-t_i$.

4.8 Other meanings

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

An amount of a productive capacity (with a given productivity) can be measured by the labour that can use it (or time of use), or by the output it can produce. In an equal sharing, the choice of this measure makes a difference because individual productivities differ. If an amount of an individual's productive capacities is measured by the labour input that can use it, each individual has initially 1 and the given allocation without any transfer is equal. If this amount is measured by the output it can produce, however, 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 consists in measuring a fraction of the capacities, say *k*, in income-value, and the rest, 1–*k*, in

[40] A flat tax is for instance implemented in all Eastern European countries including the 9 fastest growing countries of the European Union.

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, $v_i=k\,\overline{w}+(1-k)w_i$.[41,42]

5. Real gains, incentive compatibility

5.1 Irrelevance of non-realized advantages

As we have noted, 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.[43]

Consider now the three following facts and judgments.

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[41] 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. With the measure in labour value only, equality is satisfied by full self-ownership which is classical liberalism, but is also Marx's view (he defines "exploitation" by theft of this property by low wages).

[42] ELIE has other interesting and meaningful properties. For instance, Maniquet (1998) derives, from a number of basic axioms, a state which is about the one chosen by the individuals submitted to such a distributive scheme. Moreover, it is securing that ELIE can be derived from the most famous general presentation of principles of justice, that of Plato (*Laws*) and Aristotle (*Nicomachean Ethics*), with each person receiving the fruit of her labour $w_i\ell_i$ in "commutative justice," and an equal share (with the appropriate measure) of what is given to society in "distributive justice," achieved by compensatory transfers since their capacities are attached to the individuals ("*diorthic* justice") – see Kolm 2004, pp. 248-249.

[43] 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 $\overline{x}=(1/n)\Sigma x_i$, one can, for an index of inequality, distinguish the absolute form $I^a(x)$ and the relative form $I^r(x)=I^a(x)/\overline{x}$. A synthetic inequality index is by definition 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 $\Sigma\ast x_i-x_j\ast$ (absolute Gini), $\Sigma|x_i-\overline{x}|$, and the standard deviation.

(1) Present redistributions in nations amount to equally redistributing the incomes 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 $\ell_i > k$ (the cases of total or partial unemployment are the object of Appendix B).

(2) Moreover, people commonly understand that individuals who benefit from a high wage rate be taxed to help people who are not as lucky, but only when this provides an actual gain, not when it remains a mere possibility of income. Precisely, people do not agree 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 earnings this time could provide were it used at labour (taxing to induce work is something else and has to be justified). ELIE with $k > \ell_i$ would so imply, when demanding the amount kw_i, demanding the value of leisure $(k-\ell_i)$, $(k-\ell_i)w_i$, in addition to the value of the whole product $w_i\ell_i$ (for equally redistributing the proceeds). If the redistribution of $k\overline{w}$ is jointly taken into account, this would imply demanding $(k-\ell_i)(w_i-\overline{w})$ on leisure $(k-\ell_i)$ for $w_i > \overline{w}$, in addition to $(w_i-\overline{w})\,\ell_i$. If w_i is quite low, the tax kw_i is negligible and t_i and y_i are both about equal to $k\overline{w}$, whatever ℓ_i. If $w_i < \overline{w}$ remains substantial, and $\ell_i < k$, people would again not agree with taxing leisure $(k-\ell_i)$ at unit value w_i for the share $(k-\ell_i)w_i$ of the tax kw_i (then equally redistributed). If the subsidy $k\overline{w}$ is taken into account, people would similarly not agree to subsidize the unused and inactive productive capacities in leisure $(k-\ell_i)$ because they have a relatively low productivity $w_i < \overline{w}$, by the part $(k-\ell_i)(\overline{w}-w_i)$ of the subsidy $k\cdot(\overline{w}-w_i)$. Hence, this opinion implies that people who pay an actual distributive tax kw_i and receive $k\overline{w}$ as counterpart are people who choose to work $\ell_i > k$. This common view has to be obeyed in a democracy.

