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DETERMINANTS OF TAX FAIRNESS PERCEPTION AND THE ROLE OF SELF-INTEREST - RESULTS FROM TWO GERMAN SURVEYS

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Abstract

This paper discusses why citizens perceive a tax system as fair or unfair. We review the literature about tax fairness and tax preferences. From this literature, we extract the most common explanations for tax fairness perception. Most important are the topics of vertical and horizontal fairness, complexity and the discussion between the benefit and the ability-to-pay-principle. Within these topics, we deal also with very current topics like the controversy between capital and labor taxation or the affluence tax. To answer the questions how the tax fairness is perceived in Germany and what criteria are most useful to explain these attitudes, we conduct two surveys. One is a convenience sample, by the help of SoSciPanel a German online respondent pool, and the other is a student survey. Also, the role of self-interest in these aspects is addressed. Especially we want to shed light on the role of income expectations by the difference between the full population survey and the student survey, since the latter group is more homogenous in actual income.

Keywords: Public Economics, Taxation, Fairness, Trust

JEL Classifications: H11, H20

1. Introduction

For a very long time, taxation and fairness have been seen as related issues, probably even since the beginnings of taxation. Already in the seventeenth century, it was argued that it would be fairer to calculate the taxes according to resource extraction, instead of resource creation (Hobbes, 1651/2011). In other words, Hobbes (1651/2011) preferred a tax system based on consumption over a system that taxes income and thus contributed to a controversial discussion between supporters of both types. Nonetheless, even within a certain tax system, the question of fairness remains difficult. The focus of this chapter is the discussion of the topic of fairness within the scheme of income taxes. Throughout the chapter, the term "tax" will thus be used in terms of "income tax". This focus on the fairness of a single tax is taken in full awareness of the fact that the fairness of taxation as such could only be evaluated by taking a look at the whole system and how different taxes work together (Brunner, 2014). The fairness of taxation always depends on

two elements: firstly, the fair design of an individual tax and secondly an evaluation of how the different taxes work together. With this in mind, it is possible that shortcomings of one tax are balanced out by the application of a second. Nevertheless, the basic principles stay the same. This chapter attempts to figure out these fundamental issues.

Since fairness is a subjective issue (Wilensky, 1976), survey data will be used to answer the main questions of this chapter: how can we understand the perceptions about the fairness of the German tax system. To answer this, the first step is to figure out the degree of fairness the participants assign to their tax system, a question which is asked directly in the survey. The next step is to relate this answer to the different explanatory concepts of fairness perceptions presented in section two of this chapter. The interpretation of the survey questions about these concepts is twofold. Generally speaking, the answers tell us how people think about, for example, progressive taxation. It is interesting to know if taxpayers perceive this element of the tax system as fair or unfair. In addition to that, however, combining these pieces of information with the general fairness perception, statistical methods like an ordered logit regression and an exploratory factor analysis will allow us to figure out to what degree the evaluation of such specific elements influence the overall assessment. To again give an example: it could be the case that taxpayers see progressive taxation as unfair but, when asked to evaluate the tax system as a whole, they might be less interested in its progressivity and focus on other features instead. Therefore, it is important to differentiate between the evaluation of a specific element and the overall importance of this element. Bringing together the impacts of different concepts will clarify the question which concepts contribute most to establish overall fairness perception. A third important element is to figure out which role self-interest plays for the evaluation of fairness. Since expressions of self-interest could cover up real thoughts about fairness, it is important to disentangle their influence from the impact of other criteria.

The remainder of the chapter is organized as follows. Section 2 will review the current body literature on tax fairness and tax preferences. From this, the most common explanations for the perception of tax fairness are extracted. These explanations should help to answer the second and third question. To understand the perception of the participants, two surveys were performed. Section 3 will describe the design of those surveys and explain how the questions address the topics developed in section 2. After that, section 4 will present the survey results and provide answers to the main questions. Section 5 concludes by presenting our central findings.

2. Conditions for perceived fairness of income taxes

2.1. Overview and framework of the main criteria

The role of fairness is a strongly discussed issue in endeavors to design a proper tax code. One special point of critique is that fairness is a very complex concept and it thus becomes too difficult to define generally accepted rules to evaluate the fairness of a certain scheme (Kornhauser, 1997). Nevertheless, people's evaluation seems to be more than just the own amount. If only the own burden would matter, tax evasion would be much higher in Europe, where tax burdens are traditionally very high (Lazar and Filipescu, 2015), than elsewhere. This is, however, not the case. Furthermore, a fair system of taxation would also be in the interest of the legislative authorities as fair taxation enhances the tax morale (e.g. Torgler, 2002) and therefore makes collecting tax revenue more easy (Martinez, 2004). It has been argued that, to create a non-yielding tax system, two fundamental conditions have to be met: the tax system has to be fair and the government has to be responsive (Bird *et al.* 2006). Even if the perception of fairness is strongly influenced by subjective feelings (Wilensky, 1976), some main dimensions have been accepted as basic factors for a tax scheme to be seen as fair. These are the distribution of the tax burden, the idea of exchanging taxes against governmental spending, the issue of tax rule complexity and the questions of vertical fairness (Gerbing, 1988) as well as horizontal fairness (Martinez, 2004).

Before taking a closer look at these aspects in paragraph 2.2, it should be mentioned that there are at least two different views on the relations these aspects exhibit towards each other. For instance, Slemrod and Bakija (2004) see the benefit principle and the ability-to-pay principle as approaches to think about vertical fairness. Horizontal fairness, however, is described as a separate aspect. In contrast, Liebig and Mau (2005) differentiate between the benefit principle and the ability-to-pay principle. They consider horizontal and vertical fairness as methods to

identify the fair share of contribution within the ability-to-pay principle. Both designs have their appeal but are to be kept separate. Vertical equity/fairness postulates that the wealthier citizens ought to be confronted with a larger tax burden (Musgrave and Musgrave, 1973). Households that differ in their degree of well-being, here measured by income only, should differ in their tax burden, too (Slemrod and Bakija, 2004). This refers to one of the two basic aspects of equality: things that are unequal should be treated unequally. This implies that unequal income means unequal taxes (Musgrave and Musgrave, 1973). While both approaches agree on the strong connection between vertical fairness and the ability-to-pay principle, only the first concept argues that the benefit principle provides another way to take vertical fairness into account (Slemrod and Bakija, 2004).

