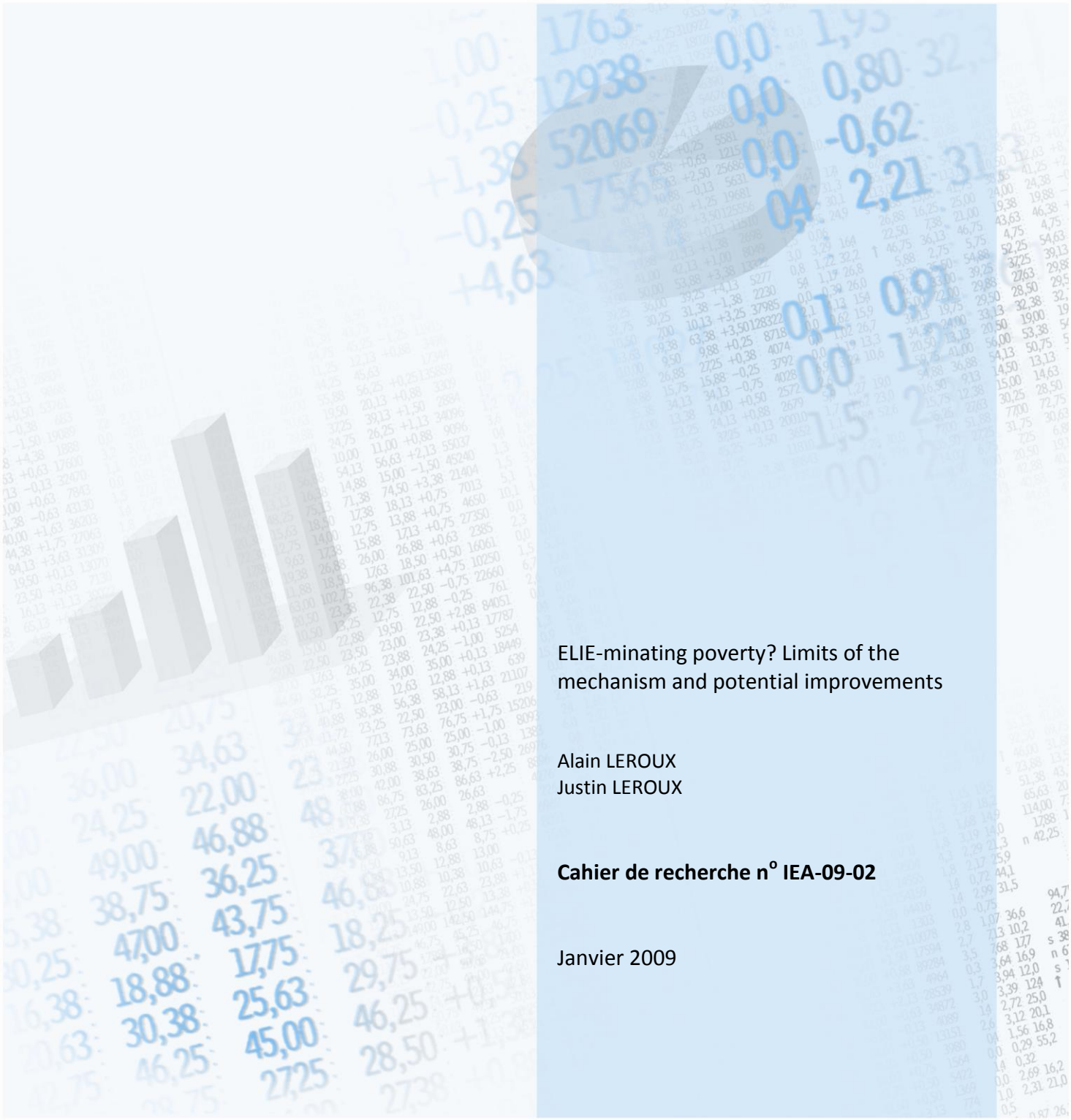
HEC MONTRÉAL
Institut
d'économie appliquée



ELIE-minating poverty? Limits of the mechanism and potential improvements

Alain LEROUX
Justin LEROUX

Cahier de recherche n° IEA-09-02

Janvier 2009

Institut d'économie appliquée
HEC Montréal
3000 chemin de la Côte-Sainte-Catherine
Montréal (Québec) H3T 2A7
Canada
http://www.hec.ca/iea
iea.info@hec.ca

ISSN : 0825-8643

ELIE-minating poverty?
Limits of the mechanism and potential improvements

by

Alain Leroux
GREQAM - Université Paul Cézanne

and

Justin Leroux
HEC Montréal and CIRPEE

Abstract: Using French data, we show that ELIE performs rather weakly when it comes to addressing the issue of poverty. Yet, eliminating poverty is also a valid normative property of any redistribution mechanism. We suggest combining ELIE with another redistributive solution aimed specifically at alleviating poverty: *the personal allowance (PERAL) mechanism* (Leroux, 2004 and 2007). We argue that ELIE and the PERAL mechanism, more than being compatible, are in fact complementary.

I INTRODUCTION

In his presentation of the general structure of ELIE, Kolm (2005) convincingly argues that the procedure is at the same time just, efficient and incentive compatible. These appealing properties are the three main concerns of the literature on mechanism design, but have rarely been achieved in combination, a frequent incompatibility of which the well-known Gibbard-Satterthwaite theorem is an emblematic example in the voting context. Thus, Kolm's discovery can only be commended. Yet, because Kolm's concern is the redistribution of income among the members of a vastly heterogeneous society, some rich, some poor, one cannot help but wonder whether ELIE is able to satisfactorily address the issue of poverty in developed countries.

