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**Conference Paper**

## Why Pay More? Tax Planning of Married Couples

Beiträge zur Jahrestagung des Vereins für Socialpolitik 2015: Ökonomische Entwicklung - Theorie und Politik - Session: Tax Avoidance and Evasion, No. F10-V2

**Provided in Cooperation with:**

Verein für Socialpolitik / German Economic Association

*Suggested Citation:* Büttner, Thiess; Erbe, Katharina; Grimm, Veronika (2015) : Why Pay More? Tax Planning of Married Couples, Beiträge zur Jahrestagung des Vereins für Socialpolitik 2015: Ökonomische Entwicklung - Theorie und Politik - Session: Tax Avoidance and Evasion, No. F10-V2, ZBW - Deutsche Zentralbibliothek für Wirtschaftswissenschaften, Leibniz-Informationszentrum Wirtschaft

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# Why Pay More? Tax Planning of Married Couples

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Preliminary version, August 2015

## **Abstract:**

This paper explores whether tax planning by households is consistent with a minimization of the family tax burden or whether and to what extent concerns about the tax burden of individual household members matter. To this end, we take advantage of a specific feature of the German tax system which allows married couples to decide among different payroll tax schedules. Using a large random sample of the individual income tax files of all German tax payers, we find that a substantial fraction of all couples choose equal treatment of partners although a preferential tax treatment of the high income earner would yield a higher net family income. Our findings indicate that this pattern can be partly attributed to equity concerns. Consequently, tax planning is used not only to lower the family's overall tax burden but also to reduce the tax burden on the partner with the lower income.

**Keywords:** Tax Planning; Married Couples; Individual Tax Return Data; Inequity Aversion; Gender Bias

**JEL Classification:** H24; H31

# 1 Introduction

Traditional tax impact analysis treats tax institutions as exogenous side constraints. However, when filing tax returns tax payers often have some degree of freedom in how the individual case is treated under the tax code. Research on taxation has usually explained this *tax planning* by decision models, where choices maximize some immediate objective such as the net-return or minimize the cost induced by an economic activity. Following this line of reasoning, with some further assumptions, tax planning can be seen as an attempt to minimize the effective tax burden.

This paper explores whether tax planning by households is consistent with the objective to minimize the tax burden or whether and to what extent concerns about the tax burden of the individual household members matter. We take advantage of a specific feature of the German tax system which allows married couples to apply one of three different payroll tax regimes. The first option is to tax individual earnings in the same way as the earnings of a single household. Alternatively, couples can choose to apply a more favorable (low) tax schedule to one income (typically the higher one) and a less favorable (high) to the other. In this case they have to specify whether husband (second option) or wife (third option) obtain the more favorable tax schedule. Due to the progressivity of the tax system, only one of these three options is tax minimizing in the sense that it is associated with the lowest overall tax burden for the family. Although the payroll tax payment is a pre-payment that may be reimbursed following the annual income tax declaration, choosing the adequate tax schedule could save substantial payments in present value terms. Exploiting a random sample of individual tax returns, we are able to explore empirically whether or not married couples make tax-minimizing choices and under which conditions this is or is not the case.

While tax planning is intensely debated in the context of corporate taxation (*e.g.*, Bartelsman and

Beetsma, 2003, Hong and Smart, 2010) it has also been noted that tax planning may be important in the context of a family: if family members face different marginal tax rates, tax arbitrage will tend to equate marginal tax rates and lower the tax burden substantially (Stiglitz, 1985). The economic literature on family decisions (for a survey, *e.g.* Apps and Rees, 2010) has traditionally featured models where the household is assumed to maximize a joint utility function subject to some family budget constraint. In such a setting, if households face a choice as to which household member's income should be taxed at a lower marginal tax rate, one should expect, that a tax-minimizing choice is made. In the context of the choice of payroll tax schedules, the preferential tax schedule should be assigned to the higher income.<sup>1</sup>

However, in contrast to the traditional view, couples might not choose to maximize joint net-income. If the partners' access to the family budget is related to the own contribution, each partner has an interest to increase the own contribution even if this would lower the total budget.<sup>2</sup> This individual perspective on contributions might also be combined with traditional perspectives on labor division within the household. Following traditional role models, for instance, the husband's role as primary earner could result in a tendency to assign the advantageous payroll tax schedule to the husband. At

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<sup>1</sup>Since the specific tax treatment applies only to married couples, the outcomes under a divorce are not affected. Therefore, we might expect that the same result would also hold if family decisions are obtained by maximizing some Nash-product of individual utilities relative to threat points under divorce. However, if divorce is costly the family decision making may still depend on non-cooperative threat-points. As discussed by Lundberg and Pollak (1993), if there are "socially recognized and sanctioned gender roles" such that, in a non-cooperative outcome, the primary responsibility for certain activities like earning wage income and taking care of children are assigned exclusively to the husband and the wife, the family allocation may be characterized by a "separation of spheres", without pooling of resources. In this case, the income losses or gains from the assignment of the deduction will not be fully shared and it is conceivable that a choice is made that will tend to raise the tax burden.