On the one hand, one could argue that the degree to which one benefits from governmental spending is a way to incorporate the call for treating unequal things unequal. This holds true even more if we argue that richer citizens were able to achieve their high income only because of the beneficial economic environment created by the state. Further, people that own more might value the safety spending done by their government higher than others. In such a case, the benefit principle would advocate higher taxes for high income groups, too (Slemrod and Bakija, 2004). On the other hand, one could imagine many other, more individual influence factors on the amount of benefits than income only. To give but a few examples: Due to lower crime rates, people in rural areas need less police presence than people living in cities (e.g. Kneebone and Raphael, 2011). People who like to travel profit more from roads and their maintenance than people who would rather stay at home in their leisure time. These examples are meant to show that there are indeed equally wealthy people who differ in other characteristics. The question that should be asked here is the core question of horizontal fairness: do these different characteristics justify a different treatment when it comes to taxes (Martinez, 2004)? The idea of similar taxation for similarly situated citizens (Hudson, 1983) further leaves open the question of how to define the groups that we consider as vertically different as the main topic for horizontal fairness (Martinez, 2004). In this case, the benefit theory is not a purely vertical concept anymore. These findings speak against the idea of using both the benefit and the ability-to-pay principle as expressions of vertical fairness. In addition, the same considerations make horizontal fairness an ability-to-pay issue. Defining a group of similarly situated taxpayers includes the decision on features to consider (Martinez, 2004). In other words, which circumstances that reduce the ability to pay justify compensation measures by the society. In this chapter, we will thus follow the second approach and regard horizontal and vertical fairness as expressions of the ability-to-pay principle. Earlier works that attempt to set up a formal model use a comparable setting. For example, Spicer and Lundstedt (1976) mention the two fairness criteria "conditions of trade with the government" and "tax burden division between taxpayers". Based on this, we organized the five criteria (tax burden distribution, exchange with governmental spending, complexity, vertical fairness and horizontal fairness) as visualized in Figure 1 (in the appendix A). In the following, these five criteria will be discussed in more detail.

2.2. Five criteria to evaluate fairness

The basic question when designing a tax system is the one of how to distribute the burden among the taxpayers (Slemrod, 1996). This is again a question social scientists have been discussing for a long time. Already in the seventeenth century, it was argued that citizens are not offended by the tax burden as such but rather because of an uneven distribution of this burden (Hobbes, 1651/2011). Indeed, the public discussion about taxes is dominated by the search for justified burdens for different social groups (Liebig and Mau, 2005). As was shown by Roberts and Hite (1994), a qualified majority of taxpayers care mostly about the question of tax burden distribution. Especially supporters of highly progressive tax rates claim that the wealthy should contribute a fair share and not take advantage of flaws within tax code (Roberts and Hite, 1994). Within the structure of the five criteria, one could, however, see the distribution of the tax burden as a superior question. Citizens evaluate their tax burden in comparison to other taxpayers or social groups and want to pay a fair share of the total burden (Liebig and Mau, 2005). Since the real problem is to figure out what exactly the fair share would be (Martinez 2004), there is need for

additional criteria. This includes vertical as well as horizontal comparisons (Kirchler and Maciejovsky, 2002) or the realization of an exchange relation.

One common model to explain which conditions induce citizens to perceive their own tax burden as fair sees a relation of exchange between paid taxes and received state benefits (Liebig and Mau, 2005). This follows the idea that the identification with the state as such and thus the acceptance of the need to pay taxes increases with a suitable provision of public goods (Torgler and Schneider, 2007). The close coherence of the provision of public goods and the tax burden is seen as the basis for a fair tax system (Bird *et al.* 2006). This school of thought claims that citizens see tax payments as justified if they receive a (perceived) equivalent in public services (Liebig and Mau, 2005). This theory is thus aptly named benefit theory (Young, 1994). Following this theory, a fair tax system should realize the benefit principle: individual tax rates should reflect the amount of governmental services the citizen benefits from (Slemrod, 1996). The relevance of this principle was shown theoretically by the help of risk-aversion (Falkinger, 1995). In their Berlin study, Liebig and Mau (2005) could empirically show weak support for the link between the evaluation of state services and the evaluation of taxes. Satisfaction with the utilized services tends to increase the perceived fairness of taxation. This part of the exchange idea is very close to the self-interest motives that will be discussed later. Considering governmental spending into one's evaluation of tax fairness is, however, not necessarily driven by self-interest only. Taxpayers could also take into account if the government spends their tax money for purposes they see as important (Rothstein, 1998) even if they do not personally benefit from this spending.

Furthermore, there are some concerns about the importance of the exchange idea for the taxpayers' fairness considerations. The first problem of the exchange concept is that citizens benefit from state expenditures mostly in a very indirect way. The income loss due to taxes, in contrast, is an obvious and direct effect (Steinmo, 1993). This misbalance makes it difficult for taxpayers to evaluate the real proportion of paid taxes against received benefits (Steinmo, 1993). Additionally, a tax system that realizes the benefit-principle only leaves no opportunity for redistribution (Slemrod, 1996). Therefore, it is critical for this concept that other findings show that the existence of redistribution is seen as a matter of justice (Schupp and Wagner, 2005). Redistributive tax schemes get support not only from those who would benefit from redistribution but also by high income households (Heinemann and Henninghausen, 2010). It can thus be safely assumed that the attitude towards redistribution is influenced by more factors than the mere goal of maximizing one's own benefits (Alesina and Giuliano, 2009). Factors like a history of private misfortunes (Giuliano and Spilimbergo, 2008), the role of individualism in culture (Alesina and Glaeser, 2004) and family backgrounds might play a role as well (Alesina and Giuliano, 2009). If the majority of people prefer a redistributive tax scheme, the benefit theory cannot provide a sufficient explanation why people perceive tax systems as being fair or not.

A highly complex and thus opaque tax code is seen as one of the main causes for unfairness and therefore significantly often leads to non-compliance (Schaltegger *et al.* 2008). Furthermore, the existence of possibilities to save taxes by using loopholes is challenging when it comes to the relation between the complexity of the tax code and tax fairness (Roberts and Hite, 1994). If it is easier for the wealthy to make use of these exceptions, it even becomes an issue of vertical tax fairness (Kirchgässner, 2008). Additionally, two taxpayers living in basically the same circumstances could differ in the degree of making use of any exceptions within the tax code and therefore pay a substantially different amount of taxes without justification. Thus, complexity also becomes an issue of horizontal fairness (Peffekoven, 2008). Still, the relation between complexity and fairness is ambiguous, since the wish to design a fairer tax system is also one of the main reasons for its complexity (Slemrod and Bakija, 2004). It has been argued that fair tax laws are better than simple tax laws (Donaldson, 2003). Furthermore, one of the simplest tax structures, poll tax, faces huge opposition (Slemrod and Bakija, 2004) and the second one, flat tax, is preferred only by a minority (Heinemann and Hennighausen, 2010).

