

Mental Accounting of Self-Employed Taxpayers: On the Mental Segregation of the Net Income and the Tax Due

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Received 25 October 2012; in revised form 10 September 2013; accepted 10 September 2013

Mental accounting practices of self-employed taxpayers are investigated in two studies. Interviews ($N = 30$) revealed that perceptions of the tax due differ widely. While a majority mentally segregate the tax component from their net income, others claim ownership of the gross income as a whole and consequently experience a loss when paying taxes. A survey ($N = 172$) shows that mental segregation is associated with age, income, and number of employees, and is further related to attitudes towards taxes and to self-reported compliance. It is concluded that especially inexperienced self-employed should be trained in favorable mental tax accounting practices to foster voluntary compliance.

Keywords: mental accounting, segregation, tax compliance, tax evasion, voluntary compliance

JEL classification: D81, H24, H26, M13

1. Introduction

The first years of self-employment are not always easy. Investments have to be made, marketing has to be done, commissions have to be solicited and carried out. Particularly income taxes are often a pitfall for inexperienced entrepreneurs: tax prepayments in the first year are based on estimations of revenues for this period, and most entrepreneurs are inclined to understate their true estimates to avoid paying too much tax in advance and to reduce the financial burden at the beginning of their self-employment. However, such behavior results in problems of liquidity in the succeeding business year, when additional tax claims from the previous year and tax prepayments for the current year have to be raised. To avoid unpleasant surprises regarding

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the tax due, interest groups like the Austrian Economic Chambers advise self-employed to save part of the revenue for the tax due by keeping an extra savings account for the expected tax payments (Wirtschaftskammern Österreich, 2012). But putting something aside in time for settling one's tax due some day in the future requires – to some degree – a sense of order and self-control.

A way to keep control over one's expenses is described by the theory of mental accounting (Kahneman and Tversky, 1984; Thaler, 1985). Richard Thaler defines mental accounting as “[...] the set of cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities” (Thaler, 1999, p. 183). It is assumed that income and expenses are assigned to separate mental accounts set up for different purposes such as the rent, food, entertainment, etc. By planning the expenses for specific areas of consumption and limiting oneself to the allocated budget, consuming too much in favored and too little in unfavored areas should be avoided.

First evidence for mental accounting and its behavioral consequences was reported by Kahneman and Tversky (1984). They found that only 46% of respondents were willing to buy another theater ticket after having noticed that they had lost their ticket bought in advance, but 88% indicated being willing to buy a ticket after having noticed the loss of cash of equal value. In contrast to the notion of fungibility in neoclassical economics, it mattered whether the loss occurred in the form of a ticket tied to a specific purpose, or of cash. The observation was interpreted as an effect of mental accounting: if costs for the lost theater ticket are entered in a specific mental account (e.g., entertainment), rebuying the ticket would mean debiting the same budget twice. Hence, reluctance towards further expenses in the same category would increase. The loss of a quantity of cash, on the other hand, would not affect the purchase decision, because the lost cash was not necessarily associated with a specific mental account.

Though mental accounting is commonly interpreted as a mechanism for self-control, most studies focus on phenomena where categorizing and labeling income and expenses results in economically irrational behavior (as in the theater-ticket scenario from Kahneman and Tversky, 1984), or where “loopholes” in one's rules for self-regulation are exploited – as illustrated by an anecdote about Mark Twain's smoking habits. To reduce his tobacco consumption the writer had decided to restrict himself to one cigar per day. He followed the self-imposed rule indeed, but started smoking bigger and bigger cigars “[until he...] could have used it as a crutch” (Twain, 1897; quoted after Cheema and Soman, 2006, p. 34). Research about positive consequences of mental accounting is relatively scarce. Kooreman (2000), for instance, showed that money provided as a child's allowance is most likely spent for the purpose intended by the child benefit system. Simply labeling the money

as a child allowance seems to lead to an allocation into a “children” account and reduces the likelihood of spending this form of income on something else. Regarding self-control in keeping a healthy diet, Krishnamurthy and Prokopec (2010) explored boundary conditions for the effect of mental budgeting of caloric intake on refraining from tempting sweets. In an early study, Rainwater, Coleman, and Handel (1959, cited in Heath and Soll, 1996) describe a sort of tin-can accounting by households, where money was kept in various envelopes, drawers, or tin cans symbolizing different purposes. By doing so it was assured that enough was saved to pay the bills for, e.g., gas and electricity at the end of the month. Tin-can accounting may be obsolete in times of cheap bank accounts and of paying bills by standing orders, but it can be seen as an extreme and explicit form of mental accounting with a similar underlying intent: to keep track of expenses for things we like, and to save money for things we don’t like but still have to pay – such as taxes.

Mental-accounting theory has been mainly applied in the field of consumer choice (e.g., Milkman and Beshears, 2009). Other areas of application range from investment decisions (e.g., Barberis and Huang, 2001) to health psychology (Waters et al., 2009). Interestingly, however, it has rarely been linked to tax compliance – with a few exceptions. Ashby and Webley (2008a) interviewed 19 hairdressers and beauticians about taxes, and asked their respondents about their handling of tips, which are liable to tax in the U.K., where the interviews were conducted. In general, motivation to declare tips as taxable income seemed to be low. A respondent justified her noncompliance regarding tips as follows: “I know it’s an actual income, the tax people would see that as an income, but it’s that individual saying thank you, a gratuity, I think people in the service industry they need the tips because their wages are low” (Ashby and Webley, 2008a, p. 205). It seems that tips are mentally separated from remaining income because they are perceived as a gift from customers rather than income that has to be declared. In a follow-up study using focus groups, Ashby and Webley (2008b) put forward the idea that mental accounting of tips depends on occupational culture. Whereas hairdressers exhibited a similar tax-averse mental accounting practice to the ones in the prior study, taxi drivers stated that they declare their tips, simply because it is too difficult to track what is tip and what is earned money in the rush of a Saturday night. Probably most relevant for the purpose of the present study, Adams and Webley (2001) conducted interviews about value added tax (VAT) with 27 owners of businesses from the catering trade, the flooring-and-furniture trade, and the building trade. Besides other findings, they report that entrepreneurs seem to differ widely in their perceptions of the VAT and interpret it as a form of mental accounting. A quote from one of the interviewees reads: “It is not a cost to the business, we are just looking after the money for the government. There is no point worrying

about paying. It is their money” (Adams and Webley, 2001, pp. 208–209). This entrepreneur seems to separate the VAT from his turnover into an own mental account, claims no ownership, and consequently expresses voluntary compliance.