<sup>2</sup>Mader et al. (2012) show that household decision making takes place jointly more often if women contribute the main part of the household income. Gummerson and Schneider (2013) report for South African households that spending on food is higher and spending on alcohol is lower when women contribute a higher share of the household income.

the same time, however, partners might display some inequity aversion with respect to the individual family members' incomes. Then, the couple might opt for a favorable treatment of the partner with the lower income. But also more technical reasons for a deviation from efficient household choices seem possible. Since the default payroll tax schedule (upon marriage) implies an equal treatment of the spouses, inefficient choices might be due to stickiness. A current inefficient choice could also be explained by expectations on future income streams. For example, unemployment benefits or parental leave subsidies in Germany depend on the most recent net income, which could induce profit maximizing couples to give the affected partner preferential tax treatment. In our empirical analysis we collect evidence in favor and against those conflicting explanations and provide evidence for the extent to which couples deviate from family income maximization in tax planning.

Our results show that there is a significant number of households where the tax schedule combination does not minimize the tax burden. These households typically choose equal treatment of both income earners although they could gain by choosing an asymmetric treatment. Interestingly, the phenomenon is more pronounced if the wife earns higher income. Our findings indicate that the failure of families to ensure that tax payments are minimized can be partly attributed to equity concerns. Tax planning is used not only to lower the overall tax burden but also to reduce the tax burden on the partner with the lower income. As a consequence, family tax planning tends to be inefficient in the sense that other choices would result in a lower family tax burden.

The paper is organized as follows. Section 2 presents a theoretical framework of the household decision problem. In section 3 the data set and the empirical approach are discussed. Section 4 provides empirical results. Section 5 concludes.

## 2 Family Choice of the Payroll Tax Schedule

In this section we provide a stylized decision model that enables us to study a household's tax planning. The model is tailored to the choice of tax schedules in order to provide a theoretical basis for the subsequent empirical analysis.

To derive theoretical and empirical predictions we follow the literature on household decision making and consider a household utility function. In order to introduce some element of inequity aversion we rely on a concept that has been introduced by Fehr and Schmidt (1999) for individual decision making and adapt to family decision making. *Family* utility is a function

$$U^j = \gamma (Y_M^j + Y_F^j) - \alpha \max [Y_F^j - Y_M^j, 0] - \beta \max [Y_M^j - Y_F^j, 0] + \delta^j \quad j \in \{m, e, f\}. \quad (1)$$

$Y_M^j$  and  $Y_F^j$  are the incomes earned after payroll taxes by husband and wife, respectively. Superscript  $j$  describes the tax schedule combination.  $m$  is the male favoring assignment,  $e$  the egalitarian assignment, and  $f$  is the female favoring assignment. Note that a family gains utility from a higher total net income (first term) but might suffer from income differences among its members in either direction.  $\alpha$  is the weight attached to the disutility of inequality favoring the wife,  $\beta$  is the weight attached to income inequality favoring the husband.  $\gamma$  generalizes the Fehr and Schmidt function to capture cases where the marginal utility from income differs from one.<sup>3</sup> The utility function nests a simple maximization of family income, which holds if  $\alpha = 0$  and  $\beta = 0$ . If  $\beta > 0$ , a positive net income differential between husband and wife contributes to a loss in family utility. In the opposite case, where the wife has higher earnings, it has a negative effect on family utility if  $\alpha > 0$ . If  $\alpha \neq \beta$  the approach captures asymmetries in the sense that the inequities are assessed

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<sup>3</sup>This feature of the model will be exploited in the estimations in section 4.

differently depending on whether the husband or the wife has higher income. In the extreme case where  $\alpha = \beta = \gamma$ , family utility follows a Rawlsian maximin principle, where the family aims at maximizing the lowest net income.  $\delta_j$  is a parameter that captures some fixed cost of deviating from a predetermined assignment of tax schedules.

In the following we separately analyze the cases where the husband and the wife, respectively, earn higher income in order to derive insights that we later use in our estimations.