Vertical fairness implies that those who have the higher capability should pay higher taxes (Liebig and Mau, 2005). To comprehensively apply vertical tax fairness, one thus has to discuss the question of flat or progressive taxes as well as the question of how to tax the wealthy (Gerbing, 1988). Vertical fairness is central within the ability-to-pay principle (Liebig and Mau, 2005). To

apply this principle, one first needs to find a measure for the ability to pay (Peffekoven, 2008). Among the possible measures are income, consumption as well as wealth (Brunner, 2014), this list, however, not being comprehensive. The measure most authors agree on, however, is income (Peffekoven, 2008) which makes vertical fairness an important issue for the discussion about the design of the income tax. The ability-to-pay principle is accepted by a huge majority of people, especially in Western democracies (Aalberg, 2003). The support for this redistribution via taxes increases if the design leads to the realization of the principle that the strong supports the weak (Porschke and Witte, 2001). However, vertical fairness is a highly controversial topic. The discussion is especially linked to arguments for or against progressive taxation (Martinez, 2004), a tool many countries use to take vertical fairness into account. Progressive tax systems face strong opposition because they are prone to create disincentives and therefore reduce the tax base and economic prosperity (Heinemann and Hennighausen, 2010). Applying progressivity thus becomes a trade-off between social benefits and economic disincentives (Slemrod, 1996). Furthermore, it is seen as a tool of class warfare (Slemrod and Bakija, 2004). The findings that the support for progressive tax systems decreases with income imply that the opposition is partly (but only partly) driven by self-interest (Heinemann and Hennighausen, 2010).

To evaluate whether the vertical ability-to-pay principle indeed provides some sort of guideline when people think about fairness, one first needs to understand which factors drive the support for its main application, progressive taxation. Here, again, self-interest plays an important role. It has to be said, however, that there are more factors involved here than mere profit maximization in self-interest (Alesina and Giuliano, 2009). First, the attitude towards progressivity seems to depend on the tax system one lives in (Sheffrin, 1996). Having compared studies for the US and the UK, Sheffrin (1996) concludes that the current structure of tax rates has a substantial influence on tax preferences. A survey from Sweden supports these findings by showing that preferred rates decreased together with the actual ones (Wahlund, 1989). There is even evidence that the current situation has an impact on the construction of attitudes in a big variety of economic choice situations (Tversky and Kahnemann, 1991). However, these findings are controversial: in contrast to the aforementioned studies, Aalberg (2003) found that how an individual evaluates the tax burden does indeed *not* depend on the tax level she is subjected to. Cross-country data found no indication that higher tax rates are regarded as being more positive if the current rates increase or that support for progression depends on the scheme one is actually subjected to (Aalberg, 2003). Both sides agree on the fact, however, that, in general, people consider tax rates as being too high (Sheffrin, 1996; Aalberg, 2003). Second, citizens are more willing to pay taxes if they believe that the state spends the money it earned from those taxes in a responsible way (Liebig and Mau, 2005). This is the case, for instance if tax collection allows for the creation of a system from which the poor and people in need could benefit (Aalberg, 2003). In this approach, taxpayers do not consider taxes as a payment for services they receive, but rather see taxes as contributions to the provision of collective goods (Liebig and Mau, 2005). Third, tax system design in general is strongly connected to redistribution, especially in developing countries (Mahler and Jesuit, 2004). Between 12% and 45% percent of the total fiscal redistribution are organized with the help of taxes (Mahler and Jesuit, 2004). The main question is which importance a society ascribes to equality as a value (Slemrod, 1996). A society that is in favor of equality might use taxation to reduce income disparities between the rich and the poor (Aalberg, 2003). A flat-tax will not help to achieve this, therefore the wish to have lower income inequalities after taxes asks for progressive taxation.¹ In a study for Germany, it could be shown that people perceive the labor income inequality before taxes as too high, leading them to favor higher progressivity (Schupp and Wagner, 2005).

Next to vertical fairness, there is horizontal fairness (Kirchler and Maciejovsky, 2002), meaning that similar cases should be treated similarly (Slemrod and Bakija, 2004). While this sounds obvious in the first place, it turns out to be a challenging claim if real cases are considered. Horizontal equality in the tax system might, for example, imply that taxpayers with the same amount of income should pay the same amount of taxes, no matter the source (Zolt, 1996). One

¹ Note that this for a second ignores that income inequality is not only a question of amount but also of sources of income. This problem will be addressed again later in (5).

could go even further and argue that taxing income without considering the source is fair and efficient. It is fair because equals are treated equally and can be called efficient because taxation in this case does not create incentives for the reallocation of resources (Zolt, 1996). To relate this to a current topic, there should be no difference between taxes on labor income compared to capital income. Until 2009, a unitary taxation of the whole income was one of the leading principles of the German tax code but it was dropped with the introduction of a withholding tax for capital income (Fuest and Spengel, 2016). The discussion if labor and capital income should be treated differently by tax codes is a never ending discussion (Kornhauser, 1997; Auerbach and Hassett, 2015). Some economists even argue that governments should not tax capital at all (e.g. Atkeson *et al.* 1999). In contrast to that, other authors calculated a substantially positive optimum capital tax of about 36% (see Conesa *et al.* 2009). Even more, the question of capital taxation is not purely an issue of horizontal fairness. The fact that high-income individuals are the main receivers of capital income (Slemrod, 1996) transforms it into an issue of vertical fairness as well.

The central notion of horizontal fairness is that equal cases ought to be treated equally. In terms of taxes, one could claim that taxpayers in comparable circumstances should pay the same amount of taxes, which is a very intuitive request. However, defining equality is the main problem when it comes to defining fairness (Kaplow, 1989). The legislator has to answer the non-trivial question of what exactly constitutes an equal situation (Martinez, 2004). In contrast to the equal-income-equal-pay-idea, one could think about particular circumstances of life that might justify lower taxes (Liebig and Mau, 2005). Citizens will only accept such exceptions within the tax code as fair if they regard it as justified. This is why exceptions should be based on a common sense about which living conditions ought to be supported and subsidized (Martinez, 2004). To give a practical example, German tax laws include a support for families and married couples (Liebig and Mau, 2005). Two individuals with the same income will face different tax loads because one person is single while the other one is married. Such a discrepancy from the equal-taxes-for-equal-income base should be justified by common sense. This is, however, not necessarily the case. Seidl and Traub (2001) show that, for Germany, many citizens oppose the current system of tax benefits for married couples. In another study, Bischoff and Kusa (2016) found that 80% see tax reduction for caregiving heirs as being reasonable. As a consequence, lawmakers should investigate in advance which exceptions are supported by the public.

