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Matthias Wrede
University of Erlangen-Nuremberg and CESifo

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Matthias Wrede*

University of Erlangen-Nuremberg and CESifo

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Abstract

This paper presents an analysis of the extent to which tax planning affects the level of the inheritance tax rate that is perceived to be fair. In a factorial survey conducted in Germany, tax planning was found to increase the fair tax rate by approximately 4 percentage points. The fair tax rate is determined by not only the size of the bequest, the relationship of the heir to the bequeather, and the type of bequest, but also by the perceived intentions of the bequeather. Families with pro-social motives should be taxed less than those without pro-social motives. The analysis described in this paper finds support in optimal tax theory. To this end, a simple model was developed that shows that taxation should not prevent individuals with warm-glow-of-giving motives from contributing substantially more to the social good than individuals who do not share these motives.

JEL Classification: H24, H21, H26

Keywords: Tax planning, inheritance tax, fair taxation, warm glow of giving

*Address: University of Erlangen-Nuremberg, School of Business and Economics, PO Box 3931, 90020 Nuremberg, Germany, eMail: matthias.wrede@wiso.uni-erlangen.de

1 Introduction

For many years and in many countries, the estate tax or the inheritance tax has been very controversial, although its share of overall tax receipts is rather small. It has been denounced as an immoral "death tax" that taxes wealth already taxed once or more ("double tax") (for a discussion of this exercise in rhetoric, see Gale and Slemrod, 2001; Prabhakar, 2008). In the sociological discourse on inheritance taxation, the tax is mainly justified on the grounds of the principles of justice and equality of opportunity (see Beckert, 2008). However, according to the family principle, inheritance taxes interfere with the unity of the family, which could be considered as an entity that outlives the deceased, and undermine family solidarity (see Kohli, 1999, 2004; Beckert, 2008). From an economist's point of view, there is an equity efficiency trade-off involved (for an overview on the economic literature, see Cremer and Pestieau, 2006; Boadway, Chamberlain, and Emmerson, 2010; Kopczuk, 2013b). On the one hand, because wealth is increasingly unequally distributed, because the distribution of wealth transfers is also strongly positively skewed, and because the administration of an annual wealth tax is rather costly, the inheritance tax may be an important instrument to redistribute from the rich to the poor. On the other hand, the tax distorts the savings of farsighted bequeathers and the labor supply of heirs. According to the deterministic infinite-life model of Chamley (1986) and Judd (1985), the optimal capital income tax is zero in the long run because a tax on capital income creates an ever-growing distortion of inter-temporal choices. Atkinson and Stiglitz (1976) argued that a non-linear earnings tax is a more efficient tool for redistribution. However, recent research has shown that the negative results mentioned depend heavily on the restrictive model assumptions. Piketty and Saez (2012) showed that the welfare-maximizing inheritance tax rate is positive and is larger as more bequests are concentrated and the weight of those receiving little inheritance increases. Furthermore, it has long been recognized that the assessment of inheritance taxation depends strongly on bequest motives (see Cremer and Pestieau, 2006). While taxation of accidental bequests is non-distorting, this is not so with altruism or exchange motives. In particular, the economic literature has stressed that transfer taxes should internalize externalities from giving (see Kaplow, 2008, 2010; Kopczuk, 2013a).

In the public debate, there is a widespread feeling that it is relatively easy, especially for the wealthiest families, to avoid the estate tax (Gale and Slemrod, 2001). One way to do this is to skip generations or use trusts (Boadway, Chamberlain, and Emmerson, 2010). Kopczuk (2007) showed that the onset of a terminal illness leads to a significant reduction in the value of estates reported on tax returns, reflecting tax planning. Although optimal tax theory focuses on asymmetric information about the ability of the taxpayer, most of the literature on wealth transfer taxation assumes that bequests are observable and that the estate tax can neither be avoided nor evaded. However, it has been shown that the zero-taxation result breaks down if wealth transfer is not observable (see Boadway, Marchand, and Pestieau, 2000; Cremer, Pestieau, and Rochet, 2003). Finally, although it is claimed that wealth-transfer taxes impose intolerable burdens on family-owned businesses, there is very little evidence for this damaging effect on small businesses (see Gale and Slemrod, 2001; Boadway, Chamberlain, and Emmerson, 2010).

