Wealth transfer taxation: a survey of the theoretical literature

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1 Introduction

Nobody likes paying taxes, especially when he is dead. More today than yesterday it would seem. A number of countries are without an inheritance or an estate tax and some, including the United States, contemplate to phase it out in the near future. Opponents of the "death tax" as they have dubbed it claim that it is unfair and immoral. It adds to the pain su¤ered by mourning families and it prevents small business from passing from generation to generation. Because of many loopholes, people of equivalent wealth pay different amounts of tax depending on their acumen at tax avoidance. It hits families that were surprised by death (and it is therefore sometimes called a tax on sudden death). It penalizes the frugal and the loving parents who pass wealth on to their children, reducing incentive to save and to invest.

Supporters of the tax, in contrast, retort that it is of all taxes the most e¢cient and the most equitable. They assert that it is highly progressive and counterweight existing wealth concentration. They also argue that it has few disincentive e¤ects since it is payable only at death and that it fair since it concerns unearned resources. For a number of social philosophers and classical economists, estate or inheritance taxation is the ideal tax.

Clearly, death taxation more than any other generates controversy at all levels: political philosophy, economic theory, political debate and public opinion. The truth probably lies between these two opposite camps. For economists this tax like all taxes should be judged against the two criteria of equity and e¢ciency to which one could add that of simplicity and compliance.

In this survey, we focus on the criteria of equity and e¢ciency. Equity is hard to gauge. It has inter- and intragenerational aspects which can only be measured by relying on some welfare criterion. E¢ciency implies minimizing distortions to economic activity with an important dynamic dimension. Inheritance taxes a¤ect incentive governing the choice between consuming

now and bequeathing. The gist of this survey is that inheritance taxation cannot be analyzed separately from other taxes and that its implications in terms of e¢ciency and equity depend on why people leave assets when they die.

As a benchmark, we consider a dynamic model without bequest and study the optimal structure of taxation in the absence of bequests. Assuming that taxes can be levied on saving and labor income and are distortive, we want to see how this tax structure is a¤ected when bequests are introduced and can be taxed as well.

As it will appear, the resulting tax structure depends on the bequest model chosen. One model states that bequests are simply an accident. People do not know how long they will live and so they keep more money than they turn out to need. If bequests are accidental, estate taxation is quite e¢cient. However, if people are motivated to work and to save by the idea of leaving their families an inheritance, the tax will be distortionary. The impact of the distortion will depend on the bequest motive. If people have a speci…c amount they wish to leave to their children regardless of their needs and their behavior, the outcome will be di¤erent from what it would be if the amount bequeathed is determined by a concern for the welfare of the heirs.

The survey deliberately adopts a theoretical and normative view.[1] It studies how transfers between generations ought to be taxed along with other tax tools and according to some welfare criterion. The type of tax that is thus obtained does not necessarily correspond to existing taxes.

To characterize the tax structure, one …rst has to distinguish taxation at death from taxation on inter vivos gifts which can have di¤erent rates. One also distinguishes three broad categories of death taxes. An estate tax is based on the total estate of the donor. An inheritance tax, on the other hand, is based on the share received by each donee and tax rate scales and

[1] For an empirical survey, see Arrondel et al. (1997), Pestieau (2002) and Gale et al. (2000). This is not the …rst theoretical survey. See e.g. Batina and Ihori (2000), Erregeyers and Vandevelde (1997), Aaron and Munnell (1992), Kaplow (2000), Kopczuk (2001a).

thresholds depend on the relationship between the donor and the donee. Finally, the accession tax is based on the share received by the donee plus his other assets. One would hope that the theory will indicate which of these forms is the most desirable.

The rest of this paper is organized as follows. Section 2 presents a brief overview of alternative bequest models. Section 3 develops the optimal tax structure under alternative models. We proceed in steps. We …rst assume that individuals are identical but for age and generation and that the government can control the capital stock. Then we introduce restrictions to the ability of government of controlling aggregate saving and we consider individual heterogeneity. Section 4 looks at a number of theoretical issues regarding the choice between estate and inheritance taxation, di¤erential taxation of bequests and inter vivos gifts, the coexistence of di¤erent bequest motives within the same society, the transmission of human capital and …nally the non observability of inherited wealth.

2 Bequest motives

It is now widely agreed that to understand the importance and the role of gifts and estate transfers one needs to have a better grasp of the donor's motives, if any. Consider two examples concerning gifts and bequests. First, when the transfer takes the form of gifts it may be unclear whether they are "true gifts", due to altruism, or e¤ectively involve some sort of exchange (the donee provides services to the donor). It is clear that a number of e¤ects would di¤er under the two cases. Second, in the case of bequests we may not know whether they are left accidentally, because of the incompleteness of annuity markets, or intentionally for motives which rely on some type of altruism. Again, depending on the case, the e¤ects of bequests on income inequality, capital accumulation, education could be quite di¤erent.

We examine brie‡y a number of bequest motives that have been o¤ered in the literature and sketch their implications focusing on those that are

testable.[2]

2.1 Taxonomy of transfers motives

- Pure dynastic altruism: altruistic bequest.[3]

Parents care about the likely lifetime utility of their children and hence about the welfare of future generations.

Accordingly, wealthier parents make larger bequests and holding parent's wealth constant children with higher labor earnings will receive smaller bequests. There is also a tendency for parents to leave di¤erent amounts to di¤erent children in order to equalize their incomes. Finally, pure altruism typically leads to the Ricardian equivalence: parents compensate any intergenerational redistribution by the government through matching bequests.

- Joy of giving: paternalistic bequest (bequest-as-last-consumption).[4]

Parents here are motivated not by altruism but by the direct utility they receive from the act of giving. This phenomenon is also referred to as "warm glow" giving. It can be explained by some internal feeling of virtue arising form sacri…ce in helping one's children or by the desire of controlling their life. Formally these bequests appear in the utility function as a consumption expenditure incurred in the last period of life. Ceteris paribus, they are subject to income and price e¤ects but do not have any compensatory e¤ect. A crucial element is whether what matters to the donor is the net or the gross of tax amount.

- Exchange-related motives: strategic bequests.[5]

[2] See also on this Pestieau (2000), Cox (1987).

[3] Among the classical references, one has Barro (1974), Becker and Tomes (1979, 1986). See also Altonji et al. (1992).

[4] Andreoni (1990), Bevan and Stiglitz (1979), Glomm and Ravikunar (1992), Kotliko¤ and Spivak (1981).

[5] Bernheim et al. (1985), Cremer et al. (1993), Cremer and Pestieau (1991, 1996, 1998).

In their canonical form, exchange-related models consider children choosing a level of "attention" to provide to their parents and parents remunerating them in the prospect of bequest. The exchanges can involve all sorts of non pecuniary services and they can be part of a strategic game between parents and children. Strategic bequests as they were originally presented imply that parents extract all the surplus from their children by playing them against each other.