As it turns out, ELIE performs relatively poorly in this sense. Using French data, we show that the amount of redistribution—represented by the parameter *k* of ELIE—necessary to eliminate poverty in France would be unreasonably large. Hence, despite the major appeal of the "macro" properties of ELIE, such as process freedom and Pareto efficiency, we deem this "micro" drawback to be an important limit of ELIE. We propose to augment ELIE with mechanism aimed specifically at alleviating poverty: *the personal allowance (PERAL) mechanism*. We argue that the PERAL mechanism is very much in line with the driving principles motivating ELIE. Moreover, from a practical viewpoint, we build on previous studies (Leroux 2004, 2007) to suggest that redirecting a small fraction of the income collected with ELIE (the equivalent of a bit more than one hour per week) toward the PERAL mechanism would be enough to eliminate poverty altogether.

Naturally, our claim regarding the limit of ELIE we identified here and the potential gains achievable by incorporating the personal allowance should not be interpreted as a criticism of ELIE or, if so, merely as a constructive one. In fact, Kolm himself suggests in this volume (p. ??[à completer à l'édition]) that ELIE must be amended with other, "micro" mechanisms:

> "ELIE takes care of the distribution function of public finance for "macrojustice," that is the overall distribution of the value of the main resources according to general rules. Other policies, social insurance, or charities, take care of issues of "microjustice" specific in terms of occasion, need, good, or people aided."

II LIMITS OF ELIE

This section aims at illustrating the fact that ELIE is unable to satisfactorily solve the poverty issue by examining its limits using French data. Before doing so, we first consider a very simplified example, using a linear income distribution, in order to describe the inner workings of ELIE with respect to the issue of alleviating poverty.

1) A simplified example: a linear income distribution

We consider here a simplified situation in which the income distribution is linear in the population-income space. In other words, the top income of the d^{th} decile is equal to d times the top income of the first decile of population. Such an income distribution is far from being realistic but exhibits neat graphical properties which we shall exploit to illustrate the consequences of ELIE with respect to poverty relief. See Figure 1.

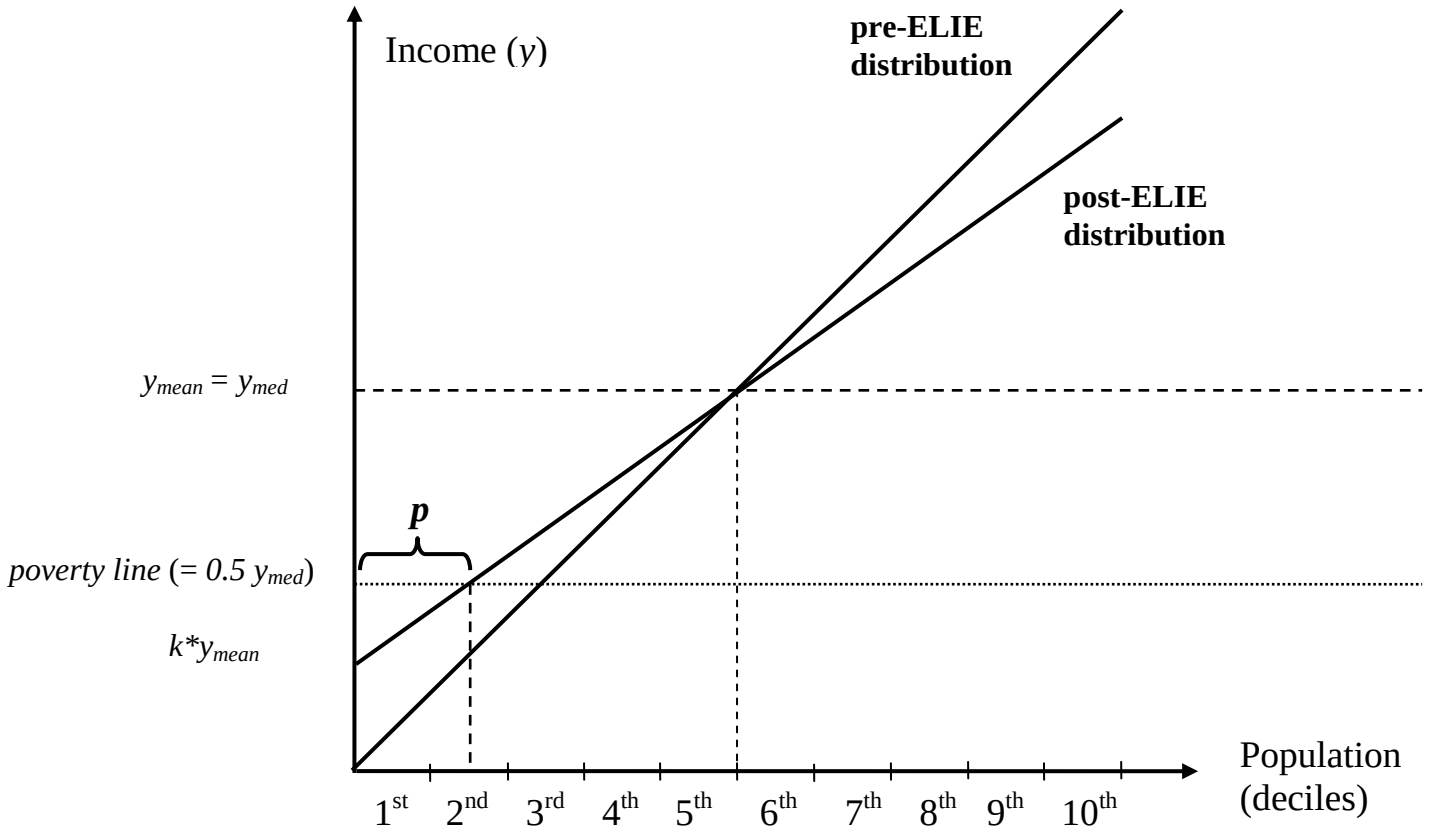


Figure 1

We denote by y_{mean} and y_{med} the mean and median incomes of the population, respectively. While y_{med} is typically smaller than y_{mean} in practice, the two values coincide in this simplified example. The value of y_{med} plays no role in the determination of the income transfers associated with ELIE but is instrumental in defining the poverty line in the case of France, which will be the country of interest in the next sections. Specifically, in France, any person whose income is less than half the median income is officially considered poor.[1] Thus, the aim of this exercise is to describe the evolution of the proportion of the population falling below the poverty line as the redistribution parameter, k, varies. Recall that "With ELIE, th[e]