The interviews by Paul Webley and colleagues (Adams and Webley, 2001; Ashby and Webley, 2008a; 2008b) suggest that mental accounting plays a role in taxpayers’ compliance. Mental accounting practices seem to depend partly on occupational culture (e.g., regarding the processing of tips) and thus vary between business sectors, but were also shown to differ substantially between individuals (e.g., in how the VAT is perceived and mentally processed). All three studies, however, explored very specific forms of tax compliance, and the low case numbers inherent in interview studies did not allow for a quantitative analysis of determinants and consequences of keeping a mental tax account. A deeper understanding of mental accounting practices in the context of paying taxes seems important, because it is likely that they affect tax compliance, as suggested by the interviews of Adams and Webley (2001).

The assumption of an extra mental account for tax liability allows for the hypothesis that taxpayers keeping such an account are less reluctant to pay their fair share. From decision theory (Kahneman and Tversky, 1979; Tversky and Kahneman, 1992) it is known that decision outcomes are evaluated relative to a subjective reference point. The same outcome may therefore be perceived either as gain or as loss, depending on what reference point the decision-maker has adopted. The prospect of a loss, however, sharply increases willingness to take risks. The notion of reference points and their influence on risk-taking behavior has frequently been applied in tax research (e.g., Dharni and al-Nowaihi, 2007; Kirchler et al., 2009; Muehlbacher et al., 2008; Schepanski and Shearer, 1995; Yaniv, 1999). However, little is known about which reference point taxpayers apply in their compliance decisions. But it is likely that – besides other factors – mental accounting practices affect taxpayers’ reference points. While keeping an extra mental tax account (i.e., segregating the tax liability from gross income) would result in the net income as a reference point, integrating the tax due with the net income would mean that outcomes of tax compliance and evasion are evaluated with respect to the gross income. In the former case, taking the risk of evading taxes, being audited, and being fined would mean an uncertain extra gain in addition to the net income. In the latter case, when the gross income is applied as reference point, paying taxes would be perceived as a loss that could be reduced (or avoided) by evasion. Hence, in theory, the mental accounting practice of segregation should yield higher compliance than integration, due to a reference-point effect.

Given the scarce evidence on mental tax accounting so far, the present paper aims at extending previous findings in two studies. In study 1, interviews with $N = 30$ self-employed taxpayers were conducted with the rationale to explore if the concept of mental accounting can also be applied in the context of income taxes. In study 2, a scale for measuring individual tendencies to keep an extra mental tax account was developed on the basis of the interview protocols from study 1. By means of the scale, an array of possible determinants and consequences of mental accounting were explored. The quantitative approach in study 2 allowed for analyzing the relevance of mental accounting for income tax compliance in a larger sample of $N = 172$ self-employed taxpayers.

2. Study 1: Interviews with Self-Employed Taxpayers

The first study to be reported applies a qualitative approach to describe different mental accounting practices of self-employed taxpayers. Overall, 30 interviews were conducted to answer the following research questions:

1. Do self-employed differ in mental accounting of their tax due, i.e., in keeping an own mental tax account by segregating the tax component from the revenue?
2. Do self-employed who mentally segregate taxes from other expenditures and revenues hold more positive attitudes towards taxes?
3. Has the mental accounting of taxes changed over time since the business was started?

2.1. Method

2.1.1. Sample and Procedure

Interview partners were recruited by two student assistants in their personal environment in the Vienna and Lower Austria region of Austria. Admission criteria for the interviews were being self-employed and being liable to taxes. All interview partners were asked by telephone for consent to participate in the study. They were not informed about the research rationale in advance, and in particular taxes were not mentioned during the invitation. Instead, they were told that the interview was about general money management by the self-employed. After their consent, individual appointments for face-to-face interviews were made. Interviews were semistructured, lasted between 15 and 60 minutes, and were conducted in the respondents' offices by two student assistants, who tape-recorded all interviews. Participants were not remunerated for their time. After the interview, a short questionnaire

was completed to gather information about participants' sociodemographics and their businesses. Interviews were conducted in July and August 2009.

Overall $N = 30$ self-employed taxpayers agreed to participate in the study. On average the 7 (23%) females and 23 (67%) males were $M = 41.47$ years old ($SD = 11.56$, range: 25–69 years) and had $M = 11.22$ years ($SD = 8.63$, range: 2.5–40 years) of experience in being self-employed. The majority were real estate agents (10, 33%) and graphic designers (8, 27%); the remaining respondents were engaged in financial services (3, 10%), electrical engineering (2, 7%), the building industry (2, 7%), computing (2, 7%), the trading sector (1, 3%), the textile sector (1, 3%), and the film business (1, 3%). The median of their gross income lies between 25,000 and 51,000 EUR (25th percentile = 11,000–25,000 EUR, 75th percentile = 51,000–60,000 EUR, 5 missings, 17%). The number of employees working for the interviewees ranged from 0 (11, 37%) to 25 (1, 3%) with an average of $M = 4.67$ ($SD = 7.01$). Of the employees, 25 (83%) engaged a tax advisor for preparing their tax reports.

2.1.2. Interview Guidelines

The interviews were semistructured and opened with a very general question about respondents' money management:

Being self-employed is not easy, because many things have to be done by yourself: you have to attract new businesses, you have various gains and costs which have to be budgeted in a way so that at the end you do not go away empty-handed. How is all of this handled in your business? Tell me about how you handle your revenues and expenditures: how are they composed and how do you administer them?

With intent, taxes were not mentioned in the first question, to see if respondents brought up this subject themselves when thinking about their money management. The next question, however, addressed taxes directly:

When talking about your expenditures you did (not) mention taxes. Tell me a little about your experiences and how you deal with taxes.

The next three questions explored changes in the management of taxes during respondents' careers as self-employed:

If you think back to the very beginning of your career as self-employed: what has changed since then regarding your money management?

Did anything change regarding how you administer your taxes?

How and when in your career did you first deal with taxes and their administration?

A final question aimed at understanding respondents' perceptions and handling of taxes in everyday life:

If you think about your everyday business: in which situations are you confronted with tax issues? When do taxes cross your mind?

After the interview, participants filled in a short questionnaire, indicating their sex, age, number of years' experience in being self-employed, and number of employees; whether they engaged a tax advisor; and in which sector they operated. Finally, participants wrote down reasons for being tax-compliant and reasons for evading taxes. These two questions were presented in open format, and participants could list as many reasons as they wanted.