This paper presents an analysis of the effect of tax planning on the inheritance tax rate that is perceived to be fair by the German public and links the findings to an optimal taxation model in the spirit of Diamond (2006). In Germany, inheritances and also inter vivo gifts are both subject to taxation (for a brief overview, see Kessler and Eicke, 2009). Tax rates vary from 7% to 50%, depending on the relationship between the bequeather and the heir and the value of the inheritance. Partners and children face the lowest tax rates, close relatives the second-lowest, and others belong to the high-tax-rate category. Substantial personal allowances and further special allowances together with sharply increasing tax rates make the tax highly progressive. Business property is tax-exempted, provided that the wage bill is not substantially reduced over a certain period of time. The transfer of a privately owned home to a partner or to children is also tax-free up to some threshold. Because of a constitutional court ruling in 2007 and a major inheritance tax reform in 2009, the tax has been intensively discussed in recent years and the public is relatively aware of the tax rules. Due to the large allowances, in 2011, only 133,624 transfers were effectively taxed; the average tax liability was 31,589€. The average tax rate, calculated as tax revenue over transfers in excess of any allowances and deductions, was 16.73%, and 55% of tax revenue came from the 6% of tax payers whose tax liabilities exceed 500,000€ each (see Federal Statistical Office, 2012).

To analyze the effect of tax planning on the level of the inheritance tax rate that is perceived as fair and appropriate, we applied the factorial survey approach. Factorial surveys are a technique for applying experimental designs in survey research (see, e.g., Rossi and Anderson, 1982; Hox, Kreft, and Hermkens, 1991; Beck and Opp, 2001). The factorial survey approach is particularly useful in studying determinants of positive beliefs and normative judgments. In our case, the respondents made judgments of fictive descriptions that have been constructed by randomly selecting one level from one dimension, namely tax planning. The respondents had to choose the fair inheritance tax that an heir has to pay when she inherits a medium-sized company from her father, a situation in which, under German tax law, business property tax relief would apply. In one of the two vignettes, most likely to benefit from tax relief, the bequeather bought the firm when he discovered the he would die soon; in the other vignette, the deceased owned the firm for many years. Our main result was the following: in a simple bivariate analysis, tax planning by the bequeather was found to increase the tax rate perceived as fair by 3.75 percentage points. After controlling for family values and judgments on public redistribution policy, the effect was even stronger (4.15 percentage points). In additional regressions, we controlled for various characteristics of the respondent but socio-demographic variables (age, gender, income level, education, country of birth, etc.) and experience with and expectations of bequests and inheritance tax did no systematically influence the assessment.

Our interpretation of the judgments is that the entrepreneur-turned-manager is considered as purely selfish, whereas the all-time entrepreneur is to some extent regarded as pro-socially motivated job creator. Looking at the results that way, fair taxes should be adjusted with respect to the motives of the taxpayers. That is to say, the tax system should it make costly for taxpayers without pro-social motives to mimic taxpayers with pro-social motives. Interestingly, we found that the fairness consideration we discovered empirically has an equivalent in optimal taxation theory. Optimal taxes do not prevent individuals with pro-social motives from contributing substantially more to the social good than individuals who are not so motivated. However, the magnitude of the optimal tax relief depends on the strength of the pro-social motives and the welfare weights of individuals with and without pro-social motives.

The paper is organized as follows. Section 2 describes the factorial survey and presents

the empirical results. Section 3 links the findings to the theoretical literature on reciprocity in games and optimal taxation in the presence of a warm-glow-of-giving motive. Section 4 presents conclusions.

2 The factorial survey

The data source of our study was the WISO-Panel which is an online access panel with more than 10000 registered users. It was founded at the University of Erlangen-Nuremberg and moved recently to the University of Freiburg. The study was conducted in September 2012 with 524 participants as part of a broader project on normative judgments on the inheritance tax. Although the panel population is heterogeneous in its various socio-demographic dimensions, it is not fully representative of the German population. In our sample, the proportion of women (53%) was slightly larger than in the population, and the respondents were significantly younger and better educated: more than 51% are younger than 45 and 58% hold at least a degree from a higher secondary school. Some respondents' data were provided by the panel organizer; most data were taken from our survey. Our survey included several questions on socio-demographics, on judgments on the government's role in redistribution, and on family values. However, the survey focused especially on the respondents' experience with and expectations of gifts, bequests, and the inheritance tax, and on their judgments on evasion and avoidance of the inheritance tax.

