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SHOULD THE DEATH TAX DIE? AND SHOULD IT LEAVE AN INHERITANCE?

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Should the death tax die? And should it leave an inheritance?*

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Abstract

In this paper we examine the possibility of earmarking inheritance taxes to the financing of a transfer to the poor, aimed at reducing the payoff from small crime and at fostering the fulfillment of basic social responsibilities. A simple model of a society in which there are two types of agents either supplying legal labor or participating in criminal activity is presented. The effects of the transfer are examined with reference to two policy designs and to attitudes toward risk of the agents. Financing the transfer through inheritance taxation may be advisable as a way of collecting the needed revenue from agents who are likely to maintain strong enough incentives to good conduct.

1 Introduction

Estate, inheritance and gift taxes are under attack. Many countries have made great strides in reducing their scope or, as will soon be the case in Italy, abolishing them altogether. Criticism of this type of tax are based on[1]:

– the large opportunity for avoidance they offer, and the resources wasted on finding and exploiting loopholes in the tax law;

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[1]For a survey, see Kaplow [4].

– the predicted distortionary effects upon choices pertaining to work, savings, and to business and residential location;

– wide-spread concern about the oversized public sector;

– the limited revenue collected through this type of tax, which makes further reductions or cancellation only a mild adjustment for the government, yet highly visible to taxpayers.

Criticism thus hinges primarily upon efficiency considerations. The public sector is not deemed capable of utilizing revenue more efficiently than the private and specific distorsions are produced by this type of tax. Abolitionists find that the aforementioned problems overwhelm classical equity considerations pertaining to the potential role of estate taxes in narrowing starting points and reducing wealth and income inequality.

In this paper, we explore the possibility of reformulating the tax, addressing areas of primary concern. With reference to the problem of controlling government growth, abolition of death duties is not necessary. One approach to resolving this problem is to earmark estate, inheritance and gift tax revenue, and to increase tax exemptions for transfers to charities and cultural foundations. This approach inhibits government discretionary use of collected resources and favours either private choice regarding revenue allocation (through donations to meritorious institutions), or public choice (as opposed to government choice) concerning the earmarked expenditure. While other efficiency drawbacks of estate taxes are more difficult to correct, one can envisage a system of earmarking funds aimed at increasing the overall efficiency of the economic system, thus providing some kind of balance against remaining inefficiencies. In this paper we examine the earmarking of death duties revenue for the financing of a citizenship dividend to the poor, conditional on fulfilment of basic social responsibilities (e.g. compulsory school attendance, tax and environment law compliance, effort to secure income, avoidance of crime). Revenue would thus be devoted to the correction of the externality stemming from the "licence of committing small crimes" for those who do not receive any share of the inheritance and are so poor as to be unable to bear monetary sanctions. The basic idea is that of a "social inheritance", which, while accepted by the heir, implies legacy duties that must be accomplished. One possibility is to make the payment directly conditional upon the verification of compliance with the specified duties, at some critical age[2]. From this point of view, the dividend should foster the individual full liability for monetary sanctions for misconduct even at low

[2] Legal age seems a natural reference point. Very young age classes are often characterized by a higher than the mean frequency of property crimes (see e.g. [3]).

income levels, and help to enforce socially advantageous behavior. Within a benefit principle approach, donors and bequeathers should see the social inheritance as a way of providing their heirs with a more favorable social environment. From an efficiency point of view, inheritance conveys information about the heir, who thanks to the assets received is likely to belong to the group of people "easily punishable" through monetary sanctions and capable of bearing the burden of financing the transfer.

The social inheritance dividend is likely to give rise to some efficiency problems typical of negative income taxation in terms of income effects and disincentives to work effort. In the paper we assess the scope of these problems.