(3) The very few productive individuals who choose to work very little mostly choose not to benefit from society's supply of a favourable wage, and hence arguably 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. People who choose not to contribute to this joint venture while they could may not be entitled to a *reciprocal* share of the product. These fugitives from production 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 points mean that what is at stake concerns 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 potential earnings.

The cases in which the chosen ℓ_i is lower than k are particular cases: partial or full unemployment, the few eccentric productive people who drop out of cooperative social production, victims of particular handicaps, part-time jobs which are often second wages in families, etc. These particular cases deserve particular criteria and treatments. They are, therefore, out of the scope of overall distributive justice in macrojustice. However, some can also be more or less brought back into the general case, as with involuntary unemployment (Appendix B), the case of people with capacities without market value (w_i=0), or the notional equal sharing of the labour of a household among its adults. The case of the tiny fraction of people – if any – who could earn high wages for a moderate effort but decide to live "on welfare" if they can is not a concern for macrojustice for three sets of reasons: the noted ethical reasons and opinions; this is a particular situation (out of the definition of macrojustice); and its rarity (not an issue for overall justice). These work evaders are the object of classical other proposals and discussions.[44]

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).

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[44] These are, for example, people who can earn 10 times the average income for some standard labour but would prefer to stop working and live on –for instance – 1/5 to 1/3 of average income. 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), the solution endorsed by 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) We may try to persuade them that they should make other people somewhat benefit from the talents endowed to them by nature, providence or their parents in working a little (at a high wage rate). If their productive capacities are due to subsidized public education which they accepted, they might be asked to refund this cost to the rest of society. If they had to pay for their possible advantage in earning capacity, they would pay $-t_i = k \cdot (w_i - \overline{w})$, for which they should work $k \cdot [1 - \overline{w}/w_i)] < k$; 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 (yet, diplomas, previous jobs, etc. often make some estimate possible and E. Ooghe (2007) has shown that, at any rate, the resulting waste would be very small). Finally, sheer coercion might be restricted to the limited (and possibly highly remunerated) draft of exceptional talents indispensable to society or other people's life. Note that freedom of choice should a priori refer to the full domain of possible choice in the space of income and leisure rather than to a subset of it only – such as the case ℓ_i=0 put forward by solution (2). Moreover, there are other distributive units than nations; for instance, transfers are intense in a family, but they are gifts rather than taxes (each likes the others' enjoyment and consumption).

Therefore, for macrojustice,

$$y_i = w_i \ell_i + k \cdot (\overline{w} - w_i) = w_i \cdot (\ell_i - k) + k\overline{w} > k\overline{w} . \qquad (16)$$

That is, there is a *minimum income* of $k\overline{w}$.[45]

As noted, 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).

5.2 Incentive compatibility and information

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.[46] 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 $\overline{w}$ to behave this way). The individual may think that the government would take the observed w'_i as base either because it deems the actual wage rate to be the appropriate basis for the reasons presented in the previous section (not taxing or subsidizing unused capacities of value $(w_i - w'_i)$), or because it mistakes it for the value of capacities w_i, or for any mixture of these reasons.

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

$$u^i[1 - \ell_i, (\ell_i - k)w'_i + k\overline{w}'], \qquad (17)$$

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[45] One consequence is that, in a society, since $\overline{w}$ is given, choosing a minimum income and choosing a level of equalization labour k amounts to the same – given that the structural properties that lead to ELIE happen to be largely wanted (social liberty, Pareto efficiency, nonwelfarist macrojustice). The frequent rough consensus about a minimum income implies the same convergence of views about coefficient k. This relation is more valid the more the minimum income refers to a norm of income (and consumption and lifestyle) rather than to the alleviation of physical suffering (which may elicit relief provided by microjustice policies).