**Case 1: The husband has higher earnings.** If the husband has higher earnings than the wife,  $Y_M > Y_F$ ,  $m$  is the assignment that achieves the highest net-income for the family. The family's inequity aversion may nevertheless induce the couple to chose tax regime  $e$ , if this maximizes the family utility function. To see this, consider the difference in utility if the family chooses assignment  $m$  vs.  $e$ :

$$\begin{aligned} U^m - U^e &= [\gamma(Y_M^m + Y_F^m) - \beta(Y_M^m - Y_F^m)] - [\gamma(Y_M^e + Y_F^e) - \beta(Y_M^e - Y_F^e)] + (\delta^m - \delta^e) \\ &= (\gamma - \beta)(Y_M^m - Y_M^e) - (\gamma + \beta)(Y_F^e - Y_F^m) + (\delta^m - \delta^e). \end{aligned}$$

Hence, whether or not the utility of the male favoring option is highest depends on the gain in husband earnings relative to the egalitarian choice as well as on the gain that the wife would experience under the egalitarian relative to the male favoring combination. Given the progressive tax system, applying the assignment of the lower tax rate to the husband's earnings will be associated with a gain that exceeds the loss from lower earnings of the wife, i.e.  $[Y_M^m - Y_M^e] > [Y_F^e - Y_F^m]$ . Therefore, if  $\beta$  is small the utility difference is positive, indicating that  $m$  is always chosen if male income is attached a high value and inequity aversion is small. If  $\beta$  is large, the wife's benefit

from the egalitarian assignment is weighted higher. Eventually, this will lead to a switch from the male favoring assignment to the egalitarian assignment. The threshold level, where the household is indifferent to switch to an assignment other than  $m$  depends on differences in earnings,  $Y_M - Y_F$ , the progressivity of the tax system, as well as on  $\beta$  and  $\gamma$ .

Note that the couple has the third option to choose the female favoring payroll-tax schedule. However, due to the progressivity of the tax system, if  $U^m - U^e > 0$ , the female favoring combination cannot be preferred by the couple. Since  $U^m - U^e > 0$  implies  $U^m - U^f > 0$  since  $U^m - U^e < U^m - U^f > 0$ , which can be shown by some minor transformations.<sup>4</sup>

**Case 2: The wife has higher earnings.** In the reverse case, where the wife has higher income  $Y_M < Y_F$ , the preference parameter  $\alpha$  captures the inequity aversion. If the income difference is high enough, the female favoring tax schedule combination  $f$  is the assignment that achieves the highest net income for the family. As in the above case, the level of inequity aversion determines whether an egalitarian  $e$  choice is made. To see this, consider the difference in utility between the egalitarian and the female favoring combination.

$$\begin{aligned} U^f - U^e &= \left[ \gamma (Y_M^f + Y_F^f) - \alpha (Y_F^f - Y_M^f) \right] - [\gamma (Y_M^e + Y_F^e) - \alpha (Y_F^e - Y_M^e)] + (\delta^f - \delta^e) \\ &= (\gamma - \alpha) (Y_F^f - Y_F^e) - (\gamma + \alpha) (Y_M^e - Y_M^f) + (\delta^f - \delta^e). \end{aligned}$$

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<sup>4</sup>To see this, assume for simplicity  $\delta^m = \delta^e$  and note that the net gain for the husband's earnings would be larger if we compare the male favoring combination directly with the female favoring combination  $(Y_M^m - Y_M^f) - (Y_M^m - Y_M^e) > 0$ . While also the benefit in the female favoring combination would be larger, due to progressivity this effect is strictly smaller than the effect of the husband favoring combination:  $(Y_M^m - Y_M^f) - (Y_M^m - Y_M^e) > (Y_F^f - Y_F^m) - (Y_F^f - Y_F^e)$ . Hence when  $U^m - U^e > 0$  we also have  $U^m - U^f > 0$ .



Whether or not the family's utility of the female favoring option is highest depends again on the differences in earning under the alternative tax regimes as well as the parameters of the utility function,  $\gamma$  and  $\alpha$ . Note that the model allows inequity aversion to differ between families where the husbands has higher earnings compared to those where the wife has higher earnings. This form of preference heterogeneity is not essential, however, since  $\alpha$  and  $\beta$  could well be equal.