2.3. How self-interest influences fairness considerations

In the previous section, the perception of fairness was considered to be based on an underlying personal code of ethics. Different explanations were provided for what citizens could have in mind when talking about fair taxation. However, the views towards fairness are based on both the aspects of fairness discussed above and self-interest as well (Heinemann and Hennighausen, 2010). In principle, all five dimensions could themselves be influenced by self-interest. Although the intrinsic moral considerations seem to be more influential (see e.g. Sears and Funk, 1990) self-interest plays an important role, implying that people calculate which tax design would be most beneficial for them and argue in favor of this one (e.g. Hettich and Winer, 1997). It can also be seen as a matter of fact that the perception of the fairness of a tax system is strongly influenced by one's personal financial situation (Slemrod, 2006).

Especially the question of vertical fairness is strongly influenced by self-interest because it deals with the different taxation of higher and lower incomes. Studies from the US show that lower income groups strongly support progression (Roberts and Hite, 1994). Within the group of people who pay higher taxes, the share of supporters of flat tax schemes is significantly higher (Gerbing, 1988), even though the majority (>50%) still see progressive taxation as being the fairest option. For Germany, Heinemann and Hennighausen (2010) show that the support for progressive tax rates in the upper income quartile is 9 percentage points lower than in the lowest quartile. This holds true also for Russia, where a study could show that the poor are in favor of redistribution, whereas the rich tend to be against it (Ravallion and Lokshin, 2000). Even cross-country studies confirm that income influences the attitude towards redistribution (Corneo and Grüner, 2002).

The issue of horizontal fairness seems to be less related to self-interest. However, the question of which circumstances should be seen as special cases that justify different tax rates could be answered by having a look at self-interest. For example, one could expect that married couples are more in favor of a tax discount, one receives for being married than singles. In contrast, the aforementioned view that the current special tax treatment for married couples in Germany is unfair received support from both singles and married respondents (Seidl and Traub, 2001).

To consider self-interest only in terms of actual income and social status would ignore another important point: social mobility (Bénabou and Ok, 2001). If taxpayers assume that their income will change in the future, it would be rational for them to argue in favor of a tax system which is suboptimal for them now but will be optimal after the expected change in income (Heinemann and Hennighausen, 2010). This would imply that, next to those people with an already high income, also people with a rather low income but high income expectations will argue against progressive taxation. Support for this comes from the findings that individuals facing social upward mobility show lower support for redistribution (Alesina and Giuliano, 2009). People who manage to climb the income ladder tend to believe that everybody has the chance to do the same and gain more money by themselves. Therefore, they tend to oppose the need for support for lower income groups and argue for the importance of personal effort to achieve something (Ravallion and Lokshin, 2000). For Germany, Heinemann and Hennighausen (2010) could not find a significant influence of social mobility, measured as the difference in the answers about social status and on attitudes towards progressive taxation in the survey year and ten years before. The variance in the findings can be explained by different cultural beliefs about the determinants of income (Alesina and Angeletos, 2005). Europeans generally consider luck and connections as more important than talent and effort for achieving a high income (Alesina and Angeletos, 2005). This influences both their wish for redistribution (Alesina and Angeletos, 2005) and the importance they ascribe to social mobility. The next chapter will explain how all these concepts influenced the design of our questionnaire.

3. Research strategy and implementation in the questionnaires

3.1. Preliminary thoughts about the questionnaire

Perceptions of fairness are highly subjective in nature (Wilensky, 1976) but there nevertheless seems to be a possible categorization for individual thoughts. The concepts presented in the previous chapter provide a framework to catch the personal views of taxpayers. But even within this framework, the issue of perception stays individual and subjective. The best way to uncover the true importance of the different aspects of fairness for the overall perception would therefore be to simply ask people about their opinion. Up to now, however, survey data on individual views on tax fairness and tax evasion is sparse. Based on this, we decided to create a questionnaire to capture these views.

It is particularly important for the question sequence that questions about the same issue should be collected within one segment of the survey (Kloß, 2016). Table 1 shows the segmentation we applied to our surveys. In total, the surveys contain seven categories. The central question about the overall fairness evaluation and the selection of the most important fairness criteria were collected in block A. The other blocks are dealing with special aspects of fairness like vertical fairness (block B), public spending (i.e. the counterpart in the benefit principle) (block D) and horizontal fairness (block E).

Block C with questions on redistribution was put in between vertical fairness and the benefit principle as it is important to figure out which of these two is the main guiding principle for the evaluation of tax fairness. Block F mostly deals with tax evasion and will play a more important role in further research. In this chapter, however, the questions about tax waste and trust are used as control variables. Finally, block G contains demographic variables. To have a second identification option, we conducted two surveys with different groups of respondents. The first was conducted using the German online respondents pool SoSci Panel, while the second one was an online-based survey with students from the biggest universities of all 16 German states (Those are the universities of Munich (LMU), Heidelberg, Berlin – Free University –, Potsdam,

Bremen, Hamburg, Frankfurt, Rostock, Göttingen, Cologne, Mainz, Dresden, Halle-Wittenberg, Kiel, Jena and the Saarland University). Students differ strongly from the average population with respect to several aspects of interest. For example, they generally profit from public spending rather than contributing to its financing. This could change their views towards public spending and should shape their fairness perception if the benefit-principle was indeed the main driver of fairness perception. A second important reason for having a special student survey is that students differ less in actual income but strongly in expected income. This could help to identify the special role of income expectations. To adjust the questionnaire to the groups, the demographic questions in block G differ slightly for both groups.

Table 1. Questionnaire overview

Block	Topics	Central variables
A	overall fairness	perceived tax fairness, main concerns
B	vertical fairness	progressive taxation vs. flat tax, special high income tax
C	redistribution	redistribution between different income groups
D	public spending	tax increase for public spending
E	horizontal fairness	different treatment of capital and labor, special tax reductions for couples or children
F	tax evasion	justification of tax evasion, possible excuses, trust in government, tax evasion vs. tax avoidance
G	demographics	age, gender, income

Discussing the issue of external validity, it is necessary to take a critical note. SoSci Panel can be described as a convenience pool (Leiner, 2014), leading to some very important implications. Even though it could be shown that convenience samples do not provide a sufficient base for statistical inference (Leiner, 2014), a lot of important findings in social science were derived using convenience samples (Dooley and Lindner, 2003) and – even though the effect size is rarely the same – there is a good chance that the effect direction in a convenience sample and the population are the same (Leiner, 2014). To underline, there was no proof that the answers we were about to receive would be representative as our study had the purpose of exploring – which is, in turn, an arguable application for convenience samples (Ferber, 1977). The study is meant to supply an idea about the direction of effects. Bearing this in mind, there will be no discussion about effect size in the following.