The vignette of interest here is quite simple because the description is varied only along one dimension. The vignette started with the following sentence: "Please, indicate for the case described below how large the share of the inheritance that the person should pay as inheritance tax to the government should be." After the description we asked: "In your opinion, how large is the share of the inheritance the daughter of Mr. Müller should pay as inheritance tax to the government?" The respondent could choose a number between 0 and 100, in increments of 5, for the inheritance tax in percent. Hence, the interviewee was required to calculate the average tax rate for the gross transfer rather than the net transfer.

The two vignettes are the following:

The no-tax-planning vignette: "For many years, Mr. Müller re-invested the money his

medium-sized company, with 20 employees, made in the firm again. In 2010, Mr. Müller contracted a terminal illness and died one year later. Mr. Müller passed the company, worth 1 million euros, on to his only daughter."

The tax-planning vignette: "For many years, as a high-income employee Mr. Müller put money into bonds. In 2010, Mr. Müller contracted a terminal illness. Thereupon, he bought a medium-sized company with 20 employees. One year later, Mr. Müller died. Mr. Müller passed the company, worth 1 million euros, on to his only daughter."

In the first vignette, the bequeather was always an entrepreneur, while in the second vignette, he became the owner of the firm only after he discovered that he was terminally ill. In both vignettes, the company is of medium size and provides jobs for 20 employees. Some of the respondents most likely know that, under German tax law, this type of inheritance is practically tax-free, provided that the company provides jobs for an additional 10 years. The size of the inheritance is not negligible, it is clearly above the median, but it is also not extraordinarily large. The heir's and bequeather's ability to pay do not differ between the two vignettes. Furthermore, it is not likely that the former employee is more productive than the all-time entrepreneur.

Randomly selected members of the treatment group were shown the tax-planning vignette, while the members of the control group were confronted with the no-tax-planning vignette. With respect to age, gender, employment status, education level, family values, refusal to answer, and experience with bequests and the inheritance tax, there were no systematic differences between the treatment and the control group. However, the members of the treatment group lived in larger households and had, on average, more children (significant at the 10% level); the probability that they had not received any sizeable gift was slightly smaller and the probability that they earned a high income was somewhat higher (significant at the 5% level).

Table 1: Summary statistics on the fair inheritance tax rate

vignette	mean	std. dev.	min	max	N
no tax planning	12.957	15.383	0	100	235
tax planning	16.709	17.054	0	95	234

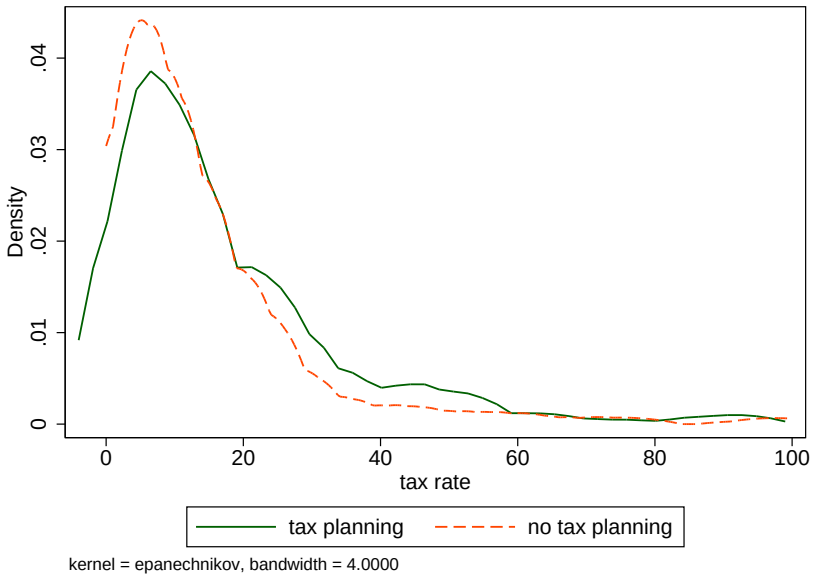

Figure 1: Kernel estimation of the inheritance tax rate perceived as fair with and without tax planning