[46] See Dasgupta and Hammond (1980).

where $\overline{w}' = (1/n)\Sigma w'_j$.[47] Variables ℓ_i and w'_i are independent. 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* chooses $w'_i=w_i$ if $\ell_i > k\cdot[1-(1/n)]$. This is the case for macrojustice in which $\ell_i > k$ (see the previous section). Hence, *the individuals choose to work with 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 for given labour). Hence, it does not need to raise questions about basing its taxes and subsidies on the actual values of capacities w_i or on the observed wage rates w'_i since using the latter as base makes them be the w_i. And the individuals can in the end know this conclusion.[48]

6. The degree of redistribution and public finance

6.1 The degree of redistribution

For welfarism, the degree of redistribution depends in particular on the choice of the social welfare function (of its curvatures), a notoriously problematic function of problematic measures of individual utilities. With ELIE, this degree depends only on coefficient *k*, technically the equalization labour, and 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) – and this commonly owned part is equally shared for lack of relevant other differences among individuals. Coefficient *k* also has the various important meanings derived from the various meanings of an ELIE distribution (Section 4). The structure of ELIE has been derived from properties which are essentially wanted by all for macrojustice. Could this also hold for the

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

[48] If the government used the w_i if it could know them, with $t_i = k\cdot(\overline{w} - w_i)$, and each individual *i* could choose her skills used and $w'_i \leq w_i$, her income would be $\ell_i w'_i + k\cdot(\overline{w} - w_i)$, and she would also choose $w'_i = w_i$ if she chooses to work at all ($\ell_i > 0$) and hence when $\ell_i > k$.

level of coefficient *k*, given that it has opposite effects on the interest of individuals depending on whether their w_i is above or below the average $\overline{w}$ (since $t_i=k\cdot(\overline{w}-w_i)$)? In any instituted society, it is largely held that people with insufficient means and earning capacities should be helped by some redistribution. More precisely, in a given society, there usually is some kind of consensus about what a standard minimum disposable income should be. As we have noted, 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 microjustice).[49] Moreover, in a number of peaceful societies the overall level of income redistribution is generally directly more or less accepted or approved of, or the various standard opinions in this respect vary in a relatively limited range. Then, the coefficient *k* of an ELIE equivalent to the actual redistribution (the degree of this redistribution, see Section 5.1) provides an answer. Reforms towards this ELIE structure can *de facto* benefit everybody, as we will see. However, this level of redistribution also often evolves, and this is done more efficiently and in accordance with common views if the distributive structure also evolves towards an ELIE scheme.

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 (1759) puts it). However, ELIE provides a neat possibility of obtaining people's social-moral views cleaned 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 impartial 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

[49] This is why the standard minimum income particularly plays this role of revealing a consensual *k* of an ELIE distribution when it refers to a norm of income or consumption rather than to physical suffering of misery which provides classical reasons for various insurance schemes and specific aids in income or in various goods or services.

and because they are impartial (by nature and definition of a conception of justice).[50] Nevertheless, 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 sensitivity. Hence, they a priori become more alike when people are informed about the others' arguments and know vividly about their experiences. The means are essentially information and social dialogue. This has practical limits, but the dissensus can be reduced by showing the results of a number of analyses: a theory of dialogue showing the tendency to the "ideal speech" (Habermas), the derivation of the individuals' own impartial views from observed conducts and preferences, 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.[51]

The distributive coefficient *k* depends on the society in which this distributive policy takes place. It expresses the extent to which this society considers itself a community of resources and solidarity. We have noted the levels of *k* of the ELIE equivalent to the present-day national distributions. These actual distributive policies are not based on the less inelastic possible items and also generally induce other waste. Simply reforming them – notably the income tax and the main aids to low incomes – with everybody gaining at each step can be done towards an ELIE with a similar coefficient *k*.[52] However, the social and political dialogue 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 of the responsibility for distribution.

6.2 Place in public finance

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[50] See Kolm 2004, Parts 4 and 5.
[51] All these analyses, others for the same purpose, and their results, are presented in Part 4 of the volume Kolm 2004.
[52] This is a factual result suggested by numerical examples rather than a theoretical necessity since ELIE solutions are only a subset of the Pareto-efficient states. It is in particular shown that ELIE schemes can supersede all present-day supports to low incomes with everybody benefiting (Kolm 2004, pp. 118-122).