A stream of literature to which this paper is closely linked is that about redistribution as a means for reducing crime. Demoguin and Schwager [2] especially have clearly and forcefully argumented in favor of social transfers as a means for attaining low levels of crime without incurring prohibitive costs. Demoguin and Schwager also present suggestive evidence[3] of the contrasting scenarios in the USA (where law enforcement expenditure is quite high but crime rates are as well) and Europe (where social transfers may be accounted as partial but quite effective substitutes for law enforcement expenditure). While our model is partially based on the approach of Demoguin and Schwager [2], there are some significant differences: we take into account agent's risk aversion and labor supply as a continuous variable, we model small crime as a negative non depletable externality (rather than as damage for the victim alone[4]) and we focus on monetary sanctions rather than upon imprisonment.

The paper is organized as follows. In Section 2 we present the objective function of the prospective heirs and state separability conditions that ease the further analysis; in Section 3 we describe a society made up of two agent groups and discuss the equilibrium externality level under varying assumptions about labor supply. In Section 4 we discuss the earmarking of inheritance tax revenue to social transfers when agents exhibit constant absolute or constant relative risk aversion. In Section 5 we discuss the policy in comparison with available alternatives and draw some conclusions.

[3] With reference to 1990 U.S. state-level data, Imrohoroğlu et al. [3] find instead no correlation between per capita expenditure on public welfare and the property crime rate.

[4] While private damages stemming e.g. from crime property may be to some extent corrected by private expenditure in protection, the unsafe environment that arises when the crime rate is high is a public bad.

2 The agent's problem

Let us assume that each agent aims at maximizing the following weakly separable concave utility function:

$$V(L, U(C))$$

where L is leisure and C is consumption, which are both normal goods. Consumption is a random variable:

$$C(h_1, h_2) = w_1 h_1 + w_2(h_2) - cE \tag{1}$$

where h_1 is time devoted to legal work (henceforth activity 1) and h_2 time devoted to an illegal activity (activity 2); $h_1 + h_2 \leq M$, where M is a global time constraint.

Activity 2 originates externalities, which are born by everyone, with the exception of a small group of agents suffering from social alienation. Negative externalities considered originate mainly from socially disapproved conduct and small wrongdoings or crimes (pickpocketing, noisy drunkenness, irregular waste disposal etc.). As social alienation provides a kind of solidarity among those who suffer from it, we assume that the group of socially alienated agents do not suffer from externalities. In (1) c is the unit cost of externalities for the victim; E is the total amount of externalities. Remuneration of activity 2 is:

$$\begin{aligned} w_2(h_2) &= \quad b_i h_2 \text{ with probability } (1-p); \\ &= -a - sh_2 \text{ with probability } p, \\ &\quad \text{if } w_1 h_1 - cE \geq a + sh_2 \text{ and } h_2 > 0; \\ &= -(w_1 h_1 - cE) \text{ with probability } p, \\ &\quad \text{if } w_1 h_1 - cE < a + sh_2 \text{ and } h_2 > 0 \\ &= 0 \text{ with probability } p, \text{ if } h_2 = 0 \end{aligned}$$

that is, the agent, engaging in the illegal activity receives a remuneration b_i, which is a money measure of the subjectively felt advantages of the activity. However, the agent loses that remuneration and bears a linear penalty if detected (with probability p) and provided that her income is high enough to bear the loss. If the agent has too low an income, she loses it entirely if detected[5]. Monetary sanctions seem to be more apt to fit the

[5] That is $w_1 h_1$ is used to partially pay for the sanction, while detection implies the loss of $b_i h_2$. As a consequence the agent enters the group of socially alienated, and she does no longer bear the effect of negative externalities. Hence the agent's consumption in this case is zero.

type of crime considered in the paper, while resorting to imprisonment may violate marginal deterrence[6].We refer to a penalty with a fixed component as a simple modelling strategy to introduce the problem of agents "hard to punish" due to lack of resources[7]. Moreover, in practice, fixed components or lump-sums are quite frequent in monetary sanctions.

As the utility function considered is weakly separable, a necessary condition for maximizing the agents's utility is the maximization of the subutility function $U(C)$, that must be secured together with the optimal allocation of time to leisure and work. We shall mainly focus on the implications of this necessary condition, quoting $U(C)$ as the agent's utility function, with a little abuse of language. We assume that $U(C)$ exhibits risk aversion.