Strategic or exchange bequests depend on the wealth and the needs of the donor; they are not compensatory and they don't need to be equal.

- No bequest motive: accidental bequests.[6]

Up to this point, we have considered planned bequests. Whatever the underlying motive they were voluntary. We now consider unplanned or accidental bequests which result from a traditional life-cycle model. Accordingly, people save during their working lives in order to …nance consumption when retired. Bequests occur solely because wealth is held in bequeathable form due to imperfections in annuity markets or the need to have precautionary savings. The main implication of that form of bequests is that even a 100% estate tax rate should not have any disincentive e¤ect on the amount of bequest.

In this survey we will show that the tax structure depends crucially on the type of bequest motive considered. Table 1 gives an overview of some of the expected implications of wealth transfers for each of these alternative models. It summarizes the results of the existing literature on the subject.

One clearly sees that there are two dividing lines. The …rst division is between pure altruism and the other motives; it concerns intra and intergenerational redistribution. The second is between unplanned and planned bequest, the former being indi¤erent to any restriction including taxation while the latter is a¤ected by any obstacle to the freedom to bequeath.

[6] Denis (1982), Abel (1985).

	Types of bequests			
	Accidental	Altruistic	Paternalistic	Exchange
E¤ect on intrafamily disparity				
Disparity between parents and children	neutral	equalizing	neutral	neutral
Disparity among siblings	neutral	equalizing	neutral	neutral
Equal estate division	yes by default	no	yes by default	no
E¤ect on social inequality	uncertain	positive	moderate but positive	weak and uncertain
E¤ect of …scal policy				
Public debt on consumption	positive	neutral	positive	positive
Inheritance taxation on saving	nil	negative	negative or nil	negative

Table 1: Implications of bequests motives

2.2 Canonical model

We use a Diamond-style overlapping generation model. Identical individuals are assumed to live two periods, consuming in both, providing some labor in the …rst one.[7] Population is increasing at the rate n. The government has an exogenously given revenue requirement which has to be …nanced. through taxes on income from labor and capital and on estate transfer, if any. Individual can derive some utility from transferring resources to their o¤springs.

The problem of the representative consumer is to maximize his utility

[7] Diamond (1965).

subject to the budget constraint.

$$b_t + !_t `_t = c_t + \frac{d_{t+1} + x_{t+1}}{1 + \%_{t+1}} \tag{1}$$

where b_t is inherited wealth, x_{t+1} is the amount of bequests, $!_t$ is the consumer wage (net of tax age), $\%_{t+1}$ the consumer rate of interest (after tax interest rate), c_t; …rst period consumption, $`_t$; labor supply and d_{t+1}; second period consumption. The preferences are represented by the following utility function:

$$\begin{array}{rl} u_t = & u(c_t; d_{t+1}; `_t) + °B_{t+1} \\ = & u(c_t) + ¯u(d_{t+1}) ¡ h(`_t) + °B_{t+1} \end{array} \tag{2}$$

where B_{t+1} is the utility derived from bequeathing if any, $¯$ and $°$ are positive parameters, $u(¢)$ is strictly concave and $h(¢)$ strictly convex.

Consider now …ve models:

1. No bequests: $° = 0$; $b = x = 0$:

2. Accidental bequests: $° = 0$; $¯ = ~\mu$; where $~$ is the factor of time preference and μ is the survival probability. There is a probability μ that the individual will live till the end of the second period and $(1 ¡ \mu)$ that he will die at the end of the …rst period. In the latter case, $b_{t+1} = d_{t+1}=(1 + n)$ for a fraction $(1 ¡ \mu)$ of children whose parents decease prematurely.

3. Paternalistic bequests: $B_{t+1} = h(x_{t+1})$ and $b_{t+1} = x_{t+1}=(1 + n)$:

4. Altruistic bequests: $B_{t+1} = u_{t+1}$ and thus by recursion:

$$u_t = \sum_{s=0}^{\infty} °^s u_{s+t}$$

   with again $b_{t+1} = x_{t+1}=(1 + n)$:

5. Exchange-based bequests:

$$B_{t+1} = h(a_{t+1}) \text{ and } u_t = u(c_t ¡ v(a_t^g); `_t; a_{t+1}) + ¯u(d_{t+1}) ¡ h(l_t)$$

where a_{t+1} is attention received, a_t^g is attention given representing a monetary cost of $v(a_t^g)$ that is paid by a bequest b_t: In the strategic bequest vein, we assume that $b_t = v(a_t^g)$.

We have three tax instruments: $¿^w; ¿^r; ¿^x$; namely a proportional tax on earnings, interest income, inherited wealth. The government budget constraint is:

$$¿_t^w `_t + \frac{¿_t^r s_{t-1} + ¿_t^x x_t}{1+n} = R$$

where R is the (per capita) revenue requirement, w_t and r_t ($!_t$ and $\%_t$) are the producer (consumer) factor prices ($¿^w = w - !; ¿^r = r - \%$) and s_{t-1} is saving.

3 Optimal taxation of factor income and wealth transfer

3.1 The overlapping generation model

In the Diamond (1965) model each generation lives for two periods, consuming in both and working in the first. There are no bequests and the lifetime budget constraint for the representative household born in period t may be written:

$$c_t + \frac{d_{t+1}}{1+\%_{t+1}} = !_t `_t: \tag{3}$$

It is clear that endowing the government with two instruments, taxes on labor income ($¿^w = w - !$) and capital income ($¿^r = r - \%$) is equivalent to allowing the government to tax first- and second-period consumption at possibly different rates. A zero-tax on capital income — a labor income tax — would result in uniform taxation of consumption in the two periods.[8]

We now characterize the optimal steady-state taxes resulting from a utilitarist objective

$$\sum \pm^t u_t \tag{4}$$

[8] See Atkinson and Sandmo (1980), Pestieau (1974).

where $0 < \pm < 1$ is the factor of social time preference and

$$u_t = u(c_t; d_{t+1}; `_t) \tag{5}$$

is the individual utility function. Two general results have been obtained. First with the government able to redistribute resources across generations through debt policy, pay-as-you-go social security or any other devices the marginal product of capital converges to the population growth rate divided by the factor of time preference $((1 + n)=\pm)$, namely the modi…ed golden rule. Second, optimal taxes on labor and capital should follow the standard analysis of static optimal tax theory.

Maximizing (5) subject to (1) yields the demand function for $c^{\mathbf{i}}!_t; \%_{t+1}^{\mathbf{¢}}$, $d^{\mathbf{i}}!_t; \%_{t+1}^{\mathbf{¢}}$ and $`(!_t; \%_{t+1})$ which substituted back in the utility function yields the indirect utility function:

$$v_t = v^{\mathbf{i}}!_t; \%_{t+1}^{\mathbf{¢}};$$

with

$$\frac{@v_t}{@!_t} = ®_t `_t \quad \text{and} \quad \frac{@v_t}{@\%_{t+1}} = \frac{®_t d_{t+1}}{1 + \%_{t+1}}\mathbf{¢}_2 = \frac{®_t s_t}{1 + \%_{t+1}};$$

where ® is the marginal utility of income $® = @u=@I$ and s is saving. We use I to denote non labor income, if any.