If distributive justice is achieved by such a policy, the financing of other public expenditures should a priori be by the method that is neutral in this respect, benefit taxation.[53] This is the classical budget optimization by "functional finance" (e.g. Musgrave 1959). A number of services can then be associated with their financing, and they can be given financial and hence managerial autonomy, which is often favourable to efficiency. The users' benefits are more or less estimated by the usual benefit-cost analyses of public expenditures, but this is sometimes difficult. 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 mean equally in income, should be equal sacrifice in labour. These two classical principles are in fact equivalent: each individual i pays w_iL in which L is both the coefficient of proportionality and the equal labour. This is in fact how ELIE finances basic income $k\overline{w}$. Each taxpayer i then pays the product $(k+L)w_i$ of her labour $k+L$, the same for all, and she receives the amount $k\overline{w}$ plus the benefit of other public expenditures. Of course, all these financing principles can be jointly present, for various types of public goods.

7. Conclusion

Facts and necessary or commonly held judgments – Pareto efficiency, social liberty, private accountability of tastes for macrojustice – have been shown to imply a macrojustice policy which is simple, clear, understandable, richly meaningful, made up of fiscal properties actually used, more easily implementable than present taxes and aids, and which can be installed progressively or rapidly by largely supported reforms. Its structure amounts to several distributive principles and policies which are logically equivalent but have different and very important social meanings: equal social and real liberty; a given tax credit and an exemption of overtime labour from a flat income tax; a universal basic income financed by an equal labour of all; an equal sharing of the proceeds of the same labour of all; each yielding to each other the product of the same labour; and a number of other meanings presented in Section 5. This is complemented, when needed, for possibly remaining issues of specific microjustice.

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[53] With some rule for allocating the surplus for public goods (possibly the outcome of a fictive and implicit exchange or agreement for respecting the spirit of social liberty – a "liberal social contract," Kolm 1985, 2004, pp. 67-69).

Implementation can rest on both the obtained theoretical properties and the actual experiences of application of aspects of this scheme. These experiences include tax exemption of overtime labour (over a rather low benchmark), minimum incomes realized in various ways, a tax equal to the earnings during a given period, exemption of productivity and formation premia (for the intensity and formation dimensions of labour), and, less important, uniformizing tax rates. When the wage rate is directly or indirectly observed, no other value of capacities should be sought. The various routine procedures of estimation of fiscal administrations can be used (crosschecking, comparisons, categorizations, inspection and penalties, etc.). The general informed views are that, on the average, difficulties and evasion are lower than for most taxes, notably taxes based on total earned income. From the economic point of view, the tax base suppresses the elasticity due to labour supply and demand for most dimensions of labour, hence a priori it improves efficiency, and this can practically be translated into a performance more favourable for everyone than other actual or proposed distributive schemes with the same degree of equalization. This favours political implementability. The ongoing social debate can then focus or this degree of solidarity appropriate for the society in question and its evolution, in considering its various related practical aspects (minimum or basic income, comparing tax liabilities measured in labour, levels of tax burdens, various simples measures of inequality, etc).

The obtained ELIE distributive structure relates to a number of existing or proposed ones. We have seen the realizations of exempting overtime, paying the earnings of a period, and minimum incomes. The basic income is discussed in many scholarly and political circles, with the problem of finding an efficient, sufficient and just financing (this can be the proceeds of an equal labour of all). One such financing proposed is a flat tax; this amounts to Mirrlees's (1986) final proposal of a flat income tax with a negative part, and is studied by Atkinson (1995) – ELIE only adds exemption of overtime income above some given labour.[54] All reforms that tend to base taxes or aids on less elastic items a priori go in the proper direction, and much is possible in this respect. Moreover, if, as Kenneth Arrow (1963) proposes, "The fundamental function of any theory of social welfare is to supply criteria for income

[54] Hence, when students of welfare-determined income taxation face the problem that their refined and well worked-out second-best proposal is complex, not understood by the public and politicians who, at any rate, disagree with its ethics *for this application*, with a regressive tax for high incomes (Phelps 1973a, 1973b), informational and conceptual difficulties (utilities), and high administrative costs, they come to consider an intuitive pragmatic third best in the direction of the liberal (liberty-based) first best implied by standard moral judgements.