3.2. Transferring the fairness criteria into the questionnaire

In this paragraph, we will examine each question of the survey, discuss the idea behind it and relate it to the concepts discussed in section 2. Appendix B contains all questions/variables used in this chapter. In both surveys, we first asked the participants about their perception of the current tax system in Germany: *Do you consider the German tax system to be fair?* (Question A001). In the previous chapter, we mentioned five aspects of perceived fairness. Our aim was to find out if and to which degree they contribute to our understanding of the answers to the first question. As discussed earlier, the fair distribution of tax burdens is a superior concept and can thus not be addressed directly in the survey questions. All the other aspects were first addressed in a multiple answer selection question, *Which criteria are important for your evaluation of the tax system's fairness?* (A002), which is supposed to serve as an indicator for the relative importance of the various concepts. In this question, participants were asked to choose the five most important arguments from a list of 11 arguments including an open option. There are arguments related to all justice concepts discussed above as well as to self-interest. We expected that items referring to a more important argument would be chosen more often. For the interpretation of this question one should, however, always keep in mind the findings by Lewis (1979) that many tax payers do not know their own tax rate.

Going through the concepts separately, the benefit-principle was addressed in the questions of block D and in particular by the questions: *To what extent do you agree with the following statements: a) For me it is important to receive an adequate equivalent for my taxes. b)*

The tax rate should depend on the usage of state services (Question D004). As mentioned before, a full realization of the benefit principle would not allow for a redistribution via taxes (Slemrod, 1996). Therefore, questions from the redistribution block provide important insights when it comes to the importance of the benefit principle as well. Question C001 asks directly if people would argue for redistribution elements within the tax system: To what extent do you agree with the following statements: Redistribution through the tax system is desirable. Furthermore, the questions of area D deal with different state services. For example, people could decide if they would like to increase taxes in exchange for more governmental spending (Question D001). We expected interesting answers pointing to differences between the samples, i.e. answering the question if students have a very different perspective on financing universities by taxes only (compare question D003).

Another highly discussed criterion is (3) complexity (Tinhaga, 2013) which has, as has been discussed earlier in this paper, an ambiguous influence on fairness. The relative importance of this field is addressed by the question about the most important fairness criteria (A002).

Speaking about goods provided by the state, one could argue that the issue is more about how to finance their provision in general and not having a direct exchange relation (compare Liebig and Mau 2005). To finance this provision, everybody should pay their fair share; and to evaluate what the fair share is, the most important criteria are vertical (concept 4 addressed in block B) and horizontal (concept 5 addressed in block E) fairness (Kirchler and Maciejovsky, 2002). To begin with, question B001 is meant to clarify the basic question if income is the correct measure for the ability to pay (discussed by Brunner, 2014). After it has been controlled for that, question B004 asks if the participants think that the tax rate should increase or decrease with income or if it should be independent of the income. This question is meant to identify the supporters of a regressive tax design, like, for example, poll tax. We believed that there would be some participants supporting this view but expected their share on total respondents to be rather low (Slemrod and Bakija 2004). The topic of vertical fairness is addressed by the comparison between progressive taxation and flat-tax. It has been argued that not well-informed survey respondents or respondents lacking strong opinions will react differently to special terms or code-words like "progressive" (Keene, 1983). We take this into account by asking the same questions twice: using code-words in B003 and replacing them by their explanation in B006. In addition, the issue of a special high income tax (B005) deals with vertical fairness, too. Furthermore, the connection between vertical fairness and redistribution (C001/2) has to be taken into account. To measure the role of self-interest, in block G the participants were asked about their current income as well as their expected income in the future. One purpose of this study was to clarify if the earlier finding that personal income matters for the attitude towards progression (compare e.g. Slemrod, 2006) holds true for the expected income as well. The second survey with its focus on students should help to disentangle the expectation effects from the influence of the actual income; this population group being highly similar in actual income but differing strongly in expected income.

Throughout the body of literature, are only minor doubts when it comes to the phenomenon that the level of income is an important criterion to define people who are in different life circumstances and therefore could be taxed differently (Martinez, 2004). However, the opposite seems to be true if one looks at the sources of income. It has even been argued that the same amount of income should always be taxed equally, independent of its source (Zolt, 1996). In contrast to that, several studies about the optimal form of taxation would suggest that capital and labor income ought to be taxed differently (Conesa *et al.* 2009). To find out which of these two approaches is seen as being fairer, the survey participants were asked to express their views on the unequal treatment of capital and labor in E003. Differences between question E004, describing the current German situation, and E005 could give additional answers on the general perception of fairness. Another horizontal issue we addressed was the special treatment of married people and people with children. By asking the respondents if they were married or had children we could identify the influence of self-interest on the answers. Earlier studies showed that tax privileges for married couples were seen as not being fair even by married people themselves (Seidl and Traub, 2001).

Keeping in mind the discussion about the role of the current tax environment (Sheffrin, 1996), several questions (B007, B009, C002) with respect to Germany were included to check for

national influences on the fairness perception. This was based on the findings that the current situation has an influence on the perception of fairness (Tversky and Kahnemann, 1991). Having now explained the role of the questions for the study, the next chapter will present their results.

4. Results of the two surveys

4.1. Opening remarks and the perceived fairness of the German tax system

Taken together, both surveys give information on the views of 811 respondents; 534 for the general population survey and 277 for the student survey. 19 cases had to be eliminated because of too many missing values. In the variables for income and expected income, some outlier correction was applied. In the following section, the surveys will be addressed as “students”, “general” and “all respondents”. For both groups, demographic details like age, gender and number of children were recorded. A detailed overview can be found in Table A1 in the Appendix. The share of male respondents in our sample was 52.5%, which is close to real world values. The same holds true for the age value in the general (SoSci panel) survey with an average of 41.2 years compared to 44.1 years in the real population (Grünheid, 2015). Since by design the student survey is not congruent with the general population, the age structure was analyzed separately from real world values. The average age in our student survey was 27.5 years.