There is a production sector represented by a CRS production function relating output Y_t to capital K_t and labor L_t:

$$Y_t = F(K_t; L_t)$$

or

$$y_t = F\left(\frac{K_t}{L_t}; 1\right) = f(k_t)$$

with $y = Y=L$ and $k = K=L$. With perfect competition factor payments equal the value of marginal products:

$$w_t = F^{0}_{L}(K_t; L_t) \quad \text{and} \quad 1 + r_t = F^{0}_{K}(K_t; L_t):$$

We assume total depreciation after one period and $L_t = \grave{}_t N_t$ where $N_t = N_{t-1}(1+n)$ is the size of generation t.

In this simple economy, the dynamics is conducted by the capital accumulation equation:

$$K_{t+1} = N_t s_t;$$

where $s_t = \phi(\omega_t; \%_{t+1}) = \omega_t - c(\omega_t; \%_{t+1})$.

Under some assumptions, one can show that k_{t+1} converges to a unique steady-state k^{α} which can be compared to the steady-state value $\hat{k}_{\circ}$ which is consistent with the modified golden rule and defined by:

$$f'(\hat{k}_{\circ}) = \frac{1+n}{\pi}.$$

For the time being we assume that the economy is on the modified golden rule growth path through some appropriate intergenerational transfers by the government. So doing we focus on the optimal tax structure abstracting from dynamic efficiency considerations.

The government's budget constraint is simply:

$$\zeta_t^w \grave{}_t + \zeta_t^r \frac{d_t}{(1+\%_t)(1+n)} = R; \tag{6}$$

where R is given. The second term on the left is the revenue from capital income taxation which concerns the previous generation ($s_{t-1} = d_t/(1+\%_t)$).

We solve this problem by differentiating the Lagrangean expression,

$$\$ = \sum \pi^t \left[v(\omega_t; \%_{t+1}) + \mu \left(\zeta_t^w \grave{}_t - c(\omega_t; \%_{t+1}) + \zeta_t^r \frac{d_t(\omega_{t-1}; \%_t)}{(1+\%_t)(1+n)} - R \right) \right];$$

with respect to ω_t and $\%_t$. This yields:

$$\frac{\partial \$}{\partial \omega_t} = \pi^t \left[\alpha_t \grave{}_t + \mu \left(\zeta_t^w \frac{\partial \grave{}_t}{\partial \omega_t} - \grave{}_t + \zeta_t^r \frac{\partial d_{t+1}}{\partial \omega_t} \frac{\pi}{(1+n)(1+\%_{t+1})} \right) \right] \tag{7}$$

$$\frac{\partial \$}{\partial \%_{t+1}} = \pi^t \left[\alpha_t \left(\frac{d_{t+1}}{1+\%_{t+1}} \right)^2 + \mu \left(\zeta_t^w \frac{\partial \grave{}_t}{\partial \%_{t+1}} + \frac{\pi}{1+n} \right. \right.$$
$$\left. \left. \zeta_{t+1}^r \frac{\partial d_{t+1}}{\partial \%_{t+1}} \frac{1}{1+\%_t} - \frac{d_{t+1}(1+r_{t+1})}{(1+\%_t)^2} \right) \right]. \tag{8}$$

Evaluating (7) and (8) in the steady-state, while adding and subtracting the income e¤ect times ` for @$=@! and times d=(1 + %)^2 for @$=@% yields:

$$\left(\frac{\mathbb{R}}{1} - 1 - \mathbb{C}\right)\ell + \mathbb{X}^{w}\frac{@\tilde{\ell}}{@!} + \mathbb{X}^{r}\frac{@\tilde{d}}{@!}\frac{\pm}{(1+n)(1+\%)} = 0 \qquad (9)$$

$$\left(\frac{\mathbb{R}}{1} - 1 - \mathbb{C}\right)\frac{d}{(1+\%)^2} - \frac{1+n-\pm(1+r)}{1+n}\frac{d}{(1+\%_t)^2} + \mathbb{X}^{w}\frac{@\tilde{\ell}}{@\%} + \mathbb{X}^{r}\frac{@\tilde{d}}{@\%}\frac{\pm}{(1+n)(1+\%)} = 0 \qquad (10)$$

where

$$\mathbb{C} = \mathbb{X}^{w}\frac{@\ell}{@I} + \mathbb{X}^{r}\frac{@d}{@I}\frac{\pm}{(1+n)(1+\%)};$$

and the **e** denotes the compensated e¤ects. Given our assumption on the modi…ed golden rule, this can be further simpli…ed:

$$\mathbb{X}^{w}\frac{@\tilde{\ell}}{@!} + \mathbb{X}^{r}\frac{@\tilde{d}}{@!}\frac{\pm}{(1+n)(1+\%)} = \left(\mathbb{X}^{w}\frac{@\tilde{\ell}}{@\%} + \mathbb{X}^{r}\frac{@\tilde{d}}{@\%}\frac{\pm}{(1+n)(1+\%)}\right)\frac{\ell(1+\%)^2}{d}. \qquad (11)$$

This equation characterizes the relative levels of the tax rates on earnings and capital income with the absolute levels being determined by the government's revenue requirement R. As usual this characterization depends on compensated and not gross derivatives. Assume for simplicity of interpretation that the cross e¤ects are zero. Then we can have:

$$\frac{\mathbb{X}^{w}=!}{\mathbb{X}^{r}=\%} = \frac{\Psi_{d\%}}{\Psi_{\ell w}}\frac{1+\%}{\%(1+r)} \qquad (12)$$

where the Ψ are the compensated elasticities. If labor is completely inelastic along the compensated supply curve, the optimal tax on interest income is zero because the tax on earnings is equivalent to a lump-sum tax. The argument is reversed when the demand for future consumption is inelastic. In general however there is no particular reason to believe that either tax will be zero nor that both taxes are the same.

Let us come back to the assumption that the economy is on the modi…ed golden rule path, that is, on the assumption that the government can control

capital. From (10) one can see that if $1 + n \neq (1 + r)$ we have an additional term in either (11) or (12). In other words these taxes are not only used to finance R but also to foster or discourage capital accumulation depending on whether the rate of interest is higher or lower than the rate of population growth divided by the discount factor.

As shown by Atkinson and Sandmo (1980) too little capital may call for a lower taxation of earnings and a higher tax on interest income than when the modified golden rule holds. This apparent paradox can be explained by noting that with a log-linear utility function saving depends only on earnings and not on the interest rate.

We shall now introduce transfers into this model and successively consider the motives discussed in Section 2.1. Within each setting we study the design of factor income and wealth transfer taxes. To do so it is convenient to distinguish the case where the government has the instruments to secure the modified golden rule from the case where the government cannot fully control the capital stock.