[1] Note that in other countries, such as in the US, the poverty line is not determined relative to the income distribution within the nation but relative to the income needed to purchase a minimal bundle of goods deemed necessary for a decent standard of living. The choice of a poverty line is beyond the scope of this text and we shall simply take as given the criterion used in France, given that it is our country of study.

degree [of redistribution] depends only on coefficient *k*, … " (Kolm, this volume, p.?? [à completer à l'édition])

Strictly speaking, this redistribution parameter, *k*, is interpreted by Kolm (2005) as a duration of labor, which can be adjusted to take into account other dimensions of the labor task considered such as effort, risk involvement, tediousness, etc. However, there is also a sense in which *k* can be interpreted as a proportional income tax. Indeed, if we assume in a rough approximation that the large majority of the population works full time, so that income is a good proxy for wage, collecting the fruit of a given duration of labor (as in ELIE) amounts to collecting the corresponding percentage of income (as a proportional income tax would). Note, however, that this rough "equivalence" only holds quantitatively but not, for instance, in terms of the disincentives usually associated with a proportional income tax.

It follows from the above approximation that the net income transfer awarded to individual *i* amounts to $k(y_{mean}-y_i)$. Clearly, this transfer is positive for individuals whose income is below the mean income level and negative for those whose income is above it. Graphically, it follows that the post-transfer distribution is also a line, which is obtained by rotating the original line clockwise around y_{mean} (and, *de facto*, around y_{med}). Moreover, because y_{med} is not affected by the transfers stipulated by ELIE, neither is the poverty line. Hence, ELIE necessarily reduces the size of the poor population, *p*. In fact, poverty is eliminated for any value of *k* greater than 0.5, which amounts to the equivalent of 2.5 days of labor per week. This value is quite large compared to current income tax rates, even for France. But, the pre-transfer income distribution being arbitrary, this result is not grounded in any reality and there is no need for alarm (yet).

2) ELIE in France

We are now ready to consider real data. By applying the same reasoning to the income distribution of France, we are able to answer the following question: Can ELIE eliminate poverty? Clearly, it can, as a value of $k=1$ results in the egalitarian allocation of income. Nevertheless, as Kolm argues, such an extreme value of *k* is untenable on grounds of social stability (unanimity would massively be violated) and incentive compatibility (why should I work at all if my final income is independent of my effort?). Hence, a more interesting question is: Can ELIE eliminate poverty for reasonable values of *k*?

We argue that the value of *k* necessary to relieve France of poverty is unreasonably large. In this section, we first determine this value of the redistribution parameter and then discuss the practical consequences of implementing such a value.

The current income distribution of France is depicted in Table 1, which contains information on primary incomes (i.e. before tax and prior to any redistributive transfers) by decile. The contents of Table 1 were inferred from INSEE data on total income and on financial aid (see Appendix).

Table 1: Primary income in euros by decile (Year 1999)

Decile	Top income in decile	Mean income in decile
1st	4,660	2,453
2nd	8,828	7,417
3rd	12,210	10,912
4th	15,738	14,295
5th	19,476	17,807
6th	23,667	21,676
7th	28,568	26,178
8th	35,149	31,774
9th	46,082	40,061
10th	-	69,510