3 The two type society

For the sake of simplicity, let us assume that there are two types of agents, characterized by either high or low productivity. They will be referred to by the index $i = r,\ p$. With reference to the illegal activity, remunerations b_i within each group are uniformly distributed in the interval $[0, 1]$. Highly productive agents comprise a large majority, and their number is $N_r > 1$. Given their salary w_1^r for activity 1, they are fully deterred by the current expected penalty, that is:

$$p \geq \frac{b_i^r - w_1^r}{b_i^r + s}$$

or expected sanction[8] $p\,(b_i^r + s)$ is equal to or greater than the additional remuneration that activity 2 secures in comparison with activity 1, for $b_i^r \leq 1$. This implies that, as long as they are fully liable, their preferred choice, in order to maximize $U(C)$, is to give up any illegal activity. Moreover, agents in the high productivity group are not interested in becoming not liable by

[6] Often alternative sanctions (such as serving in social activities) are mandated for the types of misconduct being considered. As, however, the duties imposed can be violated in turn, further enforcement must always be available either through monetary sanctions or other forms of enforcement (imprisonment, etc.).

[7] Even without this fixed penalty component, the problem of too low an income to bear the sanction could be originated e.g. by a minimum time requirement of activity 2, that implies that income received from activity 1 is not enough to pay the proportional penalty; or from a productivity level too low to find a job in activity 1 altogether.

[8] Only marginal sanction is relevant with reference to marginal conditions for utility maximization. b_i must be taken into account in addition to s because detected agents lose their remuneration.

giving up legal work, as:

$$(1-p)U(h_2^r(b_i^r) - cE) \leq U\left(h_1^r(w_1^r)w_1^r - cE\right) \tag{2}$$

where the l.h.s. refers to the expected utility of a not liable agent who specializes in activity 2 and is characterized by $b_i^r = 1$, while the r.h.s. refers to the sure utility of the one who specializes in activity 1. In (2) $h_2(b_i^r)$ is the preferred amount of hours of work chosen by the aforementioned agent who specializes in activity 2, while $h_1^r(w_1^r)$ is the preferred amount in case of specialization in activity 1. Specialization arises in case of lack of liability as, whenever $b_i^r \geq w_1^r$, it ensures the largest expected utility for the agent who wants to perform activity 2 (in fact in case of detection she always loses everything no matter how much activity done)[9]. In the opposite case, whenever $w_1^r > b_i(1-p)$, a mixed choice cannot outperform specialization in activity 1.

High productive agents thus always prefer activity 1. They are victims of the externalities, but do not produce them.

Low productive agent's group is less large (we assume $N_p = 1$). They have a salary $w_1^P < (1-p)$, which is lower than the highest expected remuneration of the illegal activity. Moreover, their low salary implies that they cannot bear the loss due to the penalty, as $w_1^P M < a$, so that even for a very low engagement in activity 2 they cannot pay it. Hence their perspective in case of detection is the loss of the whole income.

We assume that low productive agents do not bear any cost for externalities produced by other people. We expect again that they specialize in one of the two activities, for the reasons already clarified. The low productive agent's decision about which activity to embrace depends upon the value b_i of the subject; it is based on an inequality similar to (2). To have a clearer picture, we assume for the moment that the labor supply for this social group is anelastic and fixed at level h^P in both activities, and we specify the utility function as an exponential, characterized by constant absolute risk aversion. We solve it for b_i^p in order to determine the activity 2 remuneration level that is small enough to command the choice for activity 1[10]. We solve the following inequality:

$$\left\{1 - \exp\left[-\alpha\left(h^P w_1^P\right)\right]\right\} \geq (1-p)\left\{1 - \exp\left[-\alpha\left(h^P b_i^p\right)\right]\right\} \tag{3}$$

[9] That is, specialization in activity 2 maximizes the value of the l.h.s. of (2), which does not imply however that utility so reached is higher than that available from activity 1, described in the r.h.s.; inequality will hold only for specific values of the parameters.