3.2 Accidental bequest

The accidental bequest case is not much different from the case without bequest. Saving is affected by survival probabilities. Accidental transfers are taxed at 100%, without affecting the supply of saving. The part of public spending (if any) which exceeds the proceeds of the transfer tax is financed through labor and capital income taxes designed à la Atkinson-Sandmo.

3.3 Pure altruism[9]

To keep things relatively simple, we assume that $\bar{} = 0$ so that $d = 0$. In other words, people live only one period and only save for bequeathing. This assumption implies that the tax on saving is also the tax on wealth

[9] The classical papers on this are Chamley (1986) and Judd (1985).

transfer.[10] Then, the social planner's problem at time 0 is to maximize:

$$\sum_{t=0}^{+\infty} \beta^t u(c_t; \ell_t);$$

subject to the resource constraint

$$F(k_t; \ell_t) = (1+n)k_{t+1} + c_t + R;$$

and to the revenue constraint

$$(1+n)z_{t+1} = (1+\theta_t)z_t + \theta_t k_t + \omega_t \ell_t - F(k_t; \ell_t) + R;$$

where z denotes per worker public debt. Recall that k is the per worker capital stock while R per worker public spending and that the production function exhibits constant returns to scale.

Chamley (1986) and Coleman (2000) show the following:

- if one could tax as much as possible initial wealth k_0; one could do without using any distortionary tax;

- if this first-best solution is not accessible, one will have initially a tax on both earnings and saving (that is bequests);

- in the long run the tax on saving tends to 0:

We restrict ourselves to proving the last point which represents the main result. The government's objective is the same as that of the representative individual. It maximizes the Lagrangean:

$$\begin{aligned}\$ = &\sum_{t=0}^{+\infty} \beta^t [u(c_t; \ell_t) + \gamma_t (F(k_t; \ell_t) - c_t - (1+n)k_{t+1} - R)] \\ &+ \mu_t [(1+n)z_{t+1} - (1+\theta_t)z_t - (1+\theta_t)k_t - \omega_t \ell_t + F(k_t; \ell_t) - R];\end{aligned}$$

[10] We have the following equality between saving and bequest:

$$s_t = x_{t+1} = (1+n)k_{t+1}.$$

where ¸ and ¹ are the Lagrange multiplier associated with the resource and the revenue constraint respectively. The FOC with respect to z and k in the steady-state are:

$$(1 + \%) \circ = 1 + n; \tag{13}$$

and

$$¡ (1 + n) ¸ + \circ ¸ (1 + r) + ¹ \circ (r ¡ \%) = 0: \tag{14}$$

Combining these two equations give:

$$¡ ¸ (1 + \%) + ¸ (1 + r) + ¹ (r ¡ \%) = 0:$$

This yields $(¸ + ¹)(r ¡ \%) = 0$ and thus $¿^r = 0$, so that (13) implies $(1 + r) \circ = 1 + n$. In words, we have the modi…ed golden rule and most notably, a zero tax on savings which correspond to bequests in our setting. Consequently, wealth transfers are not taxed in the steady state.[11]

Chamley's result has become the standard rule for a number of public economists and particularly macroeconomists. However, it has also been challenged on various grounds. It relies on a set of strong assumption which have been questioned. In any case the zero tax result only applies to the steady-state; during the transition period, wealth transfers along with capital income are subject to taxation.

3.4 Joy of giving

Unlike in the case of pure altruism, the objective of individuals and that of the social planner may now diverge. Each individual maximizes:

$$u(c_t; d_{t+1}; `_t) + \circ v(x_{t+1});$$

subject to

$$x_t + !_t `_t = c_t + \frac{d_{t+1} + (1 + n)(1 + ¿^x) x_{t+1}}{1 + \%_{t+1}}:$$

[11] This result generalizes to the case where $¯ > 0$ and $d > 0$. However, the proof becomes much more complicated.

In a laissez-faire equilibrium, each individual chooses $`_t; c_t; d_{t+1}$ and x_{t+1} given factor prices $!_t$ and $\%_t$ and inherited wealth x_t. As to the social optimum, one faces the issue of whether or not laundering individual utilities. Harsanyi (1995) and Hammond (1988) have advocated "excluding all external preferences, even benevolent ones, from our social utility function". Advocates of a utilitarian approach, on the other hand, argue that the social planner cannot paternalistically modify individuals' preferences.

We shall use a generalized objective which admits the two approaches as special case. Denoting the social factor of time preference by ±, social welfare is given by

$$U_t = \sum_{s=1}^{\infty} \pm^s [u(c_s; d_{s+1}; `_s) + "°v(x_{s+1})];$$

where $0 \cdot " \cdot 1$ with $" = 0$ for the non utilitarian and $" = 1$ for the utilitarian case..

With this setting, the steady-state rule of optimal capital accumulation is the modi…ed golden rule. The key issue is the treatment of x_t. For $" = 1$ the …rst-best optimal value of x is that for which $v^{0}(x) = 0$. In other words without laundering out utilities the social planner will push for a very high value of x (that could be in…nity). In a …rst-best world, such a solution could be implemented through a subsidy on x …nanced by public debt. It is clearly not reasonable and such a pathological outcome provides an argument in favor of laundering out the joy of giving from the donors' welfare.

In the second-best, with linear taxes on earnings, capital income and bequests, the revenue constraint is given by:

$$R = ¿_t^w `_t + ¿_t^r s_{t¡1} + ¿_t^x (1 + n) x_t;$$

which can also be written as:

$$R = ¿_t^w `_t + ¿_t \frac{d_t}{1 + `_t} + µ_t^x (1 + n) x_t;$$

where

$$\mu_t^x = \frac{¿_t^r (1 + ¿_t^x)}{1 + \%_t} + ¿_t^x$$

is the total (or e¤ective) tax on transfers. Observe that bequests are subject to a double tax: …rst, the tax on savings, $¿^r$, and then the speci…c tax on transfers $¿^x$. The total tax on bequest is higher than that on second period consumption if $\mu^x > ¿^r/(1 + \%_t)$, which occurs when $¿^x > 0$.

Michel and Pestieau (2002a) show that with no laundering the tax structure is not much di¤erent from (11). Taxes on earnings, on second period consumption and on bequests only depend on compensated elasticities and on the revenue requirement when the capital stock is directly controlled. In the case of zero cross elasticities, the tax on second period consumption ($¿^r$) may be higher than the estate tax (μ^x) if the own compensated elasticity of second period consumption is lower than that of bequests. When there is laundering, bequests loses its direct social utility and is thus subject to a relatively higher tax.

3.5 Exchange

We will use an exchange model of the strategic type in which parents obtain attention from their children in exchange of some bequests. By playing their children against each other they control the exchange to their full bene…t.