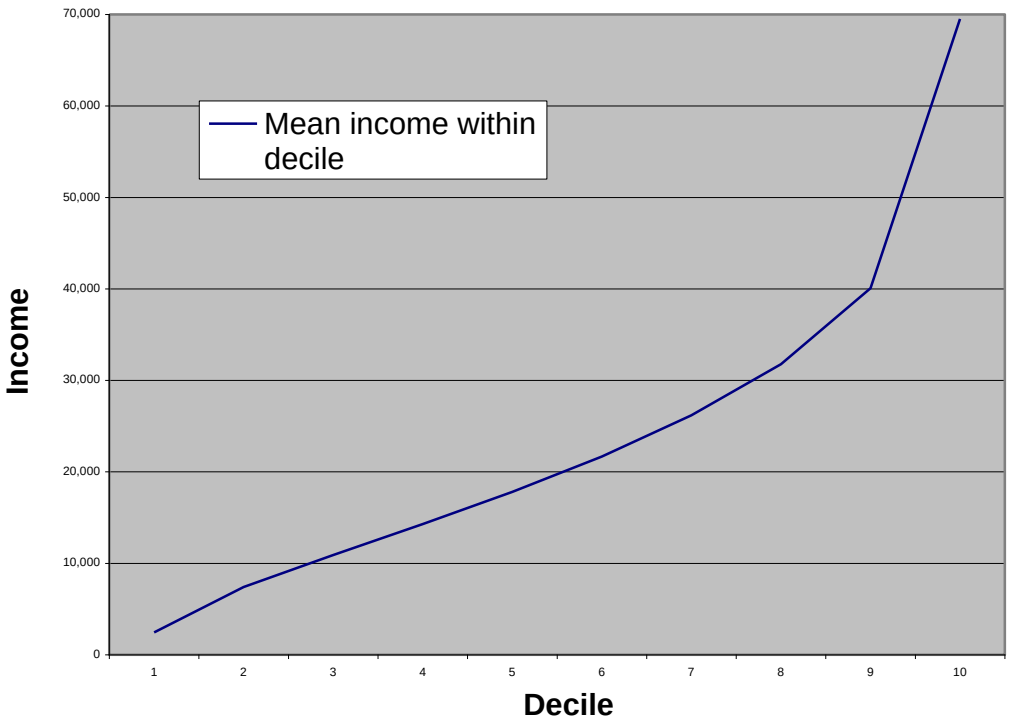


Figure 2: Primary income distribution in France

This income distribution is almost linear for the lower half of the distribution, with a slight concavity for very low incomes, and a sharper convexity at high incomes (see Figure 2). However, one should note that the current income distribution of France is necessarily a consequence of the various policies in effect in France, including minimum wage policies. Because ELIE itself takes care of such issues as minimum wage, it is not meant to be implemented *on top* of current minimum wage policies, but *instead* of them. Therefore, before applying ELIE, we must first make an effort to recover what the income distribution would have been were these policies not in effect. Because such counterfactual information is—of course—unavailable, we opted for correcting the current distribution in the following simple but conservative fashion.

First of all, we should consider that current minimum wage policies only affect the lowest portion of the income distribution. In other words, we take the view that the convex shape obtained for high incomes in the actual data accurately reflects the shape of the counterfactual distribution. Moreover, one may expect this counterfactual distribution to be convex for low incomes as well, instead of the concave shape we actually observe. Thus, for simplicity, we shall correct for the effect of minimum wage policies by adopting a linear distribution in the low-income range (i.e., up to the medium earner, see Figure 3). This

rectification—literally—is a conservative one and will actually underestimate the value of *k* necessary to eliminate poverty, as we shall discuss later.

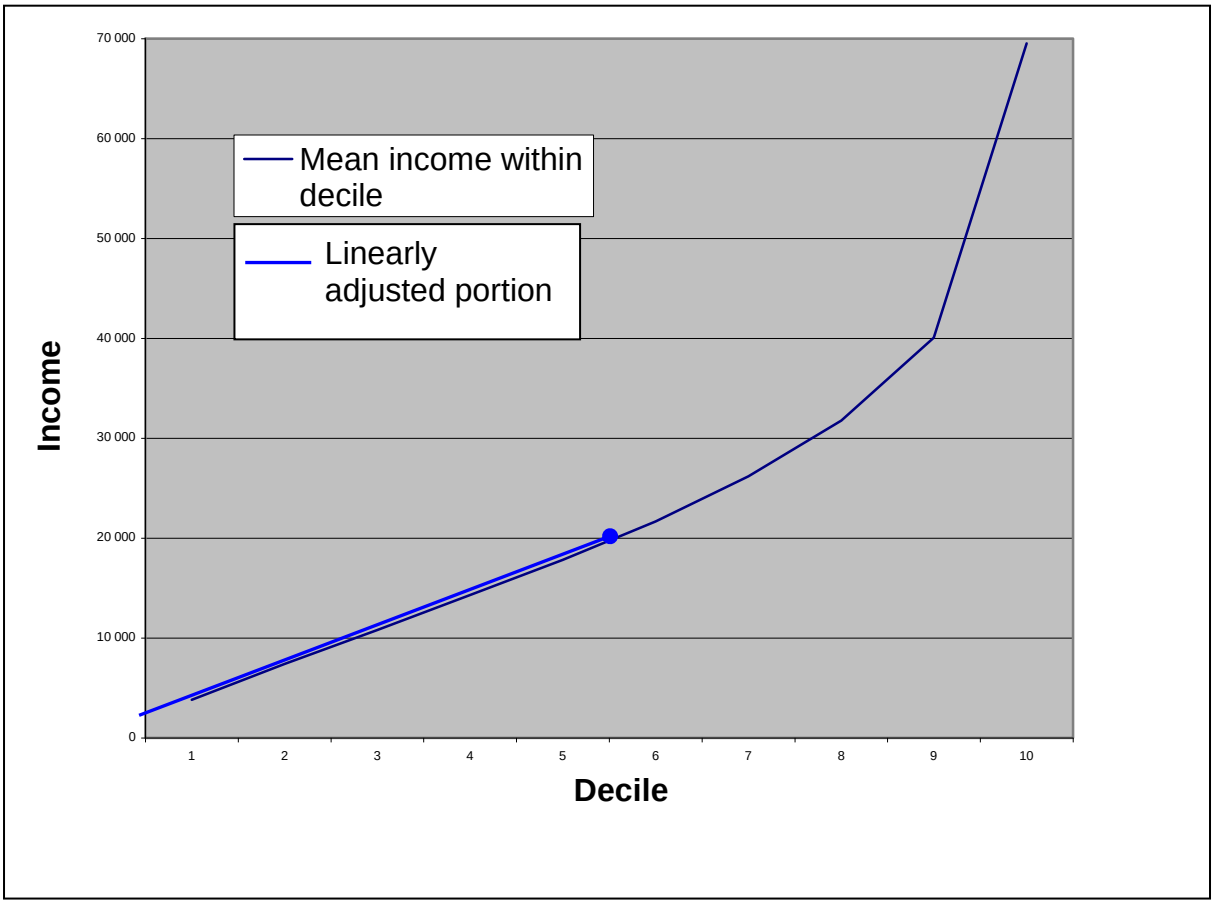


Figure 3: Adjusted income distribution

We can now evaluate the performance of ELIE concerning the alleviation of poverty. Values of interest after redistribution, such as the minimum and median income level, the poverty line and the proportion of the population falling below it can all be expressed in terms of *k* and the (pre-transfer) values of y_{mean} and y_{med}. Specifically, the post-transfer minimum income level equals $k * y_{mean}$, which is an immediate consequence of the lump-sum feature of the redistribution of ELIE. Similarly, the post-ELIE median income level:

$$y_{med}' = y_{med} + k(y_{mean}-y_{med}).$$

Also, recall that in France the poverty level is tied to the median income and its post-transfer value is therefore equal to $0.5\ y_{med}'$. Finally, our linear approximation of the lower half of the

income distribution allows us to compute the proportion of the population falling below the poverty level:

$$p' = \frac{1}{4}\left(1 - \frac{k y_{mean}}{(1-k) y_{med}}\right).$$

Numerically, with values of y_{med} = €19,476 and y_{mean} = €24,208 from the data, we obtain that eliminating poverty (so that the minimum income level becomes greater than equal to the poverty level) would require a value for k of at least 0.446.

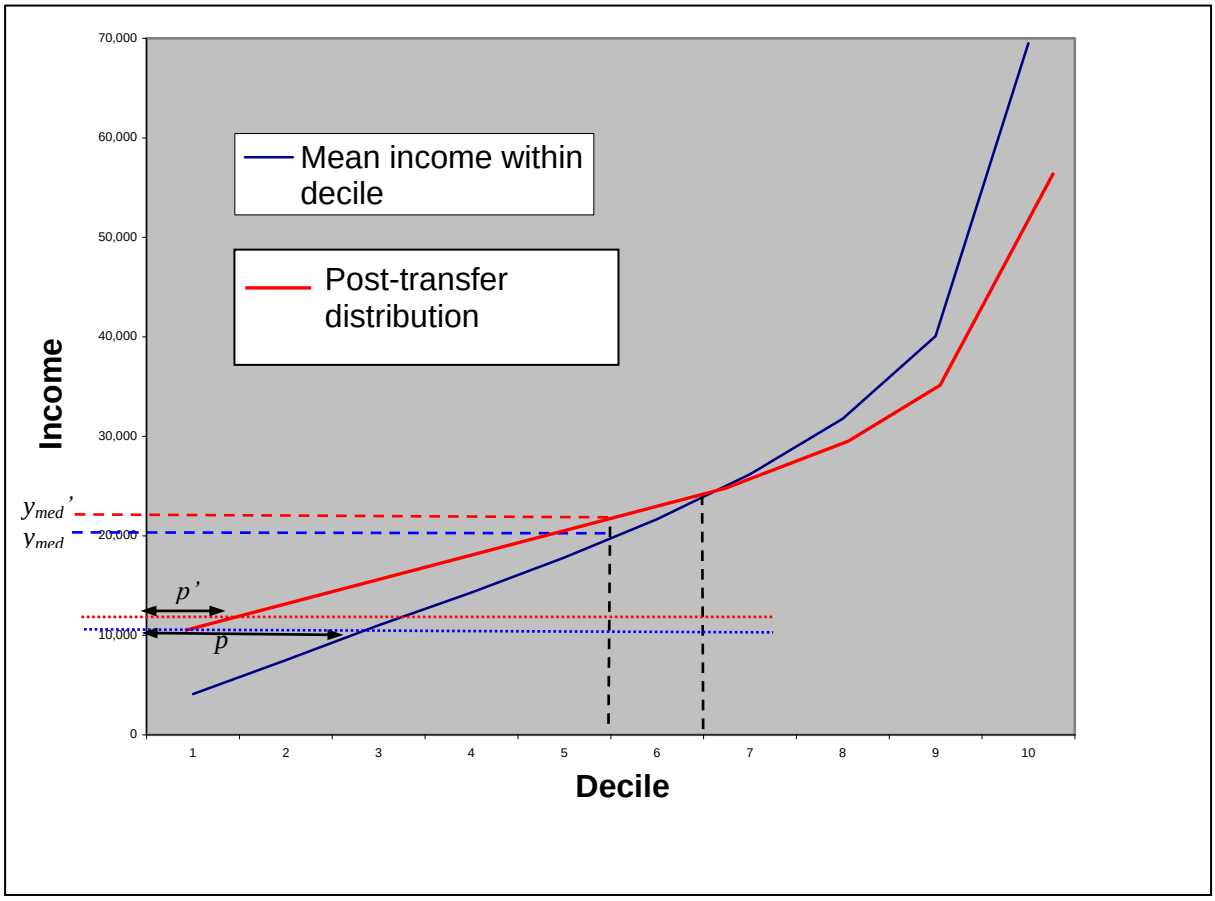


Figure 4: ELIE income distribution in France

It is interesting to compare this value (of 44.6%) with the 43.6% at which French citizens are currently taxed on average (including direct and indirect taxes, as well as social contributions). Moreover, as the current socio-economic context suggests, it may be difficult to convince French citizens to pay more taxes than they already do. Hence, one can expect

the implementation of ELIE to face strong resistance from the citizens of France. Not only that, but devoting 44.6% of the income of the citizens solely to redistribution would imply that *an additional* 10% or 12% would be needed to maintain some form of government (national defense, police, judicial system, etc.). Considering that 43.6% of income currently finances almost entirely education and health care, we argue that eliminating poverty in France via ELIE would be a difficult pill to swallow for the French population.