distribution," the ELIE tax-subsidy structure constitutes a solution to this general problem too. The issue is that if "social choice" is derived from "individual values" – as Arrow's title suggests – and individual values are not welfarist *for this problem*, this social choice is not either. In fact, a large "overlapping consensus" (Rawls's term) of individual values points to the relevant equal liberties, which imply the solution described here. Other schools of economic thought acknowledge the basic importance of freedom. Classical liberals such as F. Hayek and M. Friedman advocate full self-ownership (k=1), but they justify it by social liberty whereas both can be separated to make room for some relevant solidarity (see Section 2.3 and the discussion of Section 5.1). Finally, the truce resulting from freedom to fight, which is the theory of J. Buchanan and of the school of Public Choice, will also abide by some agreed upon norms of fairness, especially in a community (people always defend their interest by appealing to some value: why would they care to do that if values had no influence?).

Appendix A. Multidimensional labour, nonlinear production

Labour has a priori various dimensions, such as duration, individual effort and costs in previous education and training, intensity (strength, concentration), speed, etc. Moreover, the 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 earnings.[55] 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

$$t_i = \overline{p}\,(k) - p_i(k) \qquad (18)$$

where $\overline{p}\,(\ell)=(1/n)\Sigma p_i(\ell)$, and individual i's disposable income is

$$y_i = p_i(\ell_i) - p_i(k) + \overline{p}\,(k). \qquad (19)$$

This multidimensional case can often practically be reduced to a one-dimensional 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

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

short as one wants). Then, if ℓ'_i denotes the duration of labour ℓ_i and ℓ''_i the set of its other parameters, function p_i can be written as $p_i(\ell_i)= \ell'_i\, q_i(\ell''_i)$. If individuals' particular productivities are of the classical "output augmenting" type $q_i(\ell''_i)=a_i f(\ell''_i)$, then $p_i(\ell_i)=w_i L_i$ 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.[56]

In the expression of earnings from labour ℓ_i, $p_i(\ell_i)$, labour ℓ_i represents items chosen by individual i, and the function $p_i(\ )$ the other items, that is, individual i's productivity and the labour market. Formation, education and training (as health care) increase later productivity. They depend on the persons' given capacities for learning. They also involve acts of the individual and possibly various costs for her (time, effort, direct costs, foregone earnings, etc.). However, the bulk of the formation and education received in the first period of life is provided by the family, or determined by it through choice, support, information, and induced motivation. Globally, at a macro level and apart from exceptions, individuals' level of education is essentially a sociological phenomenon. Hence, for macrojustice and as a first approximation, its effects on earnings have to be incorporated in the productivity $p_i(\ )$ or the wage rate w_i under consideration. By contrast, training and formation undertaken later a priori constitute a dimension of labour.[57] Note that the effects of different $p_i(\ )$ or w_i are equalized only for labour k and not for the rest of labour. This effect of the family should also be considered with the issue of bequest – its cost can be seen as a part of it.[58] Family-induced education could be sensitive to future taxation, but this is much attenuated by the fact that taxes decades later are very uncertain and by the non-pecuniary values of education as providing larger occupational opportunities and freedom of choice, jobs that are less painful and more interesting and gratifying, the status of educational level and occupations, culture, and the pursuit of family traditions.

Appendix B. Unemployment

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[56] The educational input can also be taken into account by "spreading" the formation time on later labour (that uses its benefits) (see details in Kolm 2004, Chapter 8).

[57] A refinement of the analysis can find ways of taking account of some individually chosen effort at the end of the educational period.

[58] There is even a ground for compensating sociological differences more than those due to intrinsic individual capacities which belong to the person's self, but this issue is not pursued in this simple presentation.