The utility function of an individual belonging to generation t is given by:

$$u(c_t ¡ v(a_t^g); d_{t+1}; `_t; a_{t+1}); \tag{15}$$

where a_{t+1} denotes attention received and a_t^g attention given which requires some e¤ort. The disutility of attention given is expressed in monetary terms. First and second period budget constraints are:

$$!_t `_t + b_t = c_t + s_t; \tag{16}$$

$$\left(1+\%_{t+1}\right)s_t = \left(1+¿^{x}_{t+1}\right)x_{t+1} + d_{t+1}. \tag{17}$$

In addition, we have

$$x_{t+1} = (1+n)\,b_{t+1} \tag{18}$$

and

$$v\left(a^{g}_{t}\right) = b_t. \tag{19}$$

Equation (18) gives the straightforward relation between bequest and inherited wealth. Equation (19) results from our strategic bequest assumption: parents extract all the surplus from their children who are just paid for the disutility of their e¤ort.

Substituting (16)–(19) into (15) shows that each member of generation t maximizes the following expression

$$u\left(!_t`_t - \frac{(d_{t+1})}{1+\%_{t+1}} - \frac{v(a_{t+1})\left(1-¿^{x}_{t+1}\right)}{1+\%_{t+1}}; d_{t+1}; `_t; a_{t+1}\right):$$

The indirect utility is given by:

$$V_t = V\left(!_t; \%_{t+1}; ¿^{x}_{t+1}\right):$$

The problem for the social planner is to maximize the discounted sum of utilities, $\sum \pm^t V_t$, subject to the revenue constraint:

$$R = ¿^{w}` + \frac{¿^{r}d_t}{(1+\%_t)(1+n)} + \frac{¿^{r}_{t} + ¿^{x}_{t}(1+r_t)}{(1+\%_t)(1+n)}v(a_t):$$

We continue to assume that capital accumulation is socially optimal (i.e., $1+r = (1+n)/\pm$). The FOC in the steady-state can be written as:

$$¿^{w}\frac{@\tilde{}}{@¿^{w}} + \left[\frac{¿^{r}}{(1+r)(1+\%)}\frac{@d\tilde{}}{@¿^{w}} + \frac{¿^{r}+¿^{x}(1+r)}{(1+r)(1+\%)}v'(a)\frac{@a}{@¿^{w}}\right] + \left(\frac{®}{1}-1-¢\right)` = 0$$

$$¿^{w}\frac{@\tilde{}}{@¿^{r}} + \left[\frac{¿^{r}}{(1+r)(1+\%)}\frac{@d\tilde{}}{@¿^{r}} + \frac{¿^{r}+¿^{x}(1+r)}{(1+r)(1+\%)}v'(a)\frac{@a}{@¿^{r}}\right] + \left(\frac{®}{1}-1-¢\right)\frac{d}{(1+\%)^2} = 0$$

$$¿^{w}\frac{@\tilde{}}{@¿^{w}} + \frac{¿^{r}}{(1+r)(1+\%)}\frac{@đ}{@¿^{x}} + \frac{¿^{r}+¿^{x}(1+r)}{(1+r)(1+\%)}v^{0}(a)\frac{@a}{@¿^{x}} + \left[\frac{®}{1} ¡ 1 ¡ ¢\right]\frac{v(a)}{1+\%} = 0$$

For same reasons as developed above (subsection 3.4), the overall tax on bequests, $¿^{r}+¿^{x}(1+r)$, may or may not be higher than that on future consumption. In other words, there is no particular reason to believe that the wealth transfer tax $¿^{x}$ is positive. This will depend on the relative magnitude of the compensated derivatives which determine the overall tax on bequests and the tax on future consumption through Atkinson and Sandmo type rules.

To illustrate this point in the simplest possible way, assume again that the cross elasticities are zero. Then, we have:

$$\frac{¿^{r}+¿^{x}(1+r)}{¿^{r}} = \frac{v(a)\frac{@đ}{@¿^{r}}(1+\%)}{v^{0}(a)\frac{@a}{@¿^{x}}d}:$$

Clearly if the demand for attention is much more elastic than that for future consumption, the tax on inheritance, $¿^{x}$, is negative.

3.6 Inequality and wealth transfer taxation

Up to now most of the discussion has focused on the restricted case of a representative individual and of full control of capital by the social planner.

On the latter issue, we have to note that with pure altruism and equality between the individuals rate of altruism and the social planner's time preference factor, the modi…ed golden rule is achieved without the government intervening. With the other bequest motives there is no guarantee that the optimal accumulation of capital is achieved. Then if the government does not have direct control of capital, it has to use tax policy to a¤ect the capital labor ratio. As already alluded to, if there is a need of additional capital accumulation, because $(1+r)\,°\,>(1+n)$, this will not necessarily push for lesser taxation of capital income and wealth transfer and more taxation of

labor income. What matters is aggregate saving and with a log-linear function saving depends on net of tax earnings relatively more than on the rate of interest.

Let us now consider individuals who di¤er in ability but have the same utility. As shown by Atkinson and Stiglitz (1972, 1976)[12] in the presence of weak separability between consumption and leisure, there is no need of taxation of capital within the standard OLG model. The Atkinson-Stiglitz theorem assumes that all households have identical utility functions and differ in their wage rates re‡ecting abilities or productivities, the government maximizes a quasi-concave (welfarist) objective function, applies a non linear income tax and could also apply linear excise taxes. Thus if the utility function is weakly separable in goods and labor so that $u(c; d; `) = u(g(c; d); `)$ a tax on capital income (alternatively on d) should not be used. This result can be readily extended to the model with exchange (strategic bequest), granted that the government controls the rate of capital accumulation.[13] Naturally if the economy does not converge to the modi…ed golden rule, then the result does not hold anymore: capital income and wealth transfers will be taxed or subsidized depending on their e¤ect on aggregate saving. This extension of the Atkinson and Stiglitz to estate taxation has been discussed by Kaplow (2000) and Kopczuk (2001a).

The reason why the Atkinson and Stiglitz proposition applies to the strategic bequest model presented above is that bequest has no e¤ect on the next generation. Each individual regardless of his ability and of his generation receives from his parents exactly what he pays for.

The case of joy of giving is quite di¤erent. Individual heterogeneity makes a di¤erence in the case of "joy of giving". The reason is rather

[12] See also Stiglitz (1987).

[13] It is paradoxal that with a single individual the zero taxation of capital income does not apply with weak separability (you need strong separability à la Stone-Geary) and it does with heterogeneous individuals and optimal non linear tax. The reason is that the equivalent of a non linear income tax in a one-individual setting is the lump-sum tax (which is ruled out). See Atkinson and Stiglitz (1980).

simple. Even though the donor is not interested by the impact of his gift on the next generation's welfare the social planner cannot ignore this incidence. A non-linear income tax on generation t does not make redundant a linear or a non-linear tax on what we can call a distributive externality.