As described earlier, the first step to understand tax fairness perceptions is to capture them. Therefore, our starting question was if the survey participants perceive the German tax system as being fair. Table 2 shows the answers for question A001 which asked this question in a direct manner. Having 5 possible answers, a median value of 3 would imply that positive and negative views outbalance each other. Since the values are 2, however, the majority appears to be critical of the fact that the German tax system is fair.

Table 2. Results of Question A001

A001: Do you perceive the German tax system as ...			
Values of A001	All respondents	Students	General
1 (very unfair)	106 (14%)	58 (23%)	48 (10%)
2 (more unfair)	305 (41%)	97 (38%)	209 (43%)
3 (neither fair nor unfair)	182 (24%)	55 (21%)	127 (26%)
4 (more fair)	146 (20%)	42 (16%)	104 (21%)
5 (very fair)	7 (1%)	5 (2%)	2 (0%)
Median	2	2	2
Mode	2	2	2

It is especially worth noticing that almost no participant selected *very fair*. Even though *very unfair* is the second lowest category, it was chosen by a substantial amount of respondents while *very fair* was not. Another criteria one can look at is the mode, here it turns out that *more unfair* is the most selected alternative in both subsamples. Taken together, the two surveys report that the majority perceives the German tax system as being unfair. The following section will find out more about the reasons behind this decision. Median and mode are used to analyze the results since the mean would not be adequate for this ordinal outcome variable (Cohen *et al.* 2000).

4.2. Identifying the most important drivers of fairness perception

Theoretical models of tax morale often use the benefit concept to include fairness considerations (Kirchler, 1997). On the other hand, the importance of vertical and horizontal fairness is a prominent notion in the literature on taxation (Kirchler and Maciejovsky, 2002). Thus, the first task of this study was to identify the relative importance of the main criteria or, in other words, to find

out which basic concept would be more useful to explain citizens' perception of fairness. To answer this question, we applied three different approaches.

First, as described in section two, the wish for redistribution could be seen as an indicator to differentiate between the benefit principle and the ability-to-pay principle. Question C001_01 asks if there should be redistribution via taxes in general. A vast majority of 75% of all respondents (62.5% of students and 82% of general) argues in favor of redistribution in general, something the benefit principle would not allow for (Slemrod, 1996). If we ask about redistribution between high and low incomes (Question C001_02), this value increases to 79% (65% of students and 87% of general). A redistribution between middle and low incomes (Question C001_03) is not favored by the majority but still by a substantial share of 36.7% (31% of students and 40% of general). This clear wish for redistribution is a first hint towards the fact that the ability-to-pay principle might be more important than the benefit principle.

Second, in question A002, the respondents could select items from a list of 10 possibilities.² Every item was related to vertical fairness, horizontal fairness, the benefit principle, complexity or own payments as representations of self-interest. In both surveys, most items selected were related to the fields of vertical fairness and complexity (For an overview, see Table A2 in the Appendix). The student survey had *degree of redistribution* as the first item, followed by *influence of income on tax rate*. In the third place, it had *simple and understandable tax system*. Looking at the general survey, the item *simple and understandable tax system* was selected most often, followed by the items corresponding to vertical fairness. Even if there are differences in both surveys, they share their main results. Vertical fairness and complexity-related items were selected very often whereas items related to personal burden or public goods provision were chosen much less. This supports the earlier findings that the benefit principle is not the main driver of people's perceptions.

Thirdly, we estimated an empirical model which explains the answers to question A001 by the help of the main criteria. In a first attempt, this could be modelled as:

$$PercFairness = \beta_1 \times vertical + \beta_2 \times horizontal + \beta_3 \times benefit + \sum other\ factors, controls \quad (1)$$

Other factors should be included since the fairness consideration of the tax system cannot be seen as being independent of views on the state and the government responsible for the tax system (Jimenez and Iyer, 2016). For that reason, the questions about tax waste (Question F003) and trust in the government (Question F008) are included in the model. The important but ambiguous role of trust was shown in the work of Popkin and Dimock (2000). Controls include gender, age and the surveyID. There are two ways to apply this model to the data. First, one could check all questions separately to identify which one would yield the best results. Second, since all questions related to a concept should contain similar information, one could apply a factor analysis to prove this and extract a single latent variable as factor for the whole concept.

After we had tried out several combinations, it turned out that it depends on the survey which question represents vertical fairness best. Question B001 (How strong should the influence of income on the tax rate be?) and Question B006 (A system where the tax rate increases with income is fairer than a constant tax rate.) can both be used for the combined dataset as long as the control variable surveyID is used to take into account group differences (See Table A3 in the Appendix). If the sample is split up, B001 becomes the single best representative for the general survey and B006 for the student survey. In the responses to question B001, both groups differ significantly as can be seen in Table 3. Whereas in the general survey, the answers no influence and little influence together account for 18%, the student survey showed this share for no influence alone. Comparing the surveys item by item, we found that the response rates for two and four were very similar. In the student survey, however, answer one is much more important while in the general survey answer three accounts for 50% of all responses. These differences are in line with the higher support rates for progressive taxation in the general survey (Question B003/6) and the more intense feeling of unfairness (Question A001) in the student survey.

² There was the additional option to insert your own item which was used by a few participants. Answers correspond to the concepts already included in the survey.

Table 3. Survey differences in Question B001

B001: To what extent should income have an influence on the household tax rate?		
Values of B001	Student	General
1 (no influence)	49 (18%)	18 (3%)
2 (little influence)	49 (18%)	81 (15%)
3 (strong influence)	102 (37%)	262 (50%)
4 (very strong influence)	74 (27%)	168 (32%)
Median	3	3
Mode	3	3

Much more interesting in this group comparison, however, are the changes in significance of other variables as can be seen in Table 4.³ Firstly, age is significant as a control variable only in the general survey, which can easily be explained by the fact that age differences among students are very small. What is interesting about that, however, is that age has a negative coefficient in the general sample and surveyID has a negative coefficient in the full sample. Since students are younger (median age 25 compared to 38 in the general survey), this points towards a non-linear relation between age and perceived tax fairness. Younger people (like students) and older people evaluate the German tax system as being unfairer than do middle-aged people. This is a surprising finding since those are the ones carrying the highest tax burden.