### 3 Data and Empirical Approach

To explore family tax planning we take advantage of a specific feature of the German tax system which allows married couples to decide which of three alternative regimes of payroll taxation applies. In the tax law these schedules are labeled as schedules 3, 4, and 5. Tax payers with schedule 4 are treated like single tax payers. Tax schedule 3 is characterized with a lower marginal tax rate, tax schedule 5 has higher marginal tax rates. When the husband is assigned tax schedule 3, the wife has tax schedule 5 and vice versa. If one spouse receives tax schedule 4, the other has tax schedule 4, as well. A combination of 44 corresponds to the case  $e$ , 35 to  $m$  and 53 to  $f$  in the analysis above. Given the progressivity of the tax system, the allocation of a low combined with a high marginal tax rate is tax minimizing, if the income difference between the spouses is positive – due to some fixed deductions, it actually needs to be larger than a certain threshold level. In this context, a tax-minimizing choice is associated with the lowest overall tax burden for the married couple. Individually, the asymmetric choices are associated with a loss of net income for one of the partners which is compensated by the increase of income by his/her spouse, however. Note that the tax advantages and disadvantages only relate to the payroll tax. If the household later files for the income tax, the tax payments under the payroll tax are considered as pre-payments. However,

if a couple continuously chooses an inefficient tax schedule in all years, the present value of the loss is roughly equal to the loss in the current period.

### 3.1 Data description

In order to explore the actual decisions of married couples, we use administrative data reporting individual tax returns. More specifically, we use data from the German income tax statistic (*Lohn- und Einkommensteuerstatistik*) provided by the German statistical offices. The representative stratified 10%-sample is drawn from the whole population of all filed tax returns for the year 2004 in Germany. We keep only married couples with earnings predominantly from dependent employment where the payroll tax is relevant.

In our empirical analysis, we explore counter-factual choices of the tax schedule. More specifically, the hypothetical tax payments for all three tax schedule combinations for each couple are calculated based on the current tax law.<sup>5</sup> The calculated tax payments allow us to determine the tax burden associated with all possible tax schedule combinations for each couple.<sup>6</sup>

Table 1 displays some descriptive characteristics of the data used in this study. After dropping some outliers, the sample consists of 206,693 observations. The subsample A comprises couples where the husband has sufficiently higher earnings such that the male favoring combination would be tax-minimizing. It consists of 181,022 cases. Subsample B includes couples where the wife

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<sup>5</sup>To model the tax law we adopted the algorithm from the program chart published by the Federal Ministry of Finance. This algorithm is published every year for the mechanical calculation of monthly tax payments. We implemented this algorithm in Stata for the tax period 2004.

<sup>6</sup>It should be noted that the implemented algorithm does not provide a perfect fit for each individual case since there are some issues that cannot be perfectly reproduced from the data. One problem is for example, that tax payments depend on the monthly earnings. If monthly earnings fluctuate, it is not possible to predict precisely the tax payment if only yearly incomes are available.

has substantially higher income such that the female favoring combination is tax minimizing. It consists of 25,671 cases. The binary variable *tax-minimizing* denotes the choice for the payroll tax schedule. The value is one if the tax-minimizing schedule is implemented. A value of zero indicates the alternative outcome. In subsample A 0.795 percent of the couples choose the minimizing tax schedule, whereas in subsample B only 0.230 percent decide to have the tax schedule combination associated with the lowest monthly tax payment.

The *benefits* from the current choice and the potential *gains* from a different choice of the payroll tax schedule are of special interest for our analysis. They denote the income gain or loss associated with the family income maximizing tax schedule as compared to the egalitarian choice. In subsample A we are interested in the benefit to husband's net-income if he is assigned tax schedule 3 instead of tax schedule 4 (husband's benefit from male favoring choice) and the gain of the wife's net-income if she is assigned tax schedule 4 instead of tax schedule 5 (wife's gain from egalitarian choice). In terms of the theoretical model the benefit for the husband of choosing 3 vs 4 is  $(Y_M^m - Y_M^e)$ . The gain of the egalitarian choice for the wife is  $(Y_F^e - Y_F^m)$ . This definition closely fits the above theoretical discussion (see equation (2)). These definitions make sure, that the *benefit* and *gain* variables have always positive values. Note that the two variables implicitly capture the total income of the couple, because higher income implies a larger benefit from the favorable tax schedule and the income difference. In subsample B, we are interested in the income gain of the wife from tax schedule 3 vs 4., i.e. from the female favoring combination,  $(Y_F^f - Y_F^e)$ , and in the benefit for the husband  $(Y_M^e - Y_M^f)$ .

The binary variable *additional taxes* denotes whether a couple has to pay some additional taxes after they file their tax return if they choose the minimizing tax schedule (1=additional taxes, 0=no additional taxes). This variable is important, because couples might be deterred from choosing the

minimizing tax schedule combination if it implies to pay additional taxes after tax filing instead of getting back some amount of tax payments.<sup>7</sup> It is calculated as the difference between the amount of assessed income tax<sup>8</sup> and the lowest possible yearly tax payment.