The difficulty is how to express this externality, how to represent the effect of paternalistic gifts on the next generation's welfare. A convenient shortcut is to reduce individual heterogeneity to two levels of productivity, low and high, with endogenous probability. Suppose that the level of bequest has the effect of increasing the probability that the child's donor has a higher productivity. In other words, we assume that inherited wealth has the sole effect of fostering heirs' earning capacity.[14] With such a specification we can show that with an optimal non-linear income tax it makes sense to have a tax or a subsidy on bequest. If there is no laundering out, a subsidy is desirable: fostering bequests implies increasing the probability of being more productive and thus the average level of human capital.

In case of laundering out the social planner may want to tax bequests as the joy of giving per se has no social value. We then have two opposite forces: one in favor of subsidizing bequests because of their positive externality on human capital and the other in favor of taxing bequests because they have no direct value for the social planner.

Note that the role of the tax-subsidy is not to redistribute income but to correct for some positive or negative externalities. In that respect it does not invalidate the Atkinson and Stiglitz proposition.

Let us now turn to the remaining bequest motives. In the model with pure altruism, the zero capital income tax result holds with different individuals without further assumptions. See on this Chamley (1986).

With accidental bequest, on the other hand, heterogeneity of individuals makes a difference. Indeed one can argue that under some conditions it is not anymore desirable to have a 100 % tax on accidental bequests. Blumkin

[14] We use the argument given by Cremer and Pestieau (2001).

and Sadka (2002) show that a 100 % estate tax can interfere with the re-distributing role of labor income taxation. This is the case when individuals with higher ability tend to spend a lower fraction of their marginal wealth on leisure than individuals with lower ability. As a result estate taxation would result in a reduction in aggregate labor earnings. Kopczuk (2001b) correctly points out that accidental bequests result from some imperfections in the annuity markets and the …rst-best solution is not necessarily to tax them but rather to eliminate them.

Table 2

Wealth transfer tax

	With control of capital and a representative agent	Without control of capital and a representative agent	With control of capital and heterogenous agents but with a non linear income tax
Accidental bequest	1	1	< 1
Joy of giving	§	§	§
Pure altruism	0	0	0
Exchange	§	§	0

Table 2 presents the main results obtained so far. Note that one cannot sign the tax on wealth transfer with joy of giving and with exchange regardless of whether or not the government controls capital.

With individuals di¤ering in ability but with non-linear income tax, the Atkinson-Stiglitz result applies to the cases of joy of giving and exchange. The Atkinson-Stiglitz theorem assumes that the government can use a wide range of instruments. The literature contains a number of models exploring the consequences of restricting the policy environment.

For example, for administrative reasons, one can assume that the government cannot use non linear tax schedules. If it is restricted to using linear income taxes, the case for a zero tax on capital income and wealth transfers (with accidental and exchange based bequests) is weakened. Another line

of concern is that the government may very well observe labor earnings but not bequests. In that case, on which we come back below, a linear tax on capital income might be desirable; see subsection 4.4.

There is clearly the possibility that the government cannot control capital accumulation by debt policy. Then the Atkinson-Stiglitz proposition does not apply. While it may remain true that taxes on savings and bequests have not redistributive role, they may be useful for other reasons (e.g., to foster or limit capital accumulation). Similarly, these taxes are not redundant when there is a con‡ict between individual and social preferences as it is the case when the social planner decides to launder the out of the parents' welfare the o¤spring's welfare.

Choosing between the two canonical models, the in…nite lived individuals model and the OLG model and even more between their implications is not obvious. Both have in common to tell little about the nature of optimal tax schedules in transition. Except through numerical simulation (see e.g. Coleman, 2000) we know little about the linkage between transition and long run policy. Chamley's model and his …nding of a zero tax on capital income in the long run is striking and powerful. It quickly attracted a majority of economists concerned by the highly distortionary nature of such a tax. It however rests on the implausible assumption that agents live forever or behave in an equivalent manner with respect to their heirs. Without in…nite lifetime no such result holds. This does not necessarily mean that a positive tax on capital income and on wealth transfer is the rule. We have seen that we could also have a subsidy. Note that the sign of the tax then depends on a number of factors including the revenue requirement and whether or not there is under-accumulation.

4 Miscellaneous issues

4.1 Estate taxation or inheritance taxation

There exists two main types of wealth transfer taxes:[15] the estate and the inheritance taxes which correspond to two contrasting views of inheritance.

To di¤erentiate these alternative views, the Anglo-Saxon and the Continental one, toward taxation and regulation of bequests one may focus on their respective view of family and state.[16] In the Continental (Napoleonic) view, the government makes good decisions, particularly regarding families of di¤erent incomes; families are suspected of biases in the way they allocate resources among their children. As a consequence, equal sharing among children is mandatory; the tax base is the amount received by each heir, and the tax rate is related to consanguinity (for example, higher for a nephew than for a son). This is the inheritance tax.

According to the Anglo-Saxon view, parents make unbiased bequests and adjust them to the needs of each heir. We have the so-called estate tax, with its rate being independent of the number of heirs and degree of consanguinity. With an estate tax, parents can disinherit their children or at least devote an important share of it to a charity, which is not possible in many European countries for households with children.

The issue of wealth transfer taxation cannot be reduced to just designing a tax schedule; it also includes non-tax regulations.

Table 3

	Anglo-Saxon	Continental
Freedom of bequeath	Free will	Equal sharing among children
Tax base	Aggregate estate	Share of estate
Tax rate	Neutral	Consanguinity-related

These views are part of a nation's culture but can also be explained by its

[15] The accession tax is another type but that has never been applied in any country.

[16] This is a summary of Pestieau (2000). These issues are also discussed in Erregeyers and Vandevelde (1997).

history. For example, in England equal division of estate was made mandatory at time when there were a lot of remarriages together with mistreatment of stepchildren by stepparents.[17]

For an economist, it would be interesting to see which of these two taxes correspond best to an optimal tax. In a …rst-best perfect information setting wealth transfer taxes can be designed along with the other taxes to achieve optimal redistribution within and across families. In an asymmetric information setting, this is less clear.

In a recent paper, Cremer and Pestieau (2001) adopt a second-best setting in which families are better informed than the tax authorities.[18] Well to do families can be induced to leave lower bequests to avoid a too heavy tax burden. The paper studies the optimal design of a possibly non-linear wealth transfer tax. This problem encompasses the joint determination of the tax rates, the tax base and the sharing rules. In particular, sharing restrictions can be implemented through non-linearities in the tax function.[19]

Basically it appears that the optimal tax is di¤erent from existing tax regimes. When the social planner and the parents weight the children in the same way, an estate tax, that is a tax based on aggregate bequest su¢ces. When they adopt di¤erent weights, then one needs to use a progressive tax formula that depends on individual bequests. In other words, we have something which resembles the inheritance tax but without compulsory equal sharing. Finally, when there is a possibility of the parent disinheriting their less endowed child, the government may …nd it optimal to impose a tax schedule which implies equal sharing along with a progressive tax.

[17] This has been labeled the Cinderella e¤ect. See Brenner (1985); Pestieau (2000).