Table 4. Group differences in the significance for model (1)

a001	Full Sample	General	Students
Flat/Progress	0.231*** (2.66)	0.138 (1.31)	0.325** (1.96)
Redistribution	-0.131 (-1.40)	-0.341*** (-2.85)	0.00997 (0.06)
Capital/Labor	0.291*** (2.84)	0.121 (0.96)	0.674*** (3.49)
TaxWaste	-0.416*** (-3.03)	-0.358** (-2.22)	-0.529* (-1.90)
Trust	-1.240*** (-9.00)	-1.250*** (-7.26)	-1.028*** (-4.27)
Age	-0.00312 (-0.53)	-0.0164** (-2.20)	0.0156 (0.84)
Gender	-0.0680 (-0.38)	-0.181 (-0.84)	-0.105 (-0.29)
Observations	514	351	163
Pseudo R^2	0.130	0.118	0.188
AIC	1218.9	831.5	380.0
BIC	1265.6	874.0	414.0

Note: t statistics in parentheses. *, ** and *** represent 10%, 5% and 1% significance level respectively.

Secondly, the significance of C002 (Redistribution in Germany) is limited to the general survey only. As described before, the wish for redistribution is a driver of the overall attitude towards vertical fairness and progressivity. This will be proven with the help of our data in subsection 4.3. Based on this, there should be an indirect effect of redistribution towards perceived tax fairness since the former influences vertical fairness considerations, which are, in turn, affecting the latter. This indirect effect approach works quite well for the student survey. In the general survey, however, there seems to be a direct effect as well. Further investigation on that will be done using the latent factor method. Thirdly, in the student group, the treatment of

³ Table 4 shows the result with B006 as the vertical representative. However, regarding the effects on the other factors, there is no difference to B001. A table for this factor is available upon request.

capital and labor as a representative for horizontal considerations is much more influential. This could be explained partly by the high influence of having capital income (Question G015) on the response to questions like E003 and E004. This issue will be addressed further in section 4.

Keeping these differences in mind, an exploratory factor analysis was used to find out to what extent the question related to a certain concept could be unified to a single factor (See Table A4 in the Appendix for the pattern matrix). One established factor has high loadings from all the questions about the role of income and the tendency towards progressivity which load on this factor only. Tests show that this result is adequate and reliable (Adequacy Test: KMO 0.91, TVE: 0.58; for reliability see Table A4). Constructed from all these questions, this factor can be regarded as a representation of the attitude towards vertical fairness. A second factor stems from the question in area C about redistribution as well as the question “Should there be an additional high income tax on top of a progressive taxation?” (Question E001_02). The questions it is based on turn this factor into a representative for the wish for redistribution. With respect to these two factors, it is important to mention the question about a specific “high income tax in general” (Question E001_01). It was not possible to fit this question into a clear pattern matrix since it was always loading on both factors. However, this result is by no means surprising. Taxing high incomes more intensively is an expression of redistribution as well as progressivity (and therefore vertical fairness). The finding that E001_02 is only associated with the redistribution factor while E001_01 is associated with redistribution and vertical fairness shows that a progressive taxing is enough to fulfil the desire for vertical fairness but leaves open some wishes for redistribution. Subsection 4.3 will take a more detailed look at the role of redistribution here.

For the model presented in this paper, the other factors shown in Table A4 do not play a role. We replaced the representative for vertical fairness with the established factor 1 “vertical” and obtained the explanation model for the attitude towards tax fairness given in Table 5. The new factor for vertical aspects is highly significant and positive. People who are motivated by vertical considerations perceive the current tax system as fairer than people who would like to ignore vertical differences. This result is not surprising since the actual tax system is taking vertical aspects into account by means of progressivity. In addition, a more detailed differentiation of A001 between *very unfair* and *unfair* shows that a great majority of respondents who chose *very unfair* were in favor of a flat-tax and arguing for a reduced role of income on the tax rate in B006 and B007, respectively (See Appendix, Table A5, for the differentiation table). On the other hand, respondents who argued for an increased influence of income and a steeper progression were less critical towards the tax system as such. Despite their argumentation for changes, they chose only *unfair* or even higher values when they were asked about the fairness of the current tax system.

As Table 5 also shows, there is no direct effect of the new redistribution factor. The next subsection will establish an indirect effect. The significance of all other variables remains the same. The significance of age is still dependent on the inclusion of surveyID and again both are negative. In each version of the model, the variables for tax waste and trust in the government were always significant and negative. This is in line with earlier findings (e.g. Slemrod, 2006).

Table 5. Model (1) using the results from Factor analysis

a001	Full Sample	General	Student
progress	0.469*** (3.15)	0.285 (1.56)	0.703** (2.53)
redist	-0.0404 (-0.24)	-0.546** (-2.46)	0.260 (0.82)
Capital/Labor	0.338*** (3.44)	0.126 (1.04)	0.714*** (3.88)
TaxWaste	-0.398*** (-3.03)	-0.360** (-2.30)	-0.437* (-1.68)
Trust	-1.191*** (-9.12)	-1.249*** (-7.63)	-1.037*** (-4.50)
Age	-0.00561 (-1.00)	-0.0201*** (-2.78)	0.00623 (0.34)
Gender	-0.134 (-0.83)	-0.293 (-1.44)	-0.272 (-0.85)
cut1	-6.262*** (-10.94)	-7.779*** (-10.42)	-4.774*** (-4.40)
Constant	-3.658*** (-6.98)	-4.941*** (-7.38)	-2.284** (-2.21)
cut2	-2.345*** (-4.57)	-3.577*** (-5.51)	-0.966 (-0.94)
Constant	1.600** (2.30)	0.760 (0.82)	2.492** (2.03)
Observations	570	381	189
Pseudo R^2	0.133	0.120	0.194
AIC	1350.8	895.0	443.5
BIC	1398.6	938.4	479.2

Note: t statistics in parentheses. *, ** and *** represent 10%, 5% and 1% significance level respectively.

4.3. A closer look at vertical fairness and the role of self-interest

Question B004 separates the proponents of regressive taxation measures from the other groups. Only 2% are in favor of a regressive tax which is in line with the expectations of Slemrod and Bakija (2004). From the body of literature, it is also known that more than 30% of all taxpayers are in favor of a flat tax (Keene, 1983; Roberts and Hide, 1994; Slemrod, 2006). Again, our findings are in line with this. Asked directly about flat tax versus progressive tax (Question B003), 31% argue in favor of a flat-tax. Part of this seems to be related to the problem of dealing with key words as described by Keene (1983), as the share of flat-tax proponents decreases to 26 percent when using verbal descriptions instead of key-words (Question B006). At first sight, the lower rate of only 22% asking for taxes independent from income seems to be challenging. But there are a few things to consider. First, it becomes less challenging when taking the results of B001 into account. 25% argue that income should play no or only a minor role for the tax rate which agrees with question B006. Second, the significantly higher share of flat-tax supporters when using key-words could be based on a misguided belief about the effects of the current tax system. Slemrod (2006) describes a comparable effect for the US, where people argued for a change of the tax system towards a flat-tax because they believed that the current system had a regressive effect. Slemrod (2006) explains this as being due to misconceptions like the ones described by Romer (2003) for other fields of policy.