The *share of income substitutes* of husband and wife, respectively, might influence the decision for a special tax schedule combination, because the amount of unemployment benefits and parental leave benefits are dependent on the previous net income. *Costs of tax consulting* might also have an impact on the decision, because it captures couples that find it difficult to file their own income tax returns and, therefore, hire a tax agent. The other variables describe demographics of the married couples in our sample.

Table 2 gives an overview of the actual shares of tax schedule combinations in the two subsamples. In subsample A (where the husband has higher earnings), 79.46% of married couples actually choose *m*, which is the tax-minimizing combination in this case. In the subsample B, where the wife has higher earnings, only 23.01% of the couples choose the tax-minimizing combination, which is *f*, but 76.16% choose to have equal tax schedules. The descriptive statistics show that the female favoring combination is strongly underrepresented as compared to the husband favoring combination. However, from the descriptive statistics, we know that couples gain more on average from implementing the minimizing tax schedule if the husband earns more (€2,532) than in case the wife earns more (€1,222). This might partly explain the differences in tax-minimizing choices in the two subsamples.

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<sup>7</sup>Rees-Jones (2013) finds evidence for US data, that tax payers try to avoid additional tax payments by post tax sheltering. In this analysis additional tax payments are just payments that are shifted in time. Nonetheless, they might be regarded as losses.

<sup>8</sup>In German *Festzusetzende Einkommensteuer*.

### 3.2 Empirical approach

Our empirical approach is based on the theoretical model in section 2. We model the choice between the tax-minimizing, or efficient, and an inefficient tax schedule combination. As in the previous section, we use only subsamples A and B, where either  $m$  or  $f$  are the tax-minimizing choices. If the husband has sufficiently higher earnings, the tax-minimizing choice is combination  $m$ . If the wife has sufficiently higher earnings, the tax-minimizing choice would be the female-favoring combination  $f$ . We utilize a latent variable model, which reflects the difference in utility between the male/female favoring combination and the egalitarian combination. Accordingly, the dependent variable is a binary variable indicating whether or not a tax-minimizing choice has been made. Abstracting from fixed costs  $\delta^m = \delta^e = \delta^f$ ,

$$I(\text{tax} - \text{eff}) = \begin{cases} 0 & \text{if } (Y_M^i + Y_F^i) - (Y_M^e + Y_F^e) \leq 0 \\ 1 & \text{if } (Y_M^i + Y_F^i) - (Y_M^e + Y_F^e) > 0 \end{cases} \quad \text{where } i = \begin{cases} m & \text{if } Y_M > Y_F + \epsilon_M \\ f & \text{if } Y_M + \epsilon_F < Y_F, \end{cases}$$

where  $Y_k$ ,  $k \in \{M, F\}$ , are gross incomes of husband and wife and  $\epsilon_M$ ,  $k \in \{M, F\}$ , is the income difference that is necessary to make an asymmetric tax schedule beneficial for the couple.

Consider the case of subsample A, where tax schedule  $m$  is minimizing. We include the benefit of the husband under choice 3 vs 4 ( $Y_M^m - Y_M^e$ ) and the benefit of the wife with 4 vs 5 ( $Y_F^e - Y_F^m$ ). The empirical estimation employs a logit model, where it is assumed that the residuals are logistically distributed. The probability to choose the minimizing tax schedule conditional on the benefits and

control variables in subsample A is then

$$P(\text{minimizing} = 1 | (Y_M^m - Y_M^e), (Y_F^e - Y_F^m), X) = \frac{e^{(\gamma-\beta)(Y_M^m - Y_M^e) + [-(\gamma+\beta)](Y_F^e - Y_F^m) + bX}}{1 + e^{(\gamma-\beta)(Y_M^m - Y_M^e) + [-(\gamma+\beta)](Y_F^e - Y_F^m) + bX}}. \quad (2)$$

For subsample B we proceed analogously. The vector of control variables  $X$  consists of the additional taxes dummy, shares of income substitutes of male/female (income substitute divided by income), costs of tax consulting, age difference (age husband minus age wife), age of the husband, squared age of the husband, number of children, a dummy for the existence of children, religious affiliation of the husband<sup>9</sup>, a dummy for West Germany and the municipality type (1 is a big city and 17 is a small rural village). The set of controls can be extended by the age of the wife at birth of the first child as an indicator for education<sup>10</sup> (Rindfuss, et al. 1996), but then all couples without children are dropped. These couples without children are 28.5% (51,750 out of 181,022) in subsample A and 56.5% (14,516 out of 25,671) in subsample B.