[18] Tax authorities observe the transfer to each of the children, but do not observe parent's wealth and children's ability.

[19] Another issue is that of di¤erential tor treatment depending on the relation between the donor and the donee. Typically rates are higher for strangers than for children. See Cremer and Pestieau (1988).

4.2 Inter vivos gifts versus bequests

In most countries inter vivos gifts are subject to lower tax rates than bequests. Furthermore, gifts being made informally and in several installments they lend themselves to tax avoidance and tax evasion more easily than bequests. Also, in countries with inheritance taxation and mandatory equal sharing gifts are viewed as the only way to treat children di¤erently according to needs, talents or preferences.

From a theoretical viewpoint one can ask whether di¤erential taxation of gifts and bequests is consistent with social optimality. There are some reasons which plead in favor of such a policy.

1. Assume that the bulk of bequests is of accidental nature and that planned transfers are made much before the donor's death as inter vivos gifts. Then it makes much sense to discriminate in favor of inter vivos gifts.

2. Such a di¤erential tax treatment fosters inter vivos gifts which are a more e¤ective form of transfer in the case where heirs are liquidity constrained.

3. In countries where it applies, gifts cannot be subject to the same strict equal sharing rule as bequests. Therefore they hopefully can be used for compensating for di¤erence in luck or in talent among children. For that reason they ought to bene…t from tax breaks.

However, there are also arguments against a heavier taxation of bequests. In particular, Cremer and Pestieau (1996, 1998) have shown that bequests as opposed to gifts can be used to induce children to reveal their ability and to provide a desirable amount of e¤ort, which they would not do if they were given outside resources too early in their lifetime. In that respect, a tax break for inter vivos gifts is not necessarily desirable.

4.3 Mixed motives

The theoretical literature on wealth transfer taxation tends to assume that individual have only one type of bequest motives. The purpose of this section is to suggest that such an approach is de…cient and it proposes to consider a society consisting of individuals with di¤erent motives. We …rst turn to a society consisting of individuals who combine di¤erent motives, namely who leave both altruistic and accidental bequests. Then we consider a society where individuals are all either altruistic or pure "life-cyclers".

4.3.1 A mix of accidental and paternalistic bequest[20]

It is widely believed that actual bequests are an hybrid of canonical types analyzed above and in particular of accidental bequests (related to imperfect annuity markets) and of paternalistic bequests (related to some joy of giving). In such a case, the estate consists of two components: an amount intended by altruistic parents and an amount which results from the "premature" death of parents and which represents intended second period consumption in one overlapping generations framework. We have seen that these two types of bequests have totally di¤erent implications. Determining the relative importance of the time is thus crucial to design an optimal estate tax.

To illustrate this, we use an isoelastic utility function:

$$u(c;d;x) = \left[c^{1-1/\gamma} + \beta d^{1-1/\gamma} + \theta x^{1-1/\gamma} \right]^{\frac{1}{1-1/\gamma}}$$

with $\gamma > 1$ to make sure that an estate taxes τ^x has a depressive e¤ect on x. Isoelasticity implies homotheticity, a property that we shall use below. Labor supply in the …rst period is inelastic. One shows that

$$d_{t+1} = \beta (1 + r_{t+1}) s(r_{t+1}) (w_t + h_t)$$

[20] This section follows Michel and Pestieau (2002b). On this subject, see also Blumkin and Sadka (2002).

and

$$(1+n)\,x_{t+1}\,(1+\varepsilon_t^{x}) = (1-\theta)\,(1+r_{t+1})\,s(r_{t+1})\,(w_t+h_t)$$

where h_t is inherited wealth, with

$$h_t = x_t + \left(\frac{1-\mu}{1+n}\right)\left(1+\varepsilon_t^{\mu}\right) d_t + R_t;$$

while θ is the share of saving devoted to second period consumption, $s(r)$ is the saving ratio, ε^{x} and ε^{μ} are respectively the tax on voluntary and accidental bequests respectively, and R_t is a uniform lump-sum payment financed by wealth transfer taxes. Clearly if $\gamma = 0$; ($\theta = 1$) there is no intended bequest. If $\mu^{-1} = 1$; (longevity is certain) there is no accidental bequests. In this approach inherited wealth varies across individuals. It depends on one's parent's intended bequest x_t, second period consumption d_t and longevity μ_t. At each period, the revenue constraint is simply:

$$R_t = \frac{(1+r_t)\,s_{t-1}}{1+n}\left[\frac{\varepsilon_t^{x}(1-\theta)}{1+\varepsilon_t^{x}} + \theta\varepsilon_t^{\mu}\left(1-\mu^{-1}\right)\right]$$

where the upper-bar denotes average values. If the social planner's objective is to minimize the steady-state coefficient of variation of inherited wealth, one can easily show that $\varepsilon^{\mu} = 1$ and ε^{x} is likely to be between 0 and 1 for $\gamma > 1$. Note that here R_t is not a fixed amount of public spending but an endogenous lump-sum transfer. In the normal case when one cannot distinguish bequest motives and there is a single rate of taxation $\varepsilon^{\mu} = \dfrac{\varepsilon^{x}}{1+\varepsilon^{x}}$ then one shows that the optimal value of this unique rate represents a compromise between the equity objective and the desire of not discouraging wealth accumulation. The closer θ is to 1, the closer the tax to 1.

In this very simple model the only source of inequality is longevity μ. When $\mu^{-1} = 1$ or when $\varepsilon^{\mu} = 1$, then there is no inequality. Introducing a second source of heterogeneity, e.g., different productivities, is surely more realistic. In that case, as shown by Blumkin and Sadka (2002) even when there is only accidental bequest a 100 % tax is not necessarily desirable.

4.3.2 Altruists and life-cyclers

For long economists have rejected the idea of heterogeneous preferences. Di¤erences in behavior had to be explained by di¤erences in ability, inherited wealth or by random shocks. Over the last years, there is an increasing awareness that to better understand the world and analyze economic policy it is important to admit that society consists of individuals with di¤erent preferences in terms of altruism and time preference. In his celebrated paper, Ramsey (1928) already indicated that within a society consisting of individuals di¤ering in time preferences, the most patient would end up with all the wealth in the long run.

In this section we address the question of wealth transfer tax in a society with two types of individuals, pure life-cyclers and altruistic savers. Formally, their utility function is:

$$u_t^i = u\left(c_t^i; d_{t+1}^i\right) + \circ^i u_{t+1}^i$$

with $i = L$ for life-cyclers and thus $\circ^L = 0$ and $i = A$ for altruists and thus $\circ^A = \circ > 0$. The technology is the same as above: CRS production function and we have competitive pro…t maximization. Population grows at a uniform rate n and preferences are dynastic. In other words, there is a …xed fraction ¼ of altruistic dynasties and a fraction $1 - ¼$ of non-altruistic dynasties.