[10] We rely on the standard assumption that an agent who is indifferent between legal and illegal activity chooses the first.

where on the l.h.s. the utility of the agent who works legally is considered, while on the r.h.s. there is the expected utility of the agent engaged in the illegal activity, and α is the absolute risk aversion. We thus find:

$$b_i^p \leq -\left(\frac{1}{\alpha h^P} \ln\left[\frac{-p + \exp\left[-\alpha\left(h^P w_1^P\right)\right]}{1-p}\right]\right) \tag{4}$$

with $\lim_{\alpha \to 0} b_i^p \leq \frac{w_1^P}{(1-p)}$ (apply de L'Hopital rule), that is the wage provided for legal work must be greater than or equal to the expected remuneration from illegal activity in case of risk neutrality, to make activity 2 the preferred one[11].

The b_i^{p*} value that equates the two sides of 4, thanks to the assumption of uniform distribution in the interval $[0, 1]$, and by assuming that for this type of agents $N_p = 1$, also measures the number of compliers among the low productive agents. The complement to one is the number of agents who engage in the illegal activity. Hence the total amount of externality produced is $(1 - b_i^{p*})h^P$. Note that the number of honest agents b_i^{p*} is increasing in w_1^p .

In the more general case, the amount of hours worked in activity 2 varies as a function of b_i^p, while the preferred amount of hours worked in activity 1 does not depend on b_i^p because of the agent's specialization. While labor supply in activity 2 may be backward bending, as consumption is a normal good by assumption, $h_2(b_i^p)b_i^p$ must be increasing in b_i^p. Hence, it is still possible to find an b_i^{p*} value that separates those who choose activity 1 from those who choose activity 2. If labor supply for activity 2 is backward bending, b_i^{p*} is pushed up. The opposite effect arises if labor supply in activity 2 constantly increases in b_i^p.

4 The role of the inheritance tax

Let us now consider an enlarged version of the static model so far considered. Each high productive agent has now a further source for financing her consumption, that is an inheritance that amounts to $B > 0$ received from her mother[12], who in deciding about it was motivated by altruistic considerations. High productive agents may consider the possibility of introducing

[11] To ensure that the right hand side in (4) is well defined we assume $p \leq \exp\left[-\alpha\left(h^P w_1^P\right)\right]$.

[12] For simplification we refer to a one-parent one-daugther society.

by majority voting an inheritance taxation[13] in order to finance a transfer to low productive agents. The logic is that of increasing the opportunity cost of illegal behavior, in order to raise welfare, by reducing the amount of externalities.

It is assumed on the other hand that transferring the revenue collected through taxation to the low productive agents implies increasing costs, so that total costs of the policy are given by $f(g)BN \geq gBN$, where $0 \leq g \leq 1$ is the net rate of transfer[14] and each high productive agent bears a cost of $f(g)B$. We assume also that $f(0) = 0$, $f'(0) = 1$, $f' > 0$, $f" > 0$ and $f'(\overline{g}) = \infty$, that is actual marginal taxation rate is higher than the legal one and is increasing; it becomes prohibitive at $\overline{g}$, reflecting the maximum of the Laffer curve. Financing the transfer through inheritance taxation may in fact introduce distorsions upon the decedent's choice about the inheritance to bequeath, alongside with avoidance activities. As long as the proposed policy, however, induces a net increase in the high productive agent's utility, they should vote in favor of it. So should the low productive agents who benefit from the transfer.

The utility function of a high productive agent when the inheritance is received and the taxation-transfer policy is implemented becomes:

$$1 - \exp\left\{-\alpha\left[w_1^r h_1^r(w_1^r) - cE(g) + \left[1 - f(g)\right]B\right]\right\}. \tag{5}$$

As it has been assumed that income is a normal good, and as benefiting from the inheritance the heir must feel richer, after inheriting and after the implementation of an advantageous taxation-transfer policy, she should still be fully deterred from illegal activity.

4.1 The taxation/transfer policy with constant absolute risk-aversion

The choice problem of the poor agent is modified when she is entitled to a transfer gBN, which would be lost only if she is detected performing an illegal activity. Let us also assume for the moment that the labor supply of

[13] In this static model inheritances are treated as gifts. We focus upon inheritances received. Bequests are comprised within each high productive agent's consumption expenditure.