How much poverty can ELIE reasonably eliminate in France? Considering that roughly 10% of GDP is necessary to ensure the maintenance of a minimal government structure, and taking current average tax rate as given at 43.6% (thus corresponding to a value for $k \approx 33\%$, after financing of a minimal government), ELIE would reduce poverty to roughly $p' = 9.7\%$ of the population (down from $p = 19\%$ if no redistribution were carried out). Once again, it is worthwhile comparing this value to the current size of the poor population, which is of 7%. In other words, ELIE is less effective than the current redistributive system (even without the burden of financing education and health care, thus making the poor effectively even poorer!). Our conclusion is that ELIE cannot satisfactorily eliminate poverty under its current form, but must be modified in order to do so. We devote the remainder of the text to providing specific suggestions towards improving the performance of ELIE.

III THE PERSONNAL ALLOWANCE (PERAL) MECHANISM

The sole purpose of the PERAL mechanism is to redistribute wealth so as to alleviate poverty. As such, its goal is to channel wealth from the well-to-do to the needy, which appears to be at odds with a procedure like ELIE which awards every citizen the same lump sum. And, while ELIE's collection process does differentiate between individuals, thus leading to the needy becoming "net-receivers" and the well-to-do becoming "net-givers", this fixed lump sum is not sufficient to pull the needy above the poverty line, as we illustrate in the previous section for the case of France. Moreover, as Figures 1 and 3 indicate, those which are pulled out of poverty are the ones closer to the poverty line. While this feature makes good sense on efficiency grounds, it leaves an entire population of individuals which are hopelessly doomed to remain poor. In the absence of a better mechanism, the performance of ELIE regarding the issue of poverty could be deemed acceptable (if poverty were ever an acceptable circumstance). However, it turns out that such a mechanism does

exist: the PERAL mechanism. Preliminary studies show that the PERAL mechanism could alleviate poverty entirely at the much cheaper fare of 3% of GDP (in the case of France[2]) compared to 44.6% of GDP (corresponding to the value $k = 0.446$). This section is devoted to describing the PERAL mechanism as well as making explicit its relationship with ELIE. Far from being at odds with one another, we find that both mechanisms are likely to be complementary, with ELIE governing the general redistribution of wealth while the PERAL mechanism fine-tunes the new distribution so as to alleviate poverty.

1) The mechanism

The mechanism takes place in two steps. First, the government collects a portion of the citizens' income and redistributes the generated revenue equally among all citizens (just as ELIE would) in the form of vouchers. We call this lump sum their *base allowance*. So far, the PERAL mechanism is entirely compatible with ELIE, if not identical to it. Indeed, the PERAL mechanism does not specify the collection method, which could very well be conducted as in ELIE, with its own value of the redistribution parameter, l, taken to be the analog of Kolm's k, though much smaller in size.[3]

The second step concerns the final redistribution of the citizens' base allowance, which is done via a new type of entity, which we call *redistributive mutual companies*. These mutual companies are groups which citizens voluntarily create and join, and to which they deposit their base allowances (vouchers). They then reallocate the corresponding revenue between their members, with the objective of targeting the needy. Before discussing the relationship between ELIE and the PERAL mechanism, and given the novelty of redistributive mutual companies, we devote the next section to describing their functioning in some detail.

2) Redistributive mutual companies

As the name suggests, the purpose of redistributive mutual companies is to redistribute wealth. Also, as described in the previous section, the total amount of wealth to be

[2] See Leroux (2004).
[3] A value of $l=0,03$ corresponds to 3% of GDP, which is all that would be necessary to alleviate poverty in the case of France.

redistributed consists of the sum total of its members' base allowances. What is less clear, at this point, is the composition of these mutual companies, which is what we shall now specify, along with precise rules as to their function.

Redistributive mutual companies are created as by the citizens. In other words, anyone could create a redistributive mutual company so long as certain rules are met. First of all, a specific criterion governs the eligibility of individuals to adhere to a given mutual company: all members of a given mutual company must have at least one observable characteristic in common. In fact, this common characteristic *de facto* defines the mutual company, and becomes its label. This characteristic could be tied to geographical status (e.g., people born in a given region) or to a hobby (e.g., people whom take part in a given sport), but many others possibilities can arise spontaneously as more and more people relate to given characteristics. Indeed, because redistributive mutual companies would result from the personal initiative of citizens, and are not imposed by the governing authority, their defining labels will reflect the people's sense of identity. The reason for placing this condition on eligibility is to foster sympathy and, in turn, voluntary redistribution between the members of the mutual companies. By joining a mutual company which is built around a characteristic with which they identify, people are likely to feel sympathetic towards their fellow members, simply because they can relate to them via their common characteristic. As a result, helping out a fellow member in distress becomes easier.

The phenomenon of increased generosity is likely to arise even if many members of the same mutual company may never meet.[4] Indeed, redistributive mutual companies may become quite large. In addition, they should be required by law to be of a minimum size, say of a few thousand members, so as to avoid clannish behavior. Without such a lower bound on size, the common characteristic which defines a given mutual company may be so specific as to intentionally exclude the vast majority of the population. On the contrary, the purpose of mutual companies is to include every citizen in the PERAL mechanism, and to ensure that everyone will be able to choose one from several mutual companies. Moreover, certain characteristics may not be allowed to be the defining characteristic of mutual companies. It would be the governing institution's role to forbid mutual companies based around criminal

[4] Increased generosity can be seen as the result of two reinforcing effects. A direct effect, due to proximity to the net receiver, via the common characteristic, makes givers derive greater satisfaction from knowing that their contribution will be targeted towards someone with whom they feel a certain affinity. But an indirect effect, albeit a slight one, accentuates this increase in generosity. Indeed, because net receivers are benefiting from contributions from their fellow members, they are likely to be more parsimonious in their demands. As a result, and knowing that the net receivers will likely be more considerate than if they were supported by an anonymous government, givers will have a greater desire to help their fellow members.

activity or indecent behavior. Likewise, mutual companies defined by political, religious or ethnic backgrounds could be deemed as inappropriate.