It can easily be shown that government debt does not a¤ect the steady-state capital stock and national income. As in Ramsey, the altruistic (the more patient) households hold the entire capital stock. Moreover, government debt though neutral in aggregate terms increases steady-state inequality. A higher level of debt means a higher level of taxation to pay for the interest payments. The taxes fall on both life-cyclers and altruists but the interest payments go entirely to the altruist. Consequently, a higher level of debt, or alternatively of pay-as-you-go social security, raises the steady-state consumption and income of the altruists and lower the steady-state

consumption and income of the life-cyclers.

For the purpose at hand we are interested by the incidence of a wealth transfer tax which in the present setting is only paid by altruistic dynasties. Assuming that the proceeds of the tax are redistributed uniformly to everyone, it can be shown that the tax may lower the utility of not only the altruists but also that of the life-cyclers. This paradoxical result was already obtained by Stiglitz (1978) in a slightly di¤erent setting.[21] When capital is taxed the quantity falls which in turns depresses the real wage. This e¤ect may be large enough to make any tax on wealth transfer undesirable even from the standpoint of people who own no wealth, pay no tax and indeed bene…t from a transfer.

One should recall that this result is obtained in the steady-state. In the short run life-cyclers could be tempted to tax inheritance and enjoy a utility boost. If they have to vote they will vote for such a tax without being concerned by the fate of their descendance. The political economy of wealth transfer thus yields a result di¤erent from steady-state social welfare maximization. It explains why a tax that would be undesirable from the steady-state standpoint can be voted on when life-cyclers hold a majority.

4.4 Unobservability of inherited wealth

Regardless of the type of wealth transfer taxation, inheritance or estate tax, its actual yield is uniformly poor. Next table provides the relative yield of wealth transfer taxation for a sample of OECD countries.

From this table it is clear that such taxes are not successful, if their primary objective has been to reduce reliance on other taxes. This poor yields have led some countries to seriously consider abandoning the tax. In any case, from a theoretical viewpoint, it is interesting to see how other taxes should be adjusted if wealth transfers could not be taxed anymore.

Boadway et al. (2000) and Cremer et al. (2002a,b) have addressed

[21] See Also Stiglitz (1977).

Table 4
Wealth transfer taxes
as a percentage of total revenues and GDP (%) in 1998

	Share of GDP (%)	Share of total tax revenue (%)
United States	0.36	1.16
Belgium	0.39	0.86
France	0.51	1.13
Germany	0.13	0.34
Italy	0.08	0.17
Netherlands	0.32	0.78
Spain	0.20	0.57
United Kingdom	0.21	0.57

Source: OECD (2000) Revenue Statistics 1965-1999, Paris, OECD.

the question of the optimal taxation of labor and interest income in an economy where not only ability but also inheritance were not observed.[22] In such a setting, even with separability between leisure and consumption, Atkinson and Stiglitz proposition does not apply and there is a good case for taxing capital income.[23] Intuitively, the additional instrument of capital income taxation now improves screening for the unobservable characteristics. Roughly speaking its role is to indirectly tax inherited wealth.

This bring us back to the old public …nance debate between a comprehensive income tax and an expenditure tax. For the latter to be desirable one needs to be sure that inheritance can be e¤ectively taxed. When this is not possible, one must rely on an income tax which involves double taxation of capital income.

4.5 Investment in the human capital of children

In most societies there are two main ways of transferring …nancial resources to ones's children: human and physical capital. Human capital makes indeed

[22] As a matter of fact, one only needs to assume that a fraction of inherited wealth cannot be observed. In this quite realistic case, the same results hold true.

[23] Because of the two-dimensional heterogeneity, a tax on capital income is an e¤ective way of relaxing an otherwise binding self-selection constraint. This is because even under seperability, mimicker and mimicking individual do not have the same marginal rate of substitution between …rst and second period consumption.

a large bulk of voluntary intergenerational transfer in most families but the very rich.

As argued by Becker and Tomes (1979, 1986), parents tend to devote resources on behalf of their children, …rst to education and then to physical bequest. We are not thinking of time and attention but of …nancial spending. Becker and Tomes consider two transfers: e for education and $x \geq 0$ for bequest. The overall transfer is $e + x$ whereas inherited resources are $wh(e) + (1 + r)x$ where h is the (strictly concave) human capital function and r the rate of interest. Accordingly parents have to devote their saving to their own second period consumption, to e ant to x. Take a simple two period model; their utility function is

$$u(c; d; wh + x) = u\left(wh(\acute{e}) - s; (1 + r)s - e - \frac{x}{1 + r}; wh(e) + (1 + r)x\right)$$

where é, w and r are given and the bequest motive is an extended form of joy of giving. Parents are concerned by the life-cycle income of their only child.[24] There are two possible types of solution to this problem. For some individuals: $x = 0$ and $e < e^{\alpha}$ where e^{α} is de…ned by: $wh'(e^{\alpha}) = 1 + r$. These individuals would like to …nance high educational expenditures through a negative bequest which is not possible. Hence, the non-negativity constraint on x is binding. For others $e = e^{\alpha}$ and $x > 0$. Whether parents are constrained by the assumption that $x > 0$ and thus leave $0 \leq e < e^{\alpha}$ depends on their wealth, their degree of (imperfect) altruism and on the relative returns of both types of transfers (r versus $wh'(e)$).

The question at hand is whether these two types of transfer ought to be taxed (or subsidized) di¤erently. Even in the simple framework adopted here both types have di¤erent economic implications. For pure e¢ciency reason there is a good case for subsidizing e up to the level e^{α} even if this requires taxing …nancial bequests. Furthermore in a dynamic setting of endogenous

[24] We have $n = 0$.

growth a number of papers have more or less explicitly shown that education ought to be subsidized and/or supplied collectively. This holds particular true when an optimal income tax is available. See Glomm and Ravikunar (1992), Benabou (2002).

Cremer and Pestieau (2002) consider a model of successive generations wherein parents provide education out of some joy of giving and with the knowledge that it increases the probability that their child(ren) be highly productive. Individual are only di¤erentiated by their degree of productivity. The paper shows that when a non-linear income tax is available and when there is no laundering, there is a good case for subsidizing private education and possibly for providing some public education.

5 Conclusion

Even though our survey was limited to the normative aspects of wealth transfer taxation there are a number of questions that we have not dealt with. There are indeed a number of issues that explain why estate taxation is today so unpopular that in some countries the political system is considering abolishing it.

There is …rst the issue of avoidance and evasion which not only leads to poor tax yields but also leads to strong departure from both vertical and horizontal equality. Related to that, there is the issue of tax competition within countries and among countries. In federal states one observes a real race to the bottom regarding estate taxation. In an economic union such as the European one there is an increasing tax competition for …nancial wealth and this includes estate taxation. Another issue pertains to alleged adverse e¤ect of estate taxation on family businesses.

Those three issues have a real political impact and yet there is little evidence on how important is their e¤ect. It is thus not surprising that there exists little theoretical work taking them into account.

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