[14] Within this approach resorting to a transfer paid to every citizen could increase redistribution costs without adding nothing in terms of externality control. An universalistic approach (e.g. through a citizenship dividend), however, may be valuable if it implies a change in the redistribution technology which reduces costs (e.g. because eligibility need not be verified).

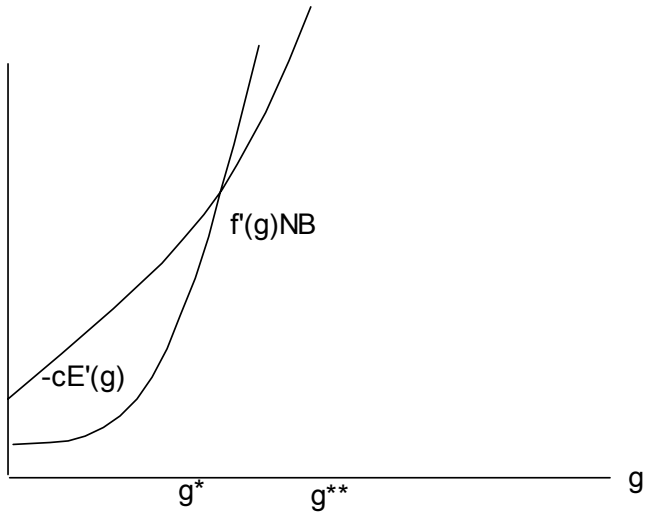

Figure 1: The transfer is worthwhile until level g*

the low productive agent in both activities is anelastic and fixed at level h^p. Moreover, the transfer is not large enough to render the agent liable. By rewriting the choice problem of the agent when the transfer is provided for, we find the $b_i^{p*}(g)$ value, that is the new legality threshold:

$$b_i^{p*}(g) = \frac{-1}{\alpha h^p}\left(\alpha g B N + \ln\left[\frac{-p + \exp\left[-\alpha(h^p w_1^L + gBN)\right]}{1-p}\right]\right)$$

It can be verified that the frequency of poor agents who choose activity 1 increases at increasing rates as g increases. Thus externalities $E(g) = \left[1 - b_i^{p*}(g)\right] h^p$ decrease accordingly. On the other hand, transfers also have strictly increasing marginal costs. An example in which the policy is worthwhile is illustrated in Figure 1, where g^{**} refers to the transfer level which implies that $b_i^*(g) = 1$, so that there are never reasons for increasing the transfer further[15].

Even when the transfer is set at a level that induces elimination of the externality, this does not always imply equalizing incomes, as the intervention may absorb only partially the inheritance amount, and the salary of the high productive agent may from the outset be much higher than the level

[15] The transfer could stop beforehand also if low productive agents become liable and thus fully deterred by the current sanction.

needed to ensure the preference for activity 1 on the part of low productive agents.

What happens if the amount of hours worked by the poor drops in both activities as a consequence of the transfer *via* the income effect? Even in this case there is still just one solution to equation (3), for each given gBN level, as the l.h.s. does not depend on b_i while the r.h.s. is still increasing in it. Even if the labor supply is backward bending, income from activity 2, being a normal good, cannot decrease if work remuneration increases. In this case, however, the stimulating effect of the transfer on good conduct could somehow be reduced, as long as the transfer received partially substitutes income instead of adding to it in order to increase the preference for legal conduct. To point out the effects, we rewrite (3) as an equality which highlights the role of the transfer:

$$1-\exp\left\{-\alpha\left[h_1(g,w_1^P)w_1^P+gBN\right]\right\}=(1-p)\left\{1-\exp\left[-\alpha\left(h_2(g,b_1^p)b_1^p+gBN\right)\right]\right\}$$