On average, the respondents considered a tax rate of 14.83% as fair. The median tax rate was 10%. However, there was a substantial difference in the tax rates the two groups perceived to be fair (significant at the 1% level). Without taking any controls into account, tax planning by the bequeather was found to increase the tax rate perceived as fair by 3.75 percentage points (see Table 1). The distributions of tax rates differ (see Figure 1). With tax planning, the respondents more often chose tax rates in the range of 20-60%.

Controlling for family values and judgments on public redistribution policy, the effect of tax planning on the tax rate is even stronger (4.15 percentage points). Table 2 presents the results of a simple OLS regression.[1] The respondent is considered as being in favor of redistribution policy if he or she agrees with the statement "The government is responsible for equalization of income across income classes." He holds strong family values if he or she agrees that relatives should support each other in the way exemplified by their

[1] A Tobit regression taking left censoring into account, the results of which are not shown here, led to similar coefficients and significance levels. The upper bound does not seem to be binding. Whereas 78 respondents choose a zero tax rate, only 1 interviewee preferred completely confiscatory taxation.

dependent variable	tax rate	tax rate
tax planning	4.146***	3.492**
	(1.497)	(1.620)
strong family values	-3.170*	-4.073**
	(1.888)	(2.024)
in favor of redistribution	3.353**	2.593
	(1.523)	(1.669)
no gift so far		-1.182
		(1.794)
high income		-2.538
		(2.287)
size of household		0.0849
		(0.404)
number of children in household		0.138
		(1.141)
Constant	13.31***	15.99***
	(2.063)	(2.673)
Observations	467	424
R-squared	0.030	0.029
Adjusted R-squared	0.0240	0.0131
F statistic	4.820	1.800
Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1		

Table 2: OLS tax-rate regressions

ancestors. Not surprisingly, a positive attitude towards public redistribution policy increased the specified tax rate, strong family values decreased it. However, the latter effect was less significant and also less stable across specifications. When robust standard errors were calculated, the statistical significance of the family value variable disappeared (not shown here). Using other items related to family values or using a variable derived from factor analysis to measure family values, the sign of the coefficient of family values always remained negative, but the value of the coefficient was statistically insignificant.

We also analyzed whether socio-demographics and experience with and expectations of bequests and inheritance tax payments make a difference. The answer was, simply, no. Age, gender, place of birth, household size, number of children, partnership, employment status, level of education, income level, inheritance or gifts in the past, and expected inheritance were examined, and none of these variables was found to have a significant effect on the tax rate once it was controlled for tax planning, the respondent's attitude toward redistribution, and family values. As a robustness check, we included in one regression only those socio-

demographic variables that were significantly different between the treatment and control group (see the second column in Table 2). The adjusted R-squared was substantially lower, the F statistic deteriorated, and the tax-planning dummy was smaller again but still positive and statistically and economically significant. Most likely due to the inclusion of the high-income dummy, the attitude towards redistribution becomes insignificant. For robust standard errors, family values were also insignificant. To summarize, tax planning is the only variable that has a stable influence on the tax rate that is perceived to be fair.

Based on our experiment, we concluded the following: First, an inheritance tax rate of zero for business property is considered to be fair by only a small minority of respondents. Compared with the German tax law, the median and the mean tax rate were rather high in our sample. Taking allowances into account, in Germany, a child faces a tax rate of 15% calculated for the taxable transfer if she inherits money or securities worth 1 millon Euros. If the tax rate were calculated for the gross transfer as in our experiment, it would be only 8%. However, in our experiment, the heir inherits business property which is effectively untaxed under German tax law. Second, our experiment showed that the fair tax rate is not determined only by the size of the bequest, the relationship of the heir to the bequeather, and the type of bequest. The intentions of the bequeather and history also matter. If the bequest is designed to minimize tax liability, the tax rate perceived to be fair is higher than otherwise. To account for tax planning, there are essentially two alternative routes for tax policy. Either the government should set the tax rate equal to a weighted average of the fair tax rates in the absence and presence of tax planning, or additional available information should be taken into account to correct the tax rate – in our case, the duration of ownership prior to the transfer. Because our experiment did not include a treatment group that was asked to determine tax rates for both cases simultaneously, we do not know whether a uniform tax rate or ownership duration dependent tax rates would be the preferred policy for our sample population.