The coefficients are obtained by maximum likelihood estimation. We present point estimates of the slope parameters and also the marginal effects ( $\frac{1}{n} \sum_{i=1}^n \frac{\partial p_i}{\partial x_{ij}}$  with  $i$  denoting observation and  $j$  denoting regressor) as recommended in Cameron and Trivedi (2009, p. 467).

## 4 Results

Table 3 shows the determinants of the probability to choose the male favoring combination for families where this is actually the tax-minimizing choice, as net income is maximized. The table

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<sup>9</sup>Since the correlation between the religious affiliation of husband and wife is 0.745, only the religion dummy of the husband is used in the estimation.

<sup>10</sup>This variable might include a measurement error, because there are only children for whom the couple receives child benefits included in the sample.

depicts the coefficients.

The variables of main interest, the benefit and gain variables, are all significant at the 1 percent level. A larger benefit for the net income earned by the husband is associated with a significantly larger probability to choose the male favoring combination. In terms of our theoretical model, family income has a stronger effect on choice than the inequity aversion  $\gamma - \beta > 0$ . However, the results indicate some degree of inequity aversion, since the gain in the wife's net-income had the couple chosen the egalitarian combination exerts a negative effect. Hence at a given family income, it is more likely to see a switch to the egalitarian combination if the gain in the wife's net income is larger.

Note that the regressions control for income substitutes. The negative significant effect of the share of income substitutes in the wife's income supports the view that tax planning takes into account that higher net incomes could raise transfer incomes. The regressions also control for tax consulting payments. This variable is intended to capture differences between couples that find it difficult to file their own income tax returns and, therefore, hire a tax agent. Effects are mostly insignificant. This suggests that difference in the cost associated with tax planning and slow adaptation is less convincing as an explanation for inefficient choices.

Columns (2) to (3) include various further control variables that capture further differences between households. Significant effects are found for the age difference, indicating that families where the husband is older are more likely to choose tax-minimizing schedules. This suggests that stronger differences make it easier for the couple to focus on a tax-minimizing choice. The latter also seems the case if the household includes children. The positive effect of religious affiliation may capture either preferences, or more simply the fact that paying church taxes increases the losses from tax

inefficient choices.

Table 4 provides the marginal effects. In terms of the above model the point-estimate of husband's benefit is equal to  $(\gamma - \beta)$ . The point-estimate of the wife's benefit is equal to  $-(\gamma + \beta)$ . Hence, according to the point estimates,  $\gamma$  has a value around 1.05 and the inequity aversion parameter  $\beta$  has value of about 0.5. Table 7 provides an overview on the parameters for the different specifications.

Table 5 shows the results obtained for families where the wife is earning more such that the female favoring combination would be tax-minimizing. Qualitatively, the results regarding the net benefits for the spouses are similar. We find that a larger benefit for the net income earned by the wife is associated with higher probability to use the female favoring combination. As above, family income has a stronger effect on choice than the inequity aversion  $\gamma - \alpha > 0$ . We also find some degree of inequity aversion, since the benefit in the husbands's income had the couple chosen the egalitarian combination exerts a negative effect. Table 6 provides the marginal effects. According to the point estimates,  $\gamma$  has a value around 1.25 and the inequity aversion parameter  $\alpha$  has value of about 0.5. The finding that the point estimate of  $\gamma$  is somewhat larger in subsample B might reflect a higher marginal utility of income, which is consistent with lower family earnings in this sample. However, with regard to inequity aversion no substantial asymmetries are found.

## 5 Conclusions

This paper has explored whether and when tax planning within a family deviates from pure tax efficiency. We have discussed this issue using a family utility function with some element of inequity aversion (Fehr and Schmidt, 1999).



To this end, we have exploited a feature of the German income tax system, which provides tax payers with some degree of freedom in how incomes of married couples are taxed. Our empirical results indicate, that there is a substantial number of households that deviate from a simple strategy to minimize the tax burden. Our findings indicate that this result can be partly attributed to equity concerns. As a consequence, family tax planning tends to be inefficient in the sense that other choices would result in a lower family tax burden. In contrast, tax planning is also used to reduce the tax burden on the partner with the lower income.