Differentiation leads to:

$$\frac{\delta b_i^{p*}}{\delta g}=\frac{-(1-p)\alpha\exp(-\alpha y_2)(b_i\frac{\delta h_2}{\delta g}+BN)+\alpha\exp(-\alpha y_1)(w_1^P\frac{\delta h_1}{\delta g}+BN)}{(1-p)\alpha\exp(-\alpha y_2)\left[(h_2(g,b_i^p)+b_i^p\frac{\delta h_2}{\delta b_i^p})\right]}$$

where $y_1=h_1(g,w_1^P)w_1^P+gBN$ and $y_2=h_2(g,b_i^p)b_i^p+gBN$. It turns out that, whenever labor supply in activity 2 is forward bending (and hence the denominator is positive), the transfer has a positive effect on b_i^{p*} and increases compliance, the larger is the drop of hours in activity 2 and the lower it is in activity 1. While overall perverse effects of the policy cannot be excluded, some beneficial effect upon the amount of externalities should at any rate be prompted by the reduction in the amount of hours worked by those who choose activity 2.

A viable alternative to the transfer design considered so far is that of linking the transfer to legal work, for example by granting a gross salary of $w_1^p+g^w$, where g^w is a transfer to be designed in order to balance the budget. In this case too one can show that $b_i^{p*}(g^w)$ increases at increasing rates in g^w, given a fixed total time of work h^p. This approach in fact introduces a substitution effect in favor of activity 1. On the other hand, a subsidy that raises w_1^p is likely to modify the chosen h_1. As, however, at any rate income in activity 1 increases (more if the substitution effect prevails, and less if the income effect prevails), while income from activity 2 stays the same, the consequences upon compliance are always beneficial.

4.2 The taxation/transfer policy with constant relative risk aversion

The effects of the transfers so far considered are to a large extent driven by the characteristics of the CARA utility function, which implies increasing relative risk aversion. The richer the socially alienated agent becomes, the higher her relative risk aversion and the larger the benefits in terms of preference for activity 1.

What about the effects in case of a CRRA utility function? In this case, when an anelastic labor supply is assumed, the poor prefers activity 1 whenever:

$$\frac{\left(h^P w_1^P\right)^{1-\beta}}{1-\beta} \geq (1-p)\frac{\left(h^P b_i^p\right)^{1-\beta}}{1-\beta}$$

where β is relative risk aversion. By introducing an unconditional income transfer gBN and solving for b_i^{p*}, we calculate the frequency of complying agents:

$$b_i^{p*}(g) = \left(\frac{w_1^P h^P + gBN}{h^P}\right)(1-p)^{-\frac{1}{1-\beta}} - \frac{gBN}{h^P}$$

To find out the effect of the transfer, we derive $b_i^{p*}(g)$ with reference to g:

$$\frac{\delta b_i^{p*}}{\delta g} = \frac{BN}{h^P}\left((1-p)^{-\frac{1}{1-\beta}} - 1\right)$$

The sign of the derivative depends upon the value of relative risk aversion β. If it is greater than 1 the sign is negative; if it is lower it is positive. Thus for a high enough relative risk aversion level, raising the income of the poor agent is not beneficial in order to avoid externality production, as the agent's absolute risk aversion decreases and she is more likely to choose activity 2. On the other hand this negative effect could be somehow reduced if we allow for modifications of the time of work as a consequence of the income effect, as the number of hours worked by those who choose activity 2 may diminish.

A more suitable approach seems that of designing the transfer as a fixed increment g^w of salary w_1^P. For a fixed labor supply, the frequency of complying agents becomes:

$$b_i^{p*}(g^w) = \frac{w_1^P + g^w}{(1-p)^{\frac{1}{1-\beta}}}$$

In this case the number of complying agents increases linearly in g^w and we have a well behaved problem of maximization of the high productive agent's

utility (5). The transfer should be increased until marginal benefit in terms of externality reduction equals marginal cost:

$$c\frac{1}{(1-p)^{\frac{1}{1-\beta}}} = f'(g)BN$$

Even if the number of hours of work is modified in activity 1 as a consequence of the transfer, the direction of the effect tends at any rate towards increasing the frequency of compliers, as noted in the case of a CARA utility function.