2.1.3. Qualitative Data Analysis

The taped interviews were transcribed in detail, and the resulting protocols were subjected to a content analysis with respect to the research questions. Due to their availability and their background knowledge of the mental-accounting theory, two psychology students close to a master's degree served as independent raters. Raters were instructed to categorize all meaningful sentences from the interview protocols by a predefined categorization scheme. They were provided with a short definition of the two mental accounting practices, descriptions for each category, and an example statement for each category. Regarding the first research question, all statements allowing for conclusions about mental accounting were assigned to one of two categories: "mental segregation of the tax due and other payment flows" and "mental integration of the tax due and other payment flows." Interrater reliability was substantial, with 76% agreement and a free-margin κ of 0.64 (cf. von Eye and von Eye, 2008).

For the purpose of the third research question, responses to the interview questions regarding changes in mental accounting were categorized into another four categories: "mental integration at the beginning of self-employment and mental segregation now", "mental integration from the beginning up to now", "mental segregation at the beginning of self-employment and mental integration now", and "mental segregation from the beginning up to now". Again, interrater reliability was substantial, with 77% agreement and a free-margin κ of 0.71.

2.2. Results and Discussion

2.2.1. Do Self-Employed Differ in Mental Accounting of Their Tax Due?

Overall, 97 statements relevant to the first research question were extracted from the interview protocols, with the number of statements per person ranging from 0 to 10 with an average of $M = 3.23$ ($SD = 2.46$). Of these, 81 statements were indicative for mental segregation of the tax due and other forms of income and costs, ranging from 0 to 9 statements per person

with an average of $M = 2.70$ ($SD = 2.45$). Typical statements on segregation were, for instance:

“Important as self-employed is that you do not look at money that comes with a project as your own, since you have to subtract a lot from it” (Person 29)

“‘Revenues are available funds’ – Unfortunately that’s not true, and often such thinking is source of serious problems” (Person 22)

“From the past years I know approximately how much money I have to put aside for taxes” (Person 23)

“I transfer about 40% of revenues immediately to an extra bank account for taxes and social insurance, to avoid unpleasant surprises” (Person 22)

By contrast, overall 16 statements expressing integration of the tax due and other revenues and expenditures were found. The number of statements per person ranged from 0 to 3 with an average of $M = 0.53$ ($SD = 0.78$).

Typical examples for statements on integration were:

“I am not putting anything aside for paying my [income] tax per month, I simply take from the capital funds what I have to pay and book it as private withdrawal” (Person 21)

“Taxes do not really cross my mind when I see the revenue” (Person 8)

“At the beginning, we simply spent all money. As soon as we got something, we thought: ‘cool, let’s go on holiday. But as naïve as we were, you shouldn’t start a business...’” (Person 14)

“...there’s only one bank account for my business and everything I earn and I spend runs through this account. That’s it. And what I need for living, I just take out and that’s it” (Person 9)

Except for one case (Person 4), in all interview protocols statements were found that indicated one of the two extreme forms of mental accounting, namely, segregation and integration of the tax liability and other costs or revenues. Segregation implies that the gross income is not perceived as disposable income or as property, and some of the interviewed self-employed almost seemed to warn about potential liquidity problems as a consequence of a contrary view. As a measure to keep control over one’s financial activities, 8 persons (27%) explicitly reported and recommended keeping an extra real bank account for taxes and social security. Though explicitly mentioned by 2 respondents only (7%), an alternative way to separate one’s private from business expenses seems to be to transfer a fixed monthly amount – akin to a net wage – to an extra private account. Both ways show similarities to the practice of tin-can accounting in the 1950s described by Rainwater, Coleman, and Handel (1959, cited in Heath and Soll, 1996).

Though most evidence was found for segregation in the mental accounting of taxes, practices seem to differ widely: 1 respondent (3%) made no useful statement at all, 3 (10%) gave only statements expressing integration, 9 (30%) made statements indicating both forms of mental accounting, and

17 (57%) expressed solely segregation. The relatively large proportion of respondents who articulated both forms of mental accounting practices seems to suggest that segregation and integration vary not only across individuals but also individually across situations. For instance, a respondent mentioned that differences between gross and net costs become painfully clear when customers suggest cheating on the VAT; others reported a development over time of their perceptions and behavior regarding taxes. Though about one-third of respondents expressed both forms of mental accounting, some made more statements in favor of one of the two mental accounting practices than for the other and could therefore be classified as “soft” mental accountants in one or the other direction.

To capture the individual tendencies towards one of the two mental accounting practices – integration and segregation – a mental-accounting index was computed on the basis of the interview protocols. By calculating the ratio between the number of statements expressing segregation ($M = 2.70$, $SD = 2.45$) and the total number of statements on one of the two mental accounting practices ($M = 3.23$, $SD = 2.46$) for each respondent, a quantitative measure for the individual strength of mental accounting was obtained. The observed minimum of this index was 0, meaning a clear individual preference for integration; the maximum observed was 1, meaning a clear preference for segregation. With an average of $M = 0.74$ ($SD = 0.37$) in the mental-accounting index, a strong tendency to segregation was observed for the present sample of self-employed.¹

In a further analysis the mental-accounting index was used to test if mental segregation of the tax due enhances the cognitive availability of tax issues when thinking about revenues and costs of one’s business. For this purpose, only responses to the first question in the interview were analyzed, when participants were asked to talk freely about the financial administration of their business (“Tell me about how you are handling your revenues and expenditures: how are they composed and how do you administer them?”). The question did not necessarily imply taxes, but it was assumed that if taxes were an important enough issue for the respondent, the topic would be brought up in some form. The respective text passage in the interview protocols was analyzed with respect to mentioning of taxes and the point in time of the mentioning. A count was made of the number of words until tax issues (taxes in any form, tax office, or tax allowance) were addressed by the

1 A limitation in this conceptualization of the mental-accounting index is that by relating statements on segregation to the total number of statements, subtle differences among strict mental integrators are lost: if no statements on segregation were made, the index is always zero, regardless of the number of statements on integration. However, similar findings were obtained by employing a complementary index that related the number of statements on integration to the total.

participant ($M = 155.00$, $SD = 231.90$). To allow for individual differences in rhetorical routines, this number was divided by the total number of words in the text passage following question 1 until taxes were explicitly addressed by the interviewer ($M = 435.25$, $SD = 549.53$). The resulting ratio indicates the relative position of tax issues in the whole response to the first interview question and ranges from 0 to 1, with a value close to zero meaning that taxes were mentioned very early in the interview and a value of 1 meaning that the last word was about taxes. 10 (33%) respondents did not explicitly think about taxes before being asked about the topic by the interviewer; their value for the relative-position index was set to 1, corresponding to the latest position possible. On average, respondents addressed tax issues in the last third of their answer to the first question ($M = 0.65$, $SD = 0.35$). Correlational analysis of the relative-position index and the mental-accounting index shows that tax issues were brought up earlier by respondents if their preference for segregating the tax liability from other expenditures and revenues was high ($r(28) = -0.41$, $p = 0.03$). Keeping an extra mental tax account seems to enhance the ease with which taxes come into consciousness when thinking about cash flows.