Situations of unemployment raise particular specific issues, but, given their importance, they should be related to the general results for macrojustice. If w_i=0, individual i's labour is neither supplied for income nor demanded, and 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. These people's actual labour level makes little financial difference.[59] Hence, the general principle can be applied to these cases (apart from the other policies of formation, education, taking care of handicaps, etc.).[60]

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). 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 in 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. However, the obtained distributive policy can have three important positive effects on employment. By basing taxes and subsidies on items less elastic than actual labour, it generally induces higher labour. The other two effects concern involuntary unemployment in the strict sense. First, the income support to people with low wage rates provided by the obtained scheme can supersede, to everybody's benefit, a number of wage rigidities of public or private nature which are important causes of unemployment (minimum wages, collusions, etc.).[61] Second, the general results for macrojustice can also apply to the case of involuntary unemployment, by using the logical device of considering someone who cannot work more as someone who cannot earn more by working more (and works to earn). What the market presents to the individual is then described solely in terms of the remuneration of each labour (yet, for partial unemployment it cannot be a linear function of labour).

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[59] For other levels of w_i, the case of individuals who choose to work very little ($\ell_i<k$) is treated as indicated in Section 5.1.

[60] Low w_i at a given time only is normally the object of an insurance (health, unemployment – see also below –, etc.).

[61] Computations of the effects are provided in Kolm 2004, Chapter 7.

Considering one-dimensional labour for simplicity in presentation, the outcome is that someone involuntarily unemployed at $\ell_i^o \leq k$ (in particular totally unemployed) has income $\tilde{p}(k)$ which derives from the average $\bar{p}(k) = (1/n)\Sigma p_i(k)$ by replacing the $p_i(k)$ of such individuals by $p_i(\ell_i^o)$ (0 for full unemployment).

This results from the application of the noted device by replacing the function $p_i(\ell_i)$ by its truncation at ℓ_i^o [62]: $P_i(\ell_i)=p_i(\ell_i)$ 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 $t_i = \bar{P}(k) - P_i(k)$ and $y_i = P_i(\ell_i)+t_i = P_i(\ell_i) - P_i(k) + \bar{P}(k)$. 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 $y_i = \bar{P}(k) = \tilde{p}(k)$. This is in particular the case for full unemployment, $\ell_i^o = 0$. Moreover, if, when $\ell_i^o > 0$, person *i* chooses to work less than ℓ_i^o, her income is reduced by the corresponding loss in output.

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

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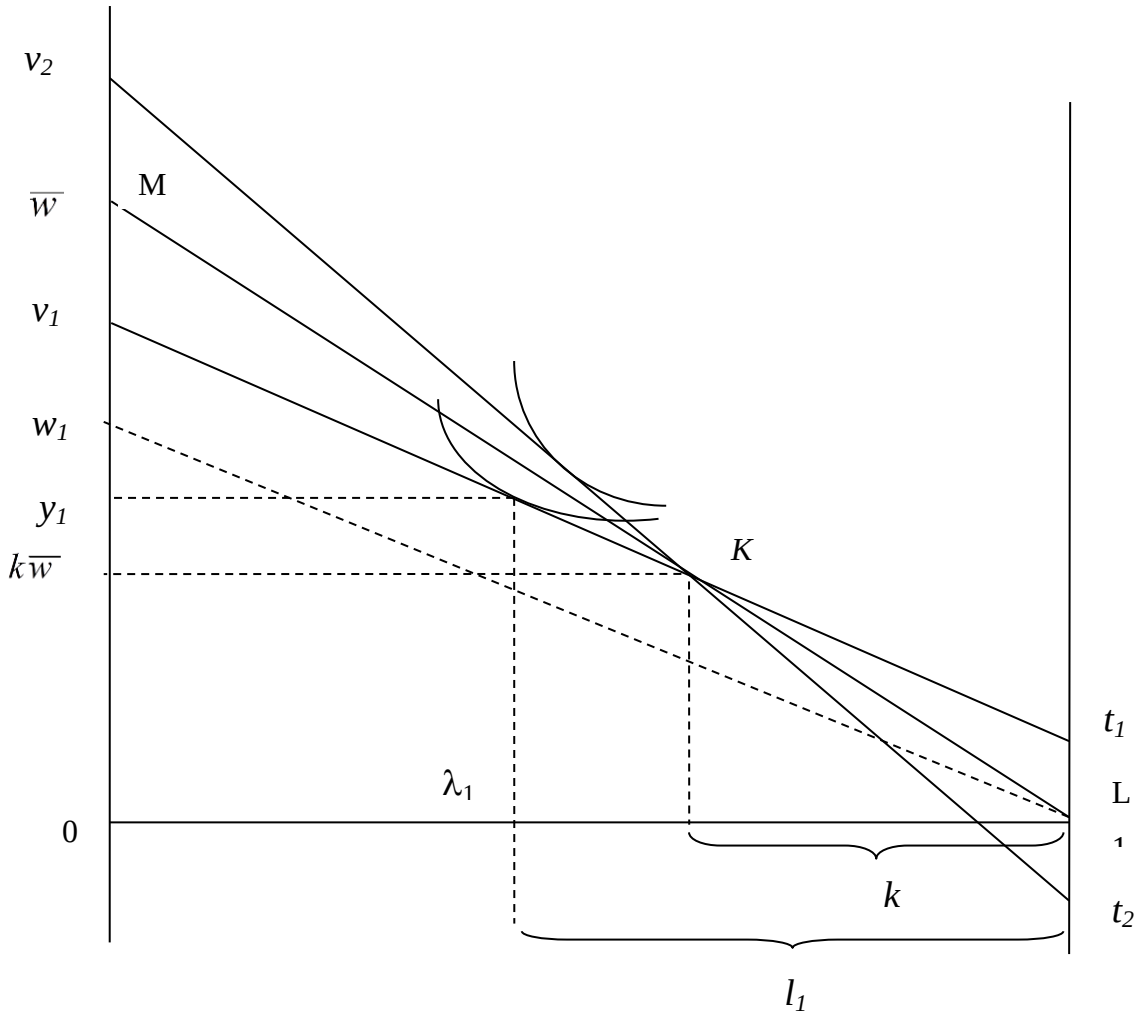