In addition to the above-mentioned instances, the governing institution may also intervene to ensure that each redistributive mutual company abides by the regulations in place. In particular, their accounting would be subject to scrutiny as well as their procedure to reallocate the funds among its members. The PERAL mechanism being one of assistance to the needy, with the elimination of poverty as its ultimate goal, any subversive reallocation of funds (e.g., nepotism, lotteries, etc.) would be forbidden. However, aside from guaranteeing that funds will be used towards alleviating poverty, the governing institution will not be allowed to interfere in the actual method of redistribution within mutual companies.

Redistribution within mutual companies is decided upon collectively via democratic election. In addition, each mutual company is free to implement as little or as much redistribution as decided upon by its board. Naturally, people in need would choose to avoid companies which decide to not operate any redistribution whatsoever—thus "refunding" each member their base allowance, minus a possible tax incentive—in favor of those which redistribute more. Such behavior is understandable, as people in need are likely to value financial aid more than group identity, and vote with their feet accordingly. Freedom to choose one's mutual company, and to switch away from it as its mode redistribution ceases to meet one's expectations, is essential to achieving an equilibrium state where the needy receive sufficient financial support.

Now that the composition and the internal structure of redistributive mutual companies have been clarified, we turn to perhaps the most important interrogations. Will it be enough to alleviate poverty? At what price?

3) Redistribution

It is quite natural to be skeptical regarding the performance or the PERAL mechanism. Unlike existing financial assistance programs, which allocate resources to the needy *according to a predetermined schedule* on observable life circumstances (number of children, employment status, income level, etc.), the PERAL mechanism relies entirely on the—optional—sympathy that citizens may feel towards one another. Therefore, concerns as to whether enough redistribution will be carried out so as to eradicate poverty are legitimate.

Indeed, should every mutual company choose to refund all members their base allowance, there would be little hope.[5]

In preliminary studies, Leroux (2004, 2007) shows evidence that more than sufficient redistribution should take place to eliminate poverty under the PERAL mechanism in the case of France. The study relies on interview data which, despite the care taken in designing the survey and the sample, is not exempt of shortcomings. Nonetheless, even pessimistic corrections of the data lead to the conclusion that people would be generous enough to channel more than enough wealth towards the needy. In comparison to the existing aid programs in France, Leroux (2004, 2007) finds that the PERAL mechanism is likely to perform better (i.e., to eradicate poverty entirely, whereas the current programs still leave 4 million people below the poverty line, including 1 million children) with less funds (amounting to a base allowance of less than 73 Euros per month). The study assumes a fiscal incentive of 50%, meaning that 50 cents of every Euro of base allowance not devoted to redistribution are collected by the governing authority as tax revenue, which is then reinvested in the mechanism.[6]

Knowing that the extent to which sympathy towards people in need translates into actual wealth being transferred is extremely encouraging. However, one must also make sure that this burst of generosity is efficiently allocated. Two major concerns arise. The first one relates to the PERAL mechanism itself, and to the possible imbalance in the formation of the redistributive mutual companies. For instance, one may be concerned that mutual companies form around characteristics which are highly correlated with income. In other words, there may be too many "rich companies" and "poor companies", both reluctant to redistribute wealth, either by choice (the former) or by necessity (the latter). As a solution against such possible undesirable structure of mutual companies, the governing authority would be able to establish *public mutual companies*, whose financing is augmented via the tax revenue from the fiscal incentive to redistribute (at a rate of 50% in the study described above). The sole purpose of the public mutual companies is to redistribute this tax revenue among the poor who were unable to find a mutual company capable of rescuing them satisfactorily.

[5] Nonetheless, the presence of a fiscal incentive to redistribute should generate some revenue, which can then be devoted to aiding the needy.

[6] It should be noted that such taxation would be in addition to—and independent of—the lump-sum collection carried out in Step 1 (and governed by the parameter k). Nonetheless, a study in Leroux (2004) evaluates at 0.4% of GDP the size of the tax revenue necessary to induce sufficient participation to eradicate poverty in France, which is of the order of $k/100$. We thank Claude Gamel for this observation.

Finally, another major concern relates to the redistribution of wealth *within* mutual companies, which we now describe. Unlike current government programs, which award financial assistance based on objective characteristics, so how can one make sure that aid will adequately target the needy as intended by the program? Indeed, recipients of financial aid in the PERAL mechanism would be determined via face-to-face dialogue between potential recipients and representatives of the mutual companies in charge of evaluating the needs of the claimants. These representatives should also be members of the mutual company whom choose to carry out their duty voluntarily, truthfully and impartially. At first glance, such a glowing description seems to apply only to a select few, rendering the mechanism seemingly inoperable and in danger of being crippled by corruption. Yet, many individuals exist whom fit the description accurately. They are among us, and most of them are not high-profile individuals but simply people who wish take part in the well-being of their community and who are neither after glory, money nor any tangible advantages. Indeed, the qualities we envision for representatives of mutual companies are similar to those possessed by the municipal counselors of our local governments today.

Finally, talk of the private management of public funds often raises eyebrows. This legitimate concern stems from the very strength of the mechanism: if mutual companies are able to decide who will be the beneficiaries of the mechanism, how can abuse be prevented? It is expected that unscrupulous individuals would attempt to exaggerate their needs in order to take advantage of the fact that wealth is not be distributed according to objective and observable characteristics, but through dialogue. In addition to government audits from the Internal Revenue Service which will discourage obviously unreasonable reallocations, it would be up to the representatives to distinguish between legitimate claims and exaggerated ones. Because representatives would only be net givers, they would have little interest in manipulating the redistribution process. Finally, rotation schedules whereby no representative would be assigned to the same claimant for a long period of time should discourage collusion with the recipients of aid.