2.2.2. Mental Accounting and Attitudes Towards Taxes

In the short questionnaire following the interviews, participants were asked to name reasons for paying taxes honestly and for evading taxes. The open format of the question allowed participants to list as many reasons as came to mind. To quantify respondents' attitudes towards taxpaying, the reasons given for being compliant and for evading taxes were counted. On average, respondents named $M = 1.47$ ($SD = 0.73$, range: 1–4) reasons for being compliant, and $M = 1.03$ ($SD = 0.89$, range: 0–3) reasons that would justify tax evasion. An attitude index was constructed by computing the ratio of the number of reasons for being compliant to the total number of reasons. The resulting index ranged from 0.25 to 1, with higher values indicating a more positive attitude. The average $M = 0.65$ ($SD = 0.25$) reflects a fairly high tax morale for the sample. The attitude index was positively related to the mental-accounting index ($r(28) = 0.36$, $p = 0.05$). It seems that the mental accounting practice of segregation is linked to higher tax morale.

2.2.3. Changes in Mental Accounting of Taxes due to Experience

To explore whether and how mental accounting practices have changed with experience in being self-employed, responses to the three interview questions addressing this subject directly were analyzed ("If you think back to the very beginning of your career as self-employed: what has changed since

then regarding your money management?"; "Did anything change regarding how you administer your taxes?"; "How and when in your career did you first deal with taxes and their administration?"). Four hypothetical possibilities regarding changes in segregation versus integration emerge: First, self-employed may start with integration of the tax due and other costs and benefits (e.g., due to a naïve approach) and later on (e.g., due to learning by experience) switch to segregation. Second is the opposite, segregation at the beginning (e.g., due to tight money constraints) and integration later on (e.g., when an employee takes over accountancy or liquidity is no longer a problem). Third and fourth are preferences for one of the two mental accounting practices, constant over time.

12 respondents (40%) stated that they had integrated tax liabilities and other money at the beginning, but switched to segregation with experience. An exemplary statement is given below:

"Back then, at the beginning of my self-employment, I was concentrated on work and got lost [with my accountancy]... now I put aside money for income tax and the VAT and put it on an extra bank account in the moment I receive it from my customer (Person 29)"

Although respondents were not asked why they changed or adhered to their practices in money management, one potential explanation for switching from integration to segregation lies in a learning process. If entrepreneurs learned through experience that segregation would psychologically facilitate administration of tax issues, this would explain their change towards segregation. That tax behavior is subject to a learning process was suggested by several previous studies (e.g., Eriksen and Fallan, 1996; Mittone, 2006). Kirchler (1999), for instance, showed that psychological reactance² towards taxpaying declines with business experience and tax-related attitudes improve.

13 respondents (43%) indicated that they had segregated from the start of their business up to the present:

"... as I said before, with this rule, to keep back 50 percent of my revenue, which always served me well until today... From the beginning on, I have put 50 percent immediately on a saving account (Person 16)"

The reason for early segregation might lie in attendance at training courses for founders or acting on advice from information brochures such as the one cited in the introductory section (Wirtschaftskammern Österreich, 2012), which explicitly recommends putting aside enough money in an extra savings account. Further, some authors argue that mental accounting is more pronounced among low-income earners (e.g., Antonides, de Groot, and van Raaij, 2011). This would mean that segregation occurs due to low revenues

2 Reactance is a term from social psychology meaning the emotional tension in reaction to constraints of freedom, resulting in attempts to resume one's liberty (Brehm and Brehm, 1981).

at the start of a business. On the other hand, income effects cannot explain why self-employed stick to this mental accounting practice in the later course of their business.

Interestingly, the remaining two possibilities – switching from segregation to integration, and starting with and sticking to integration – were not reported in the interviews. Responses from five participants (17%) allowed for no conclusions regarding development of mental accounting practices.

3. Study 2: Determinants and Consequences of Mental Tax Accounting

The qualitative approach in study 1 allowed for describing the mental accounting practices of integration and segregation in detail, and provided first anecdotal evidence for the relevance of the mental accounting concept in the context of paying taxes. However, the small sample sizes inherent in such methods seriously restrict generalization of findings. Further, recruiting self-employed from the personal environment of study assistants may have led to biased responses. Consequently, study 2 applied a quantitative approach analyzing a larger sample ($N = 172$) of self-employed taxpayers. On basis of the interview protocols from the previous study a Likert-type scale was developed, measuring the individual preference for integrating or segregating the tax due with respect to other forms of revenue.

By means of the mental-accounting scale, potential correlates of integration and segregation were explored. First, sociodemographic variables and business characteristics were tested as predictors for the mental accounting practice. Next, higher tax morale – i.e., tax compliance behavior and its underlying motivation (Veit, 1927) – was studied as a potential consequence of segregation.

3.1. Method

3.1.1. Sample and Procedure

The sample for the second study was recruited via invitations sent out by five Austrian guilds in Carinthia, Lower Austria, Upper Austria, and Vienna. Overall, 9,750 members of the guilds either received a link to an electronic version of the questionnaire in an e-mail from their organization, or found the same link in the guild's newsletter. The link to the questionnaire was opened by 665 (7%) of contacted members, and 172 (2%) completed the survey. The response rate of 2% may appear low, but in view of the unintrusive invitation for participation it is not surprising: a majority received the link as one of several requests in a newsletter, and participants were not remunerated for

completing the questionnaire. The initial question in the survey was about self-employment, to ensure that only self-employed participated in the study. This was always the case. Data was collected from March to April 2010.

The sample consisted of $N = 172$ self-employed taxpayers. The 27% females and 73% males were $M = 46.21$ years old ($SD = 8.75$, range: 25–72 years) and had $M = 15.60$ years ($SD = 10.69$, range: 1–45 years) of business experience. 39% were engaged in the food and beverage sector, 23% were carpenters, 17% were from the tourism sector, 2% were plumbers, and 19% worked in other sectors. Their median annual gross income was between 20,000 and 30,000 EUR (25th percentile = 10,000–20,000, 75th percentile = 30,000–40,000, 19 missings, 11%). On average, participants had $M = 6.32$ employees ($SD = 8.86$, range: 0–56). A majority of 92% indicated engaging a tax advisor.