Figure 1

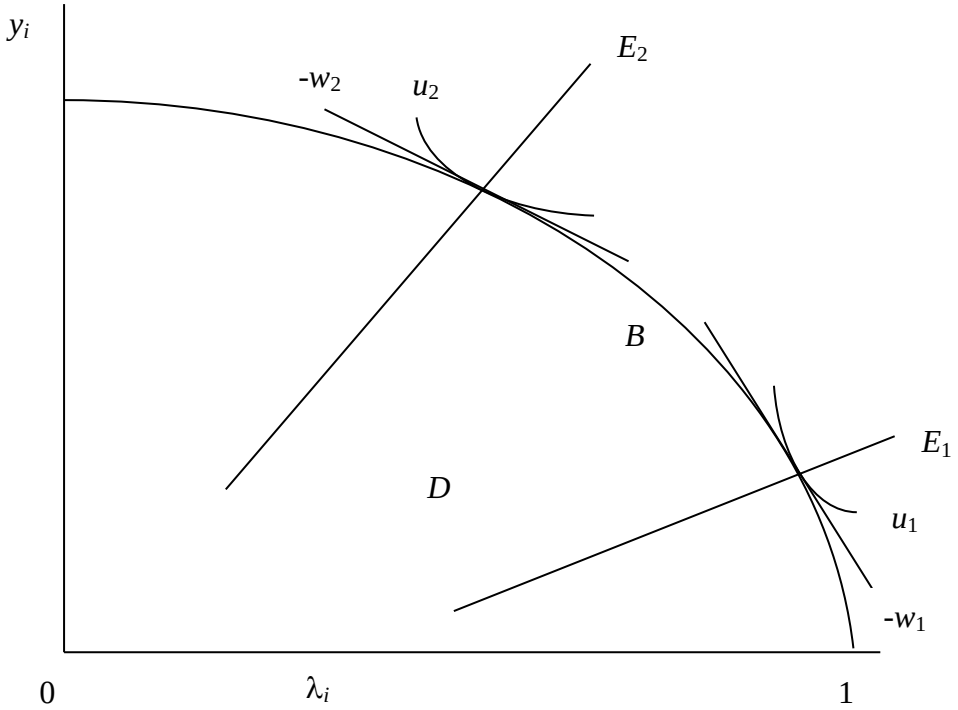

Figure 2