3 Unequal treatment of different motives

One explanation of our finding is that the respondents consider tax planning as a violation of social norms that recognize the obligation to pay taxes. However, there is some

evidence that although tax evasion is perceived negatively, tax avoidance is assessed positively (Kirchler, Maciejovsky, and Schneider, 2003), which suggests that tax planning as such is not considered as an offense against social norms. However, in our experiment, the bequeather exploits the business property tax relief, which is associated with the provision of a social good, rather than some arbitrary difference in tax rates. The exemption of business property from inheritance tax in many countries (see, e.g., Boadway, Chamberlain, and Emmerson, 2010; Kessler and Eicke, 2009) is usually justified on the grounds that it promotes enterprise and safeguards domestic jobs by providing continuity of businesses. Taking for granted that business property involves positive externalities, business property should be subsidized. As the externality is caused by the existence of the enterprise rather than the wealth transfer, transfer tax relief should only prevent businesses from being split up or closed. Taking the externality argument seriously, the subsidy should not be affected by tax planning because, at least in our experiment, tax planning does not affect the existence and the future of the company. However, the objectives of the two types of bequeathers are different: in the tax-planning vignette, the entrepreneur-turned-manager presumably provides benefits to society because he expects some tax reduction in return, whereas in the no-tax-planning vignette, the entrepreneur is intrinsically motivated to run a business and to maintain jobs. Surveys revealed that a large proportion of German citizens is aware of entrepreneurship's social benefits and believes that entrepreneurs have pro-social motives (according to Eurobarometer N^o 283, EU Commission, 2010). Although the majority's opinion about entrepreneurs is less favorable than in the US, Germany is well ahead of the EU average. In 2009, 89% were in agreement that entrepreneurs were job creators, compared with 87% in the EU27 and 95% in the US. 48% disagreed that entrepreneurs only thought about their wallet (41% in the EU27 and 67% in the US). 59% disagreed that entrepreneurs exploited other people's work, compared with 44% in the EU27 and 68% in the US. Apparently, family businesses and the "Mittelstand" are well respected in Germany.

Provided that the intention of the bequeather does indeed make the difference between the two vignettes, our experiment leads to the conclusion that fair taxes should be adjusted in some way with respect to the motives of the taxpayers. Taxpayers willing to provide a social good should be taxed less. It should be stressed that this conclusion relies on

the assumption that in accordance with the family principle (Beckert, 2008), respondents consider the family as an entity. They hold individuals responsible for the behavior of family members specifically, in our experiment, the taxpayer is held responsible for the behavior of her father. The inverse relationship between motives and taxes could be related to several strands in the literature. First, from the literature on reciprocity in various games, it is well understood that the willingness to reward or punish other players depends on both outcome and intentions (for an overview, see Fehr and Gächter, 2000; Falk and Fischbacher, 2006). There is a desire to punish hostile intentions and to reward kind intentions (see, e.g., Rabin, 1993). The higher tax rate in the tax-planning vignette could be seen as a punishment. Second, the result could be related to the literature on the tax treatment of charitable contributions with warm-glow preferences. Focusing on the interaction between an optimal non-linear income tax and donations to finance public goods, Diamond (2006) discussed the benefits of subsidizing donations. He stressed two potential gains. First, higher donations from high-income earners than from low-income earners relax the incentive compatibility constraint. Second, private donations reduce consumption and therefore ease the resource constraint. Depending on whether social welfare does or does not include warm-glow utility, the subsidy should vary a little or a lot across types of taxpayers.