3.1.2. Material

To explore determinants and consequences of mental tax accounting a Likert scale was developed. Initially the 37 most distinctive statements were selected from the interview protocols of study 1, and 5 additional statements were taken from the interviews by Adams and Webley (2001). A group of five experts (three student assistants and the two authors) revised and summarized the 42 preliminary items. The statements were simplified, corrected for written grammar, and purged of redundancies, yielding a total of 17 items. Participants indicated agreement with the 17 statements on a 7-point scale (1: completely disagree; 7: completely agree). A first analysis of descriptive statistics and inter-item correlations resulted in the exclusion of four items due to strong ceiling effects ($Mdn = 7$ and $Mdn = 1$, respectively), and three further items due to low inter-item correlations (all $r < 0.3$). The remaining 10 items were subjected to a factor analysis, which will be reported in the results section. The final 10 items forming the mental-accounting scale are depicted in table 1.

In addition to the mental-accounting scale, the survey contained four scales measuring different aspects of participants' tax morale. First, 10 items measuring participants' motivational postures were taken from Braithwaite (2003), who distinguishes overall five different motivational postures towards tax authorities, the tax system, and taxpaying. Two of the postures stand for a positive ("deference") and three postures for a negative ("defiance") relationship with tax authorities. For reasons of test efficiency, only two items per posture were taken from Braithwaite's original questionnaire and averaged to form a measure for deference (four items, $\alpha = 0.75$, $M = 5.23$, $SD = 1.21$), capturing positive attitudes such as satisfaction with the tax system, and a measure for defiance (six items, $\alpha = 0.46$, $M = 3.51$, $SD = 0.96$), reflecting

negative attitudes and behavior towards the tax system such as the enjoyment of “playing” with authorities by exploiting loopholes in the law. Second, 10 items were taken from the TAX Inventory by Kirchler and Wahl (2010) measuring the motives of enforced and voluntary compliance. While the motivational postures predominantly concern taxpayers’ perceptions of authorities and the tax system as a whole, the enforced- and voluntary-compliance scales capture motives underlying taxpaying behavior. High values on enforced compliance (five items, $\alpha = 0.75$, $M = 4.26$, $SD = 1.48$) express compliance due to coercion by audits and fines, whereas scoring high on voluntary compliance (five items, $\alpha = 0.87$, $M = 4.48$, $SD = 1.50$) means that taxes are paid as a matter of course and to support the community. The exact wording of items can be found in Kirchler and Wahl (2010) and in Braithwaite (2003)³. All scales were presented in a 7-point response format (1: completely disagree; 7: completely agree). To simplify the reporting of subsequent analyses, scores of the four scales concerned with different aspects of tax morale were averaged on the basis of a principal-component analysis suggesting two dimensions ($\lambda = 2.00$, 50% of variance; $\lambda = 1.03$, 26% of variance).⁴ Averaged scores on the deference and the voluntary-compliance scales served as an index for positive attitudes towards taxes (nine items, $\alpha = 0.89$, $M = 4.85$, $SD = 1.26$); those on the defiance and enforced-compliance scales served as an index for negative attitudes towards taxes (eleven items, $\alpha = 0.66$, $M = 3.88$, $SD = 0.96$).

Next in the questionnaire was a dichotomous item on self-reported tax evasion (“Have you ever evaded taxes?” 1: yes; 0: no).

Finally, participants were asked to indicate their sex, age, income (below 10,000 EUR, 10,000–20,000 EUR, 20,000–30,000 EUR, 30,000–40,000 EUR, 40,000–50,000 EUR, 50,000–60,000 EUR, more than 60,000 EUR), number of employees, years of experience in being self-employed, business sector, and whether they engaged a tax advisor. To correct for nonnormality and positive skewness, experience in being self-employed, number of employees, and income (class midpoint) were log₁₀-transformed.

3.2. Results

3.2.1. Factor Analysis and Scale Characteristics

A principal-component analysis was conducted on the 10 items of the mental accounting scale with oblique rotation (oblimin). Three factors with an

- 3 Referring to table 2.1 in Braithwaite (2003, p. 20), selected items were numbers 3 & 8 for commitment, 4 & 5 for capitulation, 2 & 4 for resistance, 2 & 3 for disengagement, and 3 & 4 for game playing.
- 4 However, similar findings were obtained when analyses were repeated with the four separate scales on tax morale.

eigenvalue > 1 were found. Table 1 shows the wording of items, eigenvalues for all three factors, and the rotated factor loadings. About 32% of variance is explained by the first factor, with the highest loadings on 6 of the 10 items. The content of the respective statements suggests that this factor captures mental segregation of taxes in its narrow sense (e.g., item 4: “I know relatively well, how much money I have to put aside for paying my income tax”). The next factor consists of two items only and explains about 13% of variance; it again refers to segregation, but seems to stand for physical segregation of the tax due by transferring money to a real extra bank account (e.g., item 8: “In my experience it makes sense to have a separate bank account to put aside something for the income tax”). The last two items account for the third factor, explaining about 11% of variance. Both items address perceived ownership of the money that has to be paid as taxes (e.g., item 9: “I never really look upon the money I pay as income tax as my money”).

To summarize, the general mental-accounting scale consists of three subscales measuring different aspects of segregation: the “mild” form of mental segregation, the more explicit form of physical segregation, and the perceived ownership of the tax component of gross income. The last could also be interpreted as one of the consequences of segregation. Internal consistencies, means, and standard deviations for each subscale are presented in table 1. Values on all three dimensions, i.e., responses to all 10 items, were averaged to form the mental-accounting scale. The resulting index (ten items, $\alpha = 0.75$, $M = 4.11$, $SD = 1.14$) ranged from 1.44 to 6.94, with higher values standing for strong preference in favor of segregating the tax due.