Since family income levels and distributions differ between couples where the husband has higher earnings and those where the wife has higher earnings, inequity aversion can partly explain the much lower share of tax minimizing choices in the latter group. Couples where the wife has higher earnings tend to have lower tax losses from inefficient choices, compared to couples where the husband has higher income. At the same time among those couples husband's earnings tend to be higher and, hence, also the gain in net-income from using an equal tax schedule tends to be larger.

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Table 1: Descriptive statistics.

subsample A: $m$ minimizes tax payments	cases	mean	st. dev.	median
tax-minimizing	181,022	0.795	0.404	1
husband's benefit from male favoring choice (T€)	181,022	5.511	2.183	4.690
wife's gain from egalitarian choice (T€)	181,022	2.979	1.372	3.045
total income (T€)	181,022	63.343	33.570	55.233
income difference (T€)	181,022	30.360	25.714	24.213
additional payment dummy	181,022	0.281	0.450	0
share income substitutes husband	181,022	0.000	0.002	0
share income substitutes wife	181,022	0.000	0.004	0
costs of tax consulting (T€)	181,022	0.059	0.219	0
age difference	181,022	2.505	3.759	2
age husband	181,022	45.561	7.905	46
number of children	181,022	1.151	0.973	1
children dummy	181,022	0.690	0.462	1
religious affiliation husband	181,022	0.563	0.496	1
west	181,022	0.860	0.347	1
municipality type	181,006	7.643	4.790	8
subsample B: $f$ minimizes tax payments				
tax-minimizing	25,671	0.230	0.421	0
wife's benefit from female favoring choice (T€)	25,671	4.934	1.813	4.237
husband's gain from egalitarian choice (T€)	25,671	3.712	1.381	3.440
total income (T€)	25,671	63.748	32.225	54.715
income difference (T€)	25,671	-18.934	13.735	-15.639
additional payment dummy	25,671	0.171	0.376	0
share income substitutes husband	25,671	0.000	0.007	0
share income substitutes wife	25,671	0.000	0.000	0
costs of tax consulting (T€)	25,671	0.053	0.210	0
age difference	25,671	2.331	4.366	2
age husband	25,671	46.320	8.722	47
number of children	25,671	0.792	0.873	1
children dummy	25,671	0.544	0.498	1
religious affiliation husband	25,671	0.333	0.471	0
west	25,671	0.552	0.497	1
municipality type	25,666	7.454	5.058	7

Notes: All Euro values are in thousands (T€).

The subsamples include only couples for which the tax schedule  $e$  is not optimal.

Table 2: Shares of chosen tax schedules in subsamples A (where  $m$  is tax minimizing) and B (where  $f$  is tax minimizing).

Combination	husband larger income ( $m$ minimizing)	wife larger income ( $f$ minimizing)
Favoring the husband ( $m$ )	79.46%	0.83%
Equal taxes ( $e$ )	20.50%	76.16%
Favoring the wife ( $f$ )	0.04%	23.01%
sum	100%	100%

Table 3: Coefficients of the logit estimation (subsample A:  $m$  is tax efficient).

efficient	(1)	(2)	(3)
husband's benefit from male favoring choice	0.598*** (0.000)	0.573*** (0.000)	0.557*** (0.000)
wife's benefit from egalitarian choice	-1.520*** (0.000)	-1.464*** (0.000)	-1.535*** (0.000)
share income substitutes male	-4.670 (0.701)	-7.157 (0.558)	-4.358 (0.713)
share income substitutes female	-7.189* (0.051)	-5.704 (0.234)	-5.241 (0.603)
additional taxes (yes/no)	-0.0757 (0.201)	-0.000 (1.000)	-0.092 (0.146)
costs of tax consulting	-0.0303 (0.663)	-0.112 (0.153)	-0.156* (0.062)
age difference		0.024*** (0.000)	0.018** (0.011)
age male		0.006 (0.850)	0.014 (0.643)
(age male) squared		-0.000 (0.980)	-0.000 (0.867)
number of children		0.403*** (0.000)	0.420*** (0.000)
children dummy		0.002 (0.985)	0.129 (0.170)
religious affiliation male		0.619*** (0.000)	0.207*** (0.000)
west dummy			1.720*** (0.000)
municipality type			-0.017*** (0.001)
Constant	3.421*** (0.000)	2.348*** (0.000)	1.303* (0.052)
N	181,022	181,022	181,006

$p$  values in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4: Marginal effects of the logit estimation (subsample A:  $m$  is tax efficient).