To justify the preferential treatment of intrinsically motivated persons without referring to corresponding productivity differences, we consider a simple endowment economy of two types, one without and the other with warm-glow preferences, and two goods, one private and one public good. Individual i, $i = A, B$, consumes private good x_i and contributes y_i to the public good. The economy is populated by n_i individuals of type i. The total endowment of the private good and the amount of the public good are fixed:

$$x = n_A x_A + n_B x_B \quad \text{and} \quad y = n_A y_A + n_B y_B \,. \tag{1}$$

The strictly quasi-concave utility of individual i, u_i, depends positively on private consumption, x_i, and negatively on individual contribution, y_i. To model the warm-glow-of-giving motive of type B, z_B, with $z_i = y_i$, $i = A, B$, is included as an additional argument in B's utility function: $u^A(x_A, y_A)$ and $u^B(x_B, y_B, z_B)$. It is assumed that social welfare W depends on individual utility, $W(u^A, u^B)$; that is, social welfare respects individual pref-

erences. We consider only those allocations that treat all individuals of the same type equally. The first-best allocation is given by

$$-\frac{u_y^A}{u_x^A} = -\frac{u_y^B + u_z^B}{u_x^B}\,, \tag{2}$$

where subscripts indicate partial derivatives with $u_x^i > 0$, $u_y^i < 0$, and $u_z^B > 0$. Note that in the interior $u_y^B + u_z^B < 0$. The marginal willingness to accept additional contributions must be the same for both types of individuals.

If nested utility is assumed, i.e.,

$$u^B(x_B, y_B, z_B) = v[u^A(x_B, y_B), z_B]\,, \tag{3}$$

the first-best condition implies

$$-\frac{u_y^A}{u_x^A} < -\frac{\tilde{u}_y^A}{\tilde{u}_x^A}\,, \tag{4}$$

where $\tilde{u}$ indicates utility from mimicking: $\tilde{u}^A = u^A(x_B, y_B)$. In a first-best solution, the willingness to accept additional contributions of type A is smaller than it would be if the individual mimicked the other type. The bundle for the type with warm-glow preferences must provide for the type without warm-glow preferences a larger compensation for additional contributions. Note that this condition immediately implies that a uniform distribution of consumption goods and contributions across all individuals is not first-best optimal. Starting from perfect symmetry, it would be efficient to increase consumption and contributions of the warm-glow-preference type at the expense of the other type.

If the government cannot observe the individual's type, mimicking must be excluded. The incentive compatibility constraints are

$$u^A(x_A, y_A) \geq u^A(x_B, y_B) \quad \text{and} \quad u^B(x_B, y_B, z_B) \geq u^B(x_A, y_A, z_A)\,. \tag{5}$$

For nested utility, Equation (3), simultaneous fulfillment of both incentive compatibility conditions requires $z_B > z_A$. The warm-glow-preference type must contribute more to the social good than the other type. Maximizing welfare W subject to the feasibility constraints, Equation (1), and the incentive compatibility constraints, Equation (5), and assuming that only the incentive compatibility constraint for the type without warm-glow-preferences is strictly binding, the following first-order condition is obtained for an interior