3.2.2. Determinants and Consequences of Segregation

Developing a measure for the mental accounting practices of integration and segregation allowed for exploration of potential determinants and consequences of mental tax accounting. Zero-order correlations between all measures of the survey are provided in table 2. From this analysis it seems that mental accounting is associated with positive attitudes towards taxes, self-reported tax evasion, age, number of employees, and the occupation carpenter (though correlations with the last two variables are only marginally significant). To check if these relations still hold when controlling simultaneously for all variables, several regression analyses were conducted. First, the mental-accounting index was treated as a dependent variable to explore its potential determinants. Second, it was included as a potential predictor in a regression of tax morale, i.e., the measures for positive and negative attitudes towards taxes and for self-reported tax evasion behavior. Although modeling attitudes and tax behavior as potential consequences of mental accounting practices may give the impression of clear-cut causality, it has

Table 1
Principal-Component Analysis of the Items for the Mental Accounting Scale
 ($\alpha = 0.75$, $M = 4.11$, $SD = 1.14$) After Oblique Rotation (oblimin)

Factor	Item	F1	F2	F3
F1. Mental segregation ($\lambda = 3.18$, $\alpha = 0.76$, $M = 4.11$, $SD = 1.35$)				
	1. When planning my sales at the beginning of a year, I already think about how much the fixed costs and the tax liability will be	.80	.12	-.08
	2. When I earn some money I automatically think about the incidental taxes	.69	.00	.15
	3. When doing my cost estimations I am always thoroughly computing how much exactly remains for myself after paying my fixed expenses and income tax	.67	-.04	.20
	4. I know relatively well, how much money I have to put aside for paying my income tax	.66	.04	-.12
	5. I always put some money aside for the case the tax office claims additional payments	.52	-.27	.09
	6. Instantly after a customer has paid me, I am mentally deducting roughly the amount I will have to pay as taxes later on	.50	-.28	-.05
F2. Physical segregation ($\lambda = 1.34$, $\alpha = 0.53$, $M = 4.12$, $SD = 1.67$)				
	7. I think it is essential to put aside an appropriate amount of money extra for the income tax	.01	-.80	-.05
	8. In my experience it makes sense to have a separate bank account to put aside something for the income tax	.05	-.77	.07
F3. Perceived ownership of tax money ($\lambda = 1.07$, $\alpha = 0.52$, $M = 4.10$, $SD = 1.74$)				
	9. I never really look upon the money I pay as income tax as my money	.13	.19	.84
	10. The income tax virtually is money we are looking after for the government, my customers are paying it	-.13	-.23	.77

to be emphasized that due to the cross-sectional data of the present study, inferences on the direction of the effects are not feasible. Critical reflections on causality issues are provided in the general discussion.

To explore determinants of the individual preference for segregating the tax due from the gross income, participants' scores on the mental-accounting scale were analyzed by OLS regression with predictors sex, age, experience in being self-employed, level of income, number of employees, a dummy vari-

Table 2
Intercorrelations (Pearson) of Measures in Study 2

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Mental accounting scale	4.11 (1.14)	–											
2. Positive attitudes towards taxes	4.85 (1.26)	.23**	–										
3. Negative attitudes towards taxes	3.88 (0.96)	.03	–.25***	–									
4. Self-reported tax evasion ^a	.27 (.45)	–.19*	.01	–									
5. Sex ^b	.73 (.45)	.07	–.09	.20**	–								
6. Age	46.21 (8.75)	.17*	–.07	–.03	.22**	–							
7. Business experience in years ^c	1.04 (0.42)	–.01	–.03	.06	.26***	.61***	–						
8. Income ^c	4.30 (0.35)	.11	–.05	.09	.08	–.05	–.06	–					
9. Number of employees ^c	0.64 (0.44)	–.15†	–.10	.02	.11	.03	.21**	.27***	–				
10. Engages tax advisor ^d	.92 (.27)	–.06	–.01	.12	–.08	–.02	.15*	.06	.26***	–			
11. Occupation plumber ^e	–.17 (.43)	–.08	.19*	.07	.03	.09	.06	–.17*	.08	–.01	–		
12. Occupation carpenter ^e	.04 (.65)	–.15†	.14†	.09	.11	.08	.07	–.19*	.02	–.05	.71***	–	
13. Occupation in tourism sector ^e	–.02 (.60)	–.11	.17*	.01	–.07	.17*	.08	–.05	.22**	.03	.73***	.50***	–
14. Occupation in food sector ^e	.20 (.74)	–.02	.17*	.09	–.07	–.05	–.04	–.19*	.01	.11	.71***	.39***	.45***

Note: $N = 172$. ^a Coded 1 = “has evaded taxes”, 0 = “always compliant”. ^b Coded 0 = female, 1 = male. ^c Log₁₀-transformed. ^d Dummy-coded. ^e Effect coded with reference category “Other occupation”.
 † $p < 0.10$. * $p \leq 0.05$. ** $p \leq 0.01$. *** $p \leq 0.001$.

able indicating if participants engaged a tax advisor, and effect-coded dummy variables for occupational group. A summary of this analysis is depicted in table 3. The model explained about 12% of the variance, with age as the strongest predictor of the mental-accounting scale. Preference for segregation increased with age, was positively related to income, and was negatively related to number of employees, though the effect of the last two variables was only marginally significant. Experience in being self-employed seems not to affect mental accounting practices. Hence, no evidence for a learning process due to experience was observed.

Table 3
OLS Regression Predicting Mental Accounting

Variable	Mental accounting scale		
	<i>B</i>	<i>SE B</i>	β
Constant	-0.02	0.33	
Sex ^a	0.14	0.18	.06
Age	0.28	0.10	.28**
Business experience in years ^b	-0.14	0.10	-.14
Income ^b	0.14	0.08	.14†
Number of employees ^b	-0.14	0.09	-.14†
Engages tax advisor ^c	-0.07	0.30	-.02
Occupation plumber ^d	0.20	0.40	.09
Occupation carpenter ^d	-0.27	0.17	-.17
Occupation in tourism sector ^d	-0.18	0.19	-.11
Occupation in food sector ^d	0.10	0.15	.08

Note: $N = 172$, $R^2 = 0.12$, $F(10, 161) = 2.17^*$. Criterion was the mental accounting scale. B = unstandardized coefficient, $SE B$ = standard errors, β = standardized coefficient. All nondichotomous variables are z -transformed. All tolerance values were greater than 0.40, except for "Occupation plumber" (0.19).

^a Coded 0 = female, 1 = male. ^b \log_{10} -transformed. ^c Dummy-coded. ^d Effect coded with reference category "Other occupation".

† $p \leq 0.10$. * $p \leq 0.05$. ** $p \leq 0.01$.

To analyze potential consequences of segregation, participants' scores on the mental-accounting scale were used as predictors in further regression analyses. First, the indices for positive and negative attitudes towards taxes – summarizing different aspects of tax morale (Braithwaite, 2003; Kirchler and Wahl, 2010) – served as criteria. Second, self-reported tax evasion behavior was regressed on all measures of the survey.