efficient	(1)	(2)	(3)
husband's benefit from male favoring choice	0.071*** (0.000)	0.065*** (0.000)	0.058*** (0.000)
wife's benefit from egalitarian choice	-0.180*** (0.000)	-0.166*** (0.000)	-0.160*** (0.000)
share income substitutes male	-0.552 (0.701)	-0.811 (0.558)	-0.455 (0.713)
share income substitutes female	-0.850* (0.051)	-0.646 (0.234)	-0.547 (0.603)
additional taxes (yes/no)	-0.009 (0.201)	-0.000 (1.000)	-0.010 (0.146)
costs of tax consulting	-0.004 (0.663)	-0.013 (0.153)	-0.016* (0.062)
age difference		0.003*** (0.000)	0.002** (0.011)
age male		0.001 (0.850)	0.001 (0.643)
(age male) squared		-0.000 (0.980)	-0.000 (0.867)
number of children		0.046*** (0.000)	0.044*** (0.000)
children dummy		0.000 (0.985)	0.013 (0.170)
religious affiliation male		0.070*** (0.000)	0.022*** (0.000)
west dummy			0.179*** (0.000)
municipality type			-0.002*** (0.001)
N	181,022	181,022	181,006

$p$  values in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 5: Coefficients of the logit estimation (subsample B:  $f$  is tax efficient).

efficient	(1)	(2)	(3)
wife's benefit from female favoring choice	0.800*** (0.000)	0.808*** (0.000)	0.757*** (0.000)
husbands's benefit from egalitarian choice	-1.730*** (0.000)	-1.769*** (0.000)	-1.812*** (0.000)
share income substitutes male	1.322 (0.802)	4.173 (0.435)	6.163 (0.273)
share income substitutes female	317.713 (0.410)	301.379 (0.453)	378.067 (0.424)
additional taxes (yes/no)	-0.127 (0.398)	0.054 (0.731)	-0.074 (0.645)
costs of tax consulting	0.514* (0.072)	0.636** (0.033)	0.433 (0.131)
age difference		-0.013 (0.486)	-0.016 (0.350)
age male		-0.072 (0.310)	0.030 (0.693)
(age male) squared		0.000 (0.782)	-0.001 (0.360)
number of children		0.111 (0.293)	0.157 (0.162)
children dummy		-0.181 (0.387)	0.041 (0.849)
religious affiliation male		0.542*** (0.000)	0.161 (0.273)
west dummy			1.403*** (0.000)
municipality type			-0.011 (0.419)
Constant	0.875*** (0.000)	3.585** (0.019)	0.759 (0.639)
N	25,671	25,671	25,666

 $p$  values in parentheses\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Table 6: Marginal effects of the logit estimation (subsample B:  $f$  is tax efficient).

efficient	(1)	(2)	(3)
wife's benefit from female favoring choice	0.093*** (0.000)	0.090*** (0.000)	0.079*** (0.000)
husbands's benefit from egalitarian choice	-0.202*** (0.000)	-0.197*** (0.000)	-0.189*** (0.000)
share income substitutes male	0.154 (0.802)	0.464 (0.435)	0.641 (0.273)
share income substitutes female	37.113 (0.409)	33.526 (0.453)	39.342 (0.424)
additional taxes (yes/no)	-0.015 (0.398)	0.006 (0.731)	-0.008 (0.646)
costs of tax consulting	0.060* (0.073)	0.071** (0.035)	0.045 (0.133)
age difference		-0.001 (0.485)	-0.002 (0.350)
age male		-0.008 (0.311)	0.003 (0.693)
(age male) squared		0.000 (0.782)	-0.000 (0.360)
number of children		0.012 (0.292)	0.016 (0.163)
children dummy		-0.020 (0.387)	0.004 (0.849)
religious affiliation male		0.060*** (0.000)	0.017 (0.273)
west dummy			0.146*** (0.000)
municipality type			-0.001 (0.419)
N	25,671	25,671	25,666

$p$  values in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 7: Estimates of the parameters of the utility function drawn from the coefficients of the logit estimation.

	(1)	(2)	(3)
subsample A: $m$ minimizes tax payments			
$\gamma$	1.059*** (0.000)	1.018*** (0.000)	1.046*** (0.000)
$\beta$	0.461*** (0.000)	0.446*** (0.000)	0.489*** (0.000)
N	181,022	181,022	181,006
subsample B: $f$ minimizes tax payments			
$\gamma$	1.265*** (0.000)	1.289*** (0.000)	1.285*** (0.000)
$\alpha$	0.465*** (0.000)	0.481*** (0.000)	0.528*** (0.000)
N	25,671	25,671	25,666
$p$ values in parentheses			
* $p < 0.10$ , ** $p < 0.05$ , *** $p < 0.01$			