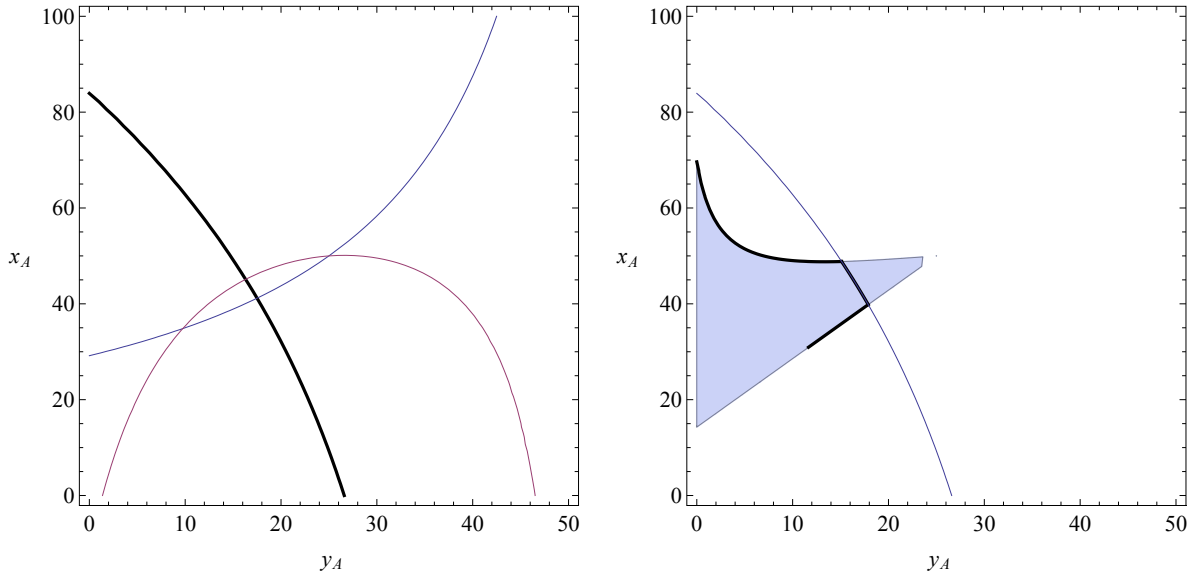

Figure 2: First-best optima with indifference curves for symmetric treatment (left), and second-best optima with no-mimicking regions and contract curve (right)

second-best optimum:

$$-\frac{u_y^A}{u_x^A} = -\frac{u_y^B + u_z^B - \frac{\mu_A}{W_{u^B}}\tilde{u}_y^A}{u_x^B - \frac{\mu_A}{W_{u^B}}\tilde{u}_x^A}, \tag{6}$$

where μ_A is the Lagrange multiplier of the incentive compatibility constraint of type A. A similar condition holds if the other incentive compatibility constraint binds. If type A is the potential mimicker, he must be distracted from the bundle for type B which could be accomplished by letting type B contribute substantially to the social good.

To illustrate these conditions, we show in Figure 2 the first-best and second-best optima for a numerical example with nested utility: $u^A(x_A, y_A) = x_A^{1/2}(\bar{y} - y_A)^{1/2}$ and $u^B(x_B, y_B, z_B) = x_B^{1/2}(\bar{y} - y_B)^{1/2} z_B^{1/3}$, with $z_B = y_B$. The parameters are $x = 100, y = 50, \bar{y} = 60$, and $n_A = n_B = 1$. Type A's most preferred choice is the upper left corner; due to the warm-glow-of-giving motive, type B would prefer to contribute something to the social good. The first-best and second-best optima are below the main diagonal: $x_A/x + y_A/y < 1$. Type A has a smaller share in total activities than type B. In the first-best optimum, shown in the left diagram, for almost all weight schemes in the welfare function, A contributes less than type B to the social good. Only if the value that society

puts on providing an additional dollar of consumption to individual B is rather high, must type A contribute more. The set of second-best optima, indicated by the thick curve in the right diagram, contains non-distorted allocation, but also distorted allocations where either of the incentive compatibility constraints is strictly binding. If the risk of mimicking affects the optimum, it moves it to the left. Type A contributes less to the social good than in the first-best optimum. However, if the social welfare weight of type A is quite high, he would obtain a large share of the consumption good.

Applied to the tax problem, the model suggests that taxation should not prevent individuals with pro-social motives from contributing substantially more to the social good than individuals without these motives. Mimicking is less rewarding if tax relief requires a large contribution to the public good. Additional requirements for business property relief, such as a minimum holding period, should be sufficiently strong. The magnitude of the reduction of the tax liability should depend on the welfare weights of individuals with and without pro-social motives.

4 Concluding remarks

Using a factorial survey conducted in Germany, tax planning was found to substantially increase the inheritance tax rate perceived to be fair. The fair tax rate was found to depend not only on the size of the bequest, the relationship of the heir to the bequeather, and the type of bequest, but also on the intentions of the bequeather. The survey result indicated that respondents believed that families with pro-social motives should be taxed less than those without pro-social motives. Support for this finding was sought in optimal tax theory. Using a simple model, it was shown that taxation should not prevent individuals with warm-glow-of-giving motives from contributing substantially more to the social good than individuals without these motives.

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