Table 4
OLS Regression Predicting Positive Attitudes Towards Taxes

Variable	Positive attitudes towards taxes		
	<i>B</i>	<i>SE B</i>	β
Constant	-0.11	0.33	
Mental-accounting scale	0.22	0.08	.22**
Sex ^a	-0.08	0.18	-.03
Age	0.22	0.10	.22*
Business experience in years ^b	-0.15	0.10	-.15
Income ^b	-0.01	0.08	-.01
Number of employees ^b	-0.07	0.09	-.07
Engages tax advisor ^c	0.15	0.30	.04
Occupation plumber ^d	-0.02	0.39	-.01
Occupation carpenter ^d	0.15	0.17	.09
Occupation in tourism sector ^d	0.16	0.19	.10
Occupation in food sector ^d	0.14	0.15	.10

Note: $N = 172$, $R^2 = 0.15$, $F(11, 160) = 2.48^{**}$. Criterion was the index for positive attitudes towards taxes. *B* = unstandardized coefficient, *SE B* = standard errors, β = standardized coefficient. All nondichotomous variables are *z*-transformed. All tolerance values were greater than 0.40, except for "Occupation plumber" (0.19).

^a Coded 0 = female, 1 = male. ^b Log₁₀-transformed. ^c Dummy-coded. ^d Effect coded with reference category "Other occupation".

* $p \leq 0.05$. ** $p \leq 0.01$.

The index for positive attitudes towards taxes was subjected to OLS regression analysis with the mental-accounting scale as predictor. In addition, sociodemographic variables and business characteristics were included in the regression model. Table 4 shows a summary of regression results. The model explained 15% of the variance. Preferences for segregation and age were positively related to positive attitudes towards tax authorities and tax-paying. A similar analysis with the index for negative attitudes towards taxes as dependent variable yielded only a marginally significant regression model ($p = 0.07$), explaining about 11% of the variance. Negative attitudes were more pronounced among participants engaging a tax advisor and (with marginal significance) negatively related to number of employees. Results of the regression analysis are shown in table 5.

Mental accounting seems to be associated with positive postures towards taxpaying. The stronger their preferences for segregating the tax due, the more the participants hold motivational postures of deference, and the more they indicate complying voluntarily. In a final analysis, the relation of mental accounting and tax compliance behavior is tested.

Table 5
OLS Regression Predicting Negative Attitudes Towards Taxes

Variable	Negative attitudes towards taxes		
	<i>B</i>	<i>SE B</i>	β
Constant	-0.90	0.34	
Mental-accounting scale	0.01	0.08	.01
Sex ^a	-0.03	0.18	-.01
Age	-0.03	0.10	-.03
Business experience in years ^b	-0.03	0.10	-.03
Income ^b	0.01	0.09	.01
Number of employees ^b	-0.14	0.09	-.14 [†]
Engages tax advisor ^c	1.01	0.30	.27***
Occupation plumber ^d	0.12	0.40	.05
Occupation carpenter ^d	-0.26	0.17	-.17
Occupation in tourism sector ^d	0.04	0.20	.02
Occupation in food sector ^d	0.10	0.15	.07

Notes: $N = 172$, $R^2 = 0.11$, $F(11, 160) = 1.72^{\dagger}$. Criterion was the index for negative attitudes towards taxes. B = unstandardized coefficient, $SE B$ = standard errors, β = standardized coefficient. All nondichotomous variables are z -transformed. All tolerance values were greater than 0.40, except for "Occupation plumber" (0.19).

^a Coded 0 = female, 1 = male. ^b \log_{10} -transformed. ^c Dummy-coded. ^d Effect coded with reference category "Other occupation".

[†] $p \leq 0.10$. *** $p \leq 0.001$.

Participants were asked to report their tax behavior in the past. In a quite direct question they were requested to indicate with 1 (yes) or 0 (no) if they had ever evaded taxes. Only 6 (4%) left this question unanswered; 27% of remaining participants answered yes. Self-reported evasion was analyzed by logit regression with the same predictors as before in the first step, and inclusion of the indices for positive and negative attitudes towards taxpaying in the second step. Estimation results are depicted in table 6. The first model explains 19% of the variance (Nagelkerkes R^2), with mental accounting, sex, and – though only marginally significant – income as predictors of self-reported behavior. Whereas a preference for segregation seems to decrease tax evasion, sex and income were positively associated. Including the attitude indices to the second model, increases explained the variance with only marginal statistical significance ($p = 0.07$), though the final model is significant at $\alpha = 0.05$ and explains about 24% of the variance (Nagelkerkes R^2). In the final model, the indices for positive attitudes toward taxes and for sex are significantly associated with self-reported behavior, and the mental accounting scale ($p = 0.07$) and income ($p = 0.10$) with marginal statistical

Table 6
Hierarchical Logit Regression Predicting Self-reported Tax Evasion

Variable	Self-reported tax evasion ^a					
	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	<i>OR</i>	<i>B</i>	<i>SE B</i>	<i>OR</i>
Constant	-7.06	4320.94		-7.21	4287.54	
Mental accounting scale	-0.52	0.22	0.60*	-0.41	0.23	0.66†
Sex ^b	1.24	0.54	3.44*	1.28	0.56	3.60*
Age	-0.22	0.26	0.81	-0.12	0.27	0.89
Business experience in years ^c	0.04	0.27	1.04	-0.02	0.27	0.99
Income ^c	0.40	0.24	1.50†	0.41	0.25	1.51†
Number of employees ^c	-0.22	0.22	0.80	-0.28	0.23	0.75
Engages tax advisor ^d	1.19	1.17	3.28	1.24	1.18	3.45
Occupation plumber ^e	-16.10	17283.77	0.00	-16.23	17150.17	0.00
Occupation carpenter ^e	4.33	4320.94	76.11	4.46	4287.54	86.23
Occupation in tourism sector ^e	3.95	4320.94	52.08	4.07	4287.54	58.64
Occupation in food sector ^e	4.22	4320.94	67.67	4.30	4287.54	73.55
Positive attitudes towards taxes				-0.49	0.22	0.61*
Negative attitudes towards taxes				-0.08	0.22	0.92
Nagelkerkes <i>R</i> ²		0.19			0.24	
χ^2		21.20*			26.50*	
ΔR^2					0.05	
$\Delta \chi^2$					5.30†	

Note: *N* = 172. Criterion was self-reported tax evasion. *B* = unstandardized coefficient, *SE B* = standard errors, *OR* = odds ratio. All nondichotomous variables are *z*-transformed.

All tolerance values were greater than 0.38, except for "Occupation plumber" (0.16).

^a Coded 1 = "has evaded taxes," 0 = "always compliant." ^b Coded 0 = female, 1 = male. ^c Log₁₀-transformed. ^d Dummy-coded. ^e Effect coded with reference category "Other occupation".