5 Policy assessment

Even if our exemplification of possible utility functions is far from exhaustive, the case in favor of transfers aimed at specifically improving the remuneration of good conduct seems strong. In this paper we thus restate the result of Demoguin and Schwager [2] in favour of functional or Pareto-efficient income redistribution organized by the state, with an important qualification. If the agent's risk aversion is taken into account, pure income transfers can be counterproductive, as long as their main effect is that of reducing risk aversion. However redistributive policies to foster good conduct may still have a role if they have a design characterized by suitable incentives. While our model is structured with reference to the choice for either legal or illegal work, obviously transfers may reward the choice for any socially valuable conduct.

While the model is static and does not allow for any distinction between income and wealth, it seems natural to consider a redistribution policy financed through inheritance taxation as a redistribution of wealth. One way of implementing the transfer part of the policy could be, for example, the "Child trust fund" financed by the government under the name of newly born children, as recently designed in the United Kingdom.

Inheritance taxation earmarked to finance the transfer may be beneficial, provided that costs born to raise and redistribute its revenue are not too high. While tax base elasticity to the tax rates is difficult to assess (as in case of income or consumption taxation), one can note that some of the observed costs due to avoidance activities derive from the "closure" nature of the death taxes with reference to other forms of income and wealth taxation, so that cancelling them would mainly transfer these costs toward avoiding other taxes. Moreover, distortions upon the decedent are excluded by definition when the inheritance occurs by chance, without any plan on the part of the bequeather.

What about resorting to other possible sources to finance the transfer aimed at reducing small crime, as an alternative to the policy examined in this paper? The most suitable alternative is an income or a consumption tax[16]: e.g., one could resort to a negative income tax, to collect revenue from highly productive agents and (hopefully[17]) from criminals, and to support honest low productive agents. The income differentials among these three groups however need not be large, and introducing the correct amount of progressivity may prove difficult. If there is a risk of introducing perverse incentives, resorting to inheritance taxation may be a way of exploiting the information that inheritance conveys. Within the model, by assumption, inheritance is received only by highly productive agents who are benefited by the policy considered. In the real world, assets inherited back the heir's liabilities, thus signalling[18] that she is likely to belong to the group of agents easy to deter. If inheritance taxation provides for suitable exemption levels, it can also avoid diluting the heir's incentives for good conduct.

While thus inheritance taxation is worthwhile considering for the financing of transfers, one must also take into account that the proceedings of the death taxes in many countries are small and difficult to increase. Hence it seems likely that the transfer policy under consideration can be only partially financed this way and further revenue sources would be needed.

An alternative to any taxation/transfer policy is represented by an increase in the probability of detection to reduce misconduct. In fact, in the model considered there is an upper constraint on the penalty (which cannot exceed income). While thus penalty increasing is ruled out, raising the probability of detection reduces the benefits of those who engage in activity 2, thus providing a substitute for transfers in order to reduce externalities. Increasing the probability of detection, however, may be quite problematic. On the one hand, only if probability is set at 1 can the externality be eradicated. Otherwise, a small expected benefit still remains available for non liable agents, which implies that someone will choose activity 2. The second problem is linked to the costs of increasing the detection probability. Costs are likely to be sharply increasing and to become prohibitive when the de-

[16] Whithin the static model considered in the paper, they would have the same base. As we have assumed a weekly separable utility function, optimal taxation principles suggest that a well designed income tax need not be supplemented by taxation on goods (e.g. on bequests). See also Kaplow [4].

[17] Remuneration b_i of illegal activity only represents a subjective monetary equivalent of activity 2 benefits, and it may be difficult to correctly assess it as a tax base.

[18] For the signalling role of inheritances, in a different context, see Cremer and Pestieau [1].

sired probability approaches 1. Hence some transfers are likely to provide a less costly approach, at least when the desired externality reduction is large and the opportunity of increasing the probability of detection at low costs has been exploited. Last but not least, very high detection probabilities for small crimes or unpleasant social conduct are likely to be incompatible with a liberal society, which aims at guaranteeing the privacy of choices and ways of life.

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