To sum up, the fact that resources are redistributed according to criteria decided upon within the mutual companies is actually the main strength of the PERAL mechanism. Because members of a mutual company share at least one common characteristic of their choice and, in all likelihood, a characteristic which is most meaningful to them, they are likely to feel closer to each other than to the rest of the population. Hence, they will be more prone to redistributing wealth among themselves (as opposed to the anonymous government or, worse, to some presumed mooch who decides to take advantage of the system). Moreover,

members whom end up being net receivers will be less likely to exaggerate their needs, knowing that the burden will fall on their fellow members (once again, as opposed to the anonymous government or to a mass of strangers towards whom they feel no affinity whatsoever). By emphasizing closeness (of tastes, of geographical location, or otherwise), the personal allowance mechanism reinforces the individuals' proclivity towards solidarity or, more specifically, towards *mutual aid*[7]. Moreover, as is intended, this "mutual aid via closeness" argument—increased generosity in giving combined with more restraint in asking—would still hold even when the size of these mutual companies reaches thousands of members.

IV ELIE and the PERAL mechanism

The PERAL mechanism described in the previous section has no other goal than to eliminate poverty in rich countries. In other words, it is not aimed at solving issues of redistribution beyond that of poverty. Hence, the PERAL mechanism is a "micro" mechanism, grounded on fairness considerations at the microeconomic level, whereas ELIE is a "macro" mechanism, aimed at respecting *macrojustice* (Kolm 2005). Therefore, these two mechanisms are not competing with one another. In fact, we show here that they are complementary, both in the normative sense and in terms of implementation.

Naturally, the first step of the PERAL mechanism in our description (i.e., its financing) can be seen as a direct offshoot of the ELIE mechanism. Hence, it will suffice to show that the second step of the PERAL mechanism (redistribution) is in line with ELIE's intrinsic properties of process freedom and Pareto efficiency.

The PERAL mechanism clearly respects process freedom, as all citizens are free to take their base allowance to the mutual company of her choice (and switch at any time), be it by intrinsic affinity or because the redistributive policy suits them best. Moreover, within a mutual company, they are free to vote for whatever redistributive policy they choose to support and define the company's guidelines for redistribution.

[7] See Leroux and Leroux (2008) for a formal distinction between the concepts of solidarity and mutual aid.

Lastly, we check that Pareto efficiency is satisfied by establishing that the redistributive structure of the PERAL mechanism would not give rise to perverse disincentives. In other words, one must ensure that no individual (or only a small minority) will decide to work less in anticipation of receiving a larger personal allowance (recall that the "collection" portion of the mechanism is already taken care of, thanks to Kolm's profound analysis of ELIE). Because transfers are made within mutual companies, and because the members of a given company are somewhat close, our "mutual aid via closeness" argument above applies, and we can expect such manipulative behavior to be kept to a minimum.

Hence, the PERAL mechanism is entirely in line with the driving principles of ELIE. Moreover, one can expect this mechanism to solve the issue of poverty elimination using only a fraction of the income collected with ELIE. Indeed, collecting 3% of GDP corresponds to an equalizing labor, *k*, of barely more than one hour per week.

V CONCLUSION

We illustrated, using the example of France, that ELIE would not perform satisfactorily regarding the issue of poverty elimination. Despite its major appeals as far as macrojustice is concerned, we showed that the redistributive parameter, *k*, would have to be unreasonably large in order to eliminate poverty. Moreover, for values comparable to the current average tax rate, we saw that ELIE performed much worse than existing aid programs.

To correct for this "micro" (but important) drawback, we suggested amending ELIE with another mechanism which is aimed specifically at eliminating poverty while retaining the driving principles of freedom and Pareto efficiency: the PERAL mechanism. Backed by previous studies, we argued that the PERAL mechanism could eliminate poverty using only a small fraction of the income collected by ELIE (the equivalent of a bit more than one hour per week). We argue that ELIE and the PERAL mechanism, more than being compatible, are in fact complementary.

REFERENCES

Kolm S-C. *Macrojustice*, Cambridge University Press, 2005.

Leroux A. *Eliminer la pauvreté en France*, Economica, 2004.

Leroux A. *Peut-on éliminer la pauvreté en France ?*, Economica, 2007

Leroux A. and J. Leroux, « L'allocation personnelle – Entre solidarité et entraide », *Leçons de philosophie économique vol. 4*, A. Leroux and P. Livet (eds), Economica, 2009.

APPENDIX

Table 2 : Mean yearly French household income (excluding capital income), in deciles, in euros, and portion of total income			
	Top income in decile	Mean income in decile	% of total income
1st decile	7,304	3,845	1
2nd decile	11,091	9,318	4
3rd decile	14,099	12,601	5
4th decile	17,219	15,640	6
5th decile	20,631	18,863	7
6th decile	24,653	22,579	9
7th decile	29,361	26,904	11
8th decile	35,757	32,324	13
9th decile	46,642	40,548	16
10th decile		69,930	28

(Source: « INSEE, revenus fiscaux 1999, hors revenus du patrimoine »)

Table 3: Proportion of financial aid in gross income by decile, in %.

Decile	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
« Alloc, familiales »	6.6	4.4	3.1	2.3	1.8	1.5	1.1	0.9	0.7	0.4
« Autres prest, familiales »	5.3	4.1	3.2	2.3	1.7	1.3	0.9	0.5	0.3	0.1
« Alloc, logement »	12.9	7.6	4.4	2.4	1.2	0.6	0.3	0.1	0.1	0.0
« Minima sociaux »	11.4	4.3	2.7	1.6	0.9	0.6	0.4	0.2	0.1	0.1

Source: « Enquête revenus fiscaux 2000, INSEE-DGI »