† *p* ≤ 0.10. * *p* ≤ 0.05.

significance. High standard errors for occupational dummy variables in both models indicate presence of multicollinearity; coefficients for these variables should therefore not be interpreted.

Self-reported tax evasion was associated with mental accounting practices. Mental segregation of the tax due seems to be related with tax compliance. The reduction of effect when controlling for tax attitudes suggests mediation (Baron and Kenny, 1986), though with the present data it remains unclear which variable mediates the other.

4. General Discussion

Mental accounting seems to matter in the context of paying taxes. Study 1 showed the divergent views self-employed hold when thinking about taxes. The majority expressed a preference for segregation of the tax liability and turnover. In other words, some taxpayers seem to keep a separate mental tax account to put aside money for their tax due. Others tend to integrate taxes and other costs and revenues, resulting in the feeling of ownership for the whole gross income, the VAT, etc. No wonder that they find it harder to pay taxes than segregators, since from their point of view they pay taxes out of pocket. Similar differences in the perception of taxes were found in interviews by Adams and Webley (2001) with respect to the VAT. Our research extends this previous work by generalizing the observation to other taxes, in particular income tax, and presents a quantitative measure for individual preferences on integration and segregation. The mental-accounting scale allowed for exploring possible determinants and consequences of different mental accounting practices, and therefore provided further evidence for the relevance of mental accounting in taxpaying.

Preferences for segregation of income and other costs or revenues, as measured by the mental-accounting scale, depended on age, income, and number of employees. Regarding changes in mental accounting practices over time, respondents in the interview study either reported having already started mental segregation of the tax due at the beginning of their business activities, or switched from integration to segregation in the course of experience. However, in the survey study no relation between business experience and mental accounting practices was observed. If segregation is a matter of experience, the connection seems to be quite complex. In reality, experience is likely to be correlated with age and income, which in turn are related with number of employees. All of these variables were found to affect mental accounting in our study, but in opposite directions. Hence, by contrast to observations in our survey, experience and mental accounting may still be indirectly related.

The different mental accounting practices were found to be related with tax morale. Segregation was associated with more positive views of the tax system (Braithwaite, 2003) and with a more favorable attitude toward voluntary compliance (Kirchler, Hoelzl, and Wahl, 2008). In line with previous studies, positive attitudes were further related to age of participants (Braithwaite, Reinhart, and Smart, 2010; Muehlbacher, Kirchler, and Schwarzenberger, 2011). Negative postures towards taxes were not related to mental accounting. Differentiating positive from negative aspects of tax morale has become quite common in tax psychology (e.g., Braithwaite, 2003; Prinz, Muehlbacher, and Kirchler, in press), and, as in our study, the two dimensions

are frequently shown to be affected by different factors (e.g., Muehlbacher and Kirchler, 2010; Wahl, Kastlunger, and Kirchler, 2010).

In the interviews mental accounting was associated with the time until tax issues were brought up. This suggests that segregation increases the mental availability of tax issues. Accordingly, segregators may reflect more on their tax behavior than integrators, which is likely to affect their compliance decisions. Indeed, self-reported tax behavior in our survey was associated with mental accounting practices. Participants with a preference for segregating the tax due were less likely to report having evaded taxes in the past. Besides mental accounting, in accordance with the tax literature, sex and income were found to be further predictors of self-reported tax behavior. Males have long been suspected to be more prone to evasion (cf. Kastlunger, Dressler, Kirchler, Mittone, and Voracek, 2010), and, as in our study, more compliance among high-income earners has been frequently observed. However, also the opposite relation of income and compliance was found in previous research (for a review of empirical findings on income effects see Kirchler, Muehlbacher, Kastlunger, and Wahl, 2010). Though stronger compliance of older taxpayers was reported from several empirical analyses (e.g., Torgler, 2007; Vogel, 1974), age was not associated with self-reported tax evasion in our study. A potential explanation lies in the method of relying on self-reports: with age, also the number of passed opportunities for evasion increases; hence an older taxpayer who indicates having evaded taxes once in her lifetime might be admitting to a smaller crime than younger taxpayers who admitted having evaded at their very first opportunity (for critical discussions of self-reported tax behavior see Elffers, Weigel, and Hessing, 1987; Elffers, Robben, and Hessing, 1992; Gërkhani, 2007).

Mental accounting and self-reported tax behavior were still related when controlling for attitudes towards taxes, though the remaining relation was only of marginal statistical significance. This could indicate a mediational effect of one of the variables (Baron and Kenny, 1986), but the nature of the mediational mechanism remains unclear. Either attitudes mediate the effect of mental accounting on behavior, or more positive attitudes improve mental accounting practices, resulting in more compliance. Potentially, attitudes and mental accounting might even be consequences of behavior, as discussed below.

Perhaps the most important limitation to the present study is that cross-sectional analysis does not allow for inferences on causality. Though intuitively it seems more plausible that mental accounting practices affect tax compliance, it cannot be excluded that segregation is a consequence of behavior. Compliance caused by other factors may stimulate more accurate accounting. Slightly in opposition to this argument stands our observation that negative postures towards taxes such as the motivation of enforced

compliance (Kirchler, Hoelzl, and Wahl, 2008) were not related to mental accounting practices. However, in future research the direction of effect should be clarified by longitudinal field studies or lab experiments.

A further critical point concerns assumptions made for developing the mental-accounting scale. It is unclear if mental accounting is a conscious process or a partially unconscious control mechanism working in the background. Statements provided in the items of the scale might have induced a more thorough thinking about everyday money management, which could have confounded the measure for mental accounting.

Since the present study is the first exploring the mental accounting phenomenon in the context of taxes with a larger sample, it may be too early to draw conclusions for the practice of self-employed taxpayers or for tax administration. Nevertheless, first results provide evidence that the concept of mental accounting is useful in understanding tax behavior. As already suggested by Adams and Webley (2001), “educating” taxpayers towards proper mental accounting strategies seems to be a promising way to increase compliance. Such education could be achieved by brochures, by training courses, or by friendly and supportive personal contact with the tax office at the beginning of a taxpayer’s career. Another way to facilitate positive mental accounting practices is to provide the option for self-employed to pay a fixed part of revenue immediately as a voluntary tax prepayment. Compared to a quarterly tax prepayment, an immediate transfer would make tax issues more present in everyday calculations, and several small individual payments, if small enough, might hurt less than their quarterly sum. Keeping an extra mental tax account seems to be profitable for both taxpayers and authorities. While for authorities the obvious advantage lies in higher compliance and higher revenues, for taxpayers mental accounting makes it easier to keep track of income and expenses, and to alleviate their reluctance to pay taxes.

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