As shown above, considerations of vertical fairness are a very important driver of the perception of fairness in general. A majority of 60.5% (53.5% of students and 63.8% of general) thinks that, in Germany, redistribution should increase (Question C002) but not all of them agree on taking away money from the middle class. Therefore, the approval rates are much lower when asked about redistribution from middle to low incomes (Question C001_03). Only 39.6% (31% of

students and 36.7% of general) agree to this proposal. If only those respondents who ask for an increased distribution are taken into account, the agree rate in Question C001_03 changes to 46.7%, implying that even the supporters of more redistribution are enthusiastic about this idea. These findings imply that most respondents see the upper income groups to be in charge. Consequently, 78% (65% of students and 86% of general) agree with the introduction of a special high-income tax ("Reichensteuer"). Interestingly, this support is substantially lower if people are asked about high-income taxes on top of a progressive tax (Question E001_02). With 53% the majority is much weaker and in case of the student survey there is no majority in favor of this at all (41%), even more, the answer *completely wrong* accounted for nearly two-thirds of all *wrong* responses. A factor analysis revealed a possible reason for this result: supporting a special tax in addition to a progressive tax is a pure redistributive decision, whereas supporting a special tax in general could be motivated by a wish for vertical fairness/ progressivity as well.

Bringing all this together, vertical fairness appears to be a really important issue for all respondents. This leaves us with the question as to which extent this concern is driven by self-interest. In other words: what kind of role does actual income play for the attitude towards progressivity. We designed the following model to answer this question:

$$Progressivity = \beta_1 \times redistribution + \beta_2 \times income + \sum other\ indicators, controls \quad (2)$$

Since beliefs about redistribution are very important for the wish for progressive taxation, they are here included separately. The same holds true for the question about a special high income tax in general due to its special role described above. The model is supposed to fulfil two tasks. First, it is meant to prove the importance of redistribution (and therefore its indirect effect on tax fairness) and, second, it should provide information about the influence of self-interest as presented by income. The self-interest hypothesis is that the higher the income, the lower the support for progressive taxation. As can be seen from the results presented in Table 6, it turns out that redistribution is highly significant and positive. Those citizens who are in favor of redistribution want to have a tax system that incorporates redistributive effects, like a progressive taxation scheme does. The positive coefficient of income, however, posed a challenge. According to the idea of self-interested taxpayers, people with higher income should have less interest in progressive tax schemes. One reason could be that the explanatory variables in this model are not independent of each other, since we could also imagine that income influences the wish for redistribution.

A positive coefficient would imply that richer people are more in favor of progression. This is not completely impossible since they might be aware of the importance of their contributions to the provisions of state services and other issues. This phenomenon is addressed by research linking income and altruism (Dimick *et al.* 2017). There is also a positive correlation between income and education. A part of this positive effect could, however, be based on the relation between the wish for redistribution and income described in Table A6. Here, the coefficient is negative and significant. This result is in line with earlier findings that wealthy people oppose redistribution (Alesina and Giulinao 2009).

Another finding that is displayed in Table 6 is the negative coefficient of income perspective. People who believe that they will be better off in the future already today argue in favor of policies that will help them in the future. This finding is in line with findings on the role of social mobility presented by Alesina and Giuliano (2009) yet contradicts Heinemann and Hennighausen (2010) who did not find a significant influence of social mobility in Germany.

Table 6. Model (2) for the attitude towards progressivity

	Progressivity
Redistribution	0.461*** (2.95)
Spec.HighInc.Tax	1.312*** (7.47)
Gender	-0.346* (-1.68)
Income	0.0000241** (2.20)
Income Perspective	-0.460* (-1.82)
cut1 Constant	0.547 (0.84)
cut2 Constant	3.565*** (5.79)
cut3 Constant	4.100*** (6.55)
cut4 Constant	6.711*** (9.71)
Observations	349
Pseudo R^2	0.136
AIC	792.6
BIC	827.3

Note: t statistics in parentheses. *, ** and *** represent 10%, 5% and 1% significance level respectively.

4.4. A closer look at horizontal fairness and the role of self-interest

To consider horizontal equity in more detail, we want to present three main topics: capital vs. labor, marriage and children, keeping in mind that the notion of horizontal fairness deals with the question of which circumstances of life should be treated as reasons for a different taxation (Martinez, 2004). In both surveys, approximately one-third of all respondents argue like Zolt (1996) and state that there should be no difference between income from capital and from labor. The majority of 47% (42% of students and 49% of general), however, argues for taxing capital income higher than labor incomes. Taking into account the role of self-interest, it is worthy to look at receivers of capital income separately. Question G015 provides information on which types of income our respondents receive. For this, the dataset was restricted to the general survey as only here a differentiation on these terms was reasonable. Taxing capital higher than labor is much more unpopular within the group of receivers of capital income.⁴ Only 32% argue in favor of that – compared to 49% without the restriction. This strong decrease translates to an increase in proponents of taxing capital income lower than the one gained from labor (from 16.4% to 20.7%) but particularly to an increase for the idea of taxing both equally (from 34.7% to 47.4%). With respect to the two different proposals of E004 (taxing capital with a flat-tax and labor progressively) and E005 (the other way around) both are rejected by the majority. This is no surprise since both include a flat-tax scheme which has been shown not to be favored by the majority. As this promised much more interesting results, we further compared both proposals with each other and found that the opposition against the system currently applied in Germany is

⁴ Recipients of interest rate payments for bank accounts are not considered here even this is technically also capital income.

much higher than the opposition against the alternative system, even if this alternative includes a flat-tax for labor which most people voted against. Applying a flat-tax to capital income and a progressive tax to labor income is rejected by 77% of all respondents (80% of students and 75% of general). In contrast, only 55.6% of all respondents (65% of students and 51% of general) are against the alternative proposal. This result for the general group points towards the fact that the respondents are more or less undecided in this case. However, it should be noticed that within the opponents group, the answer *completely false* has a much higher share than the answer *completely right* in the supporters group. Taking this into account, one could argue that the alternative proposal would be rejected as well. But even though both are rejected, the alternative is seen as being better. This holds true when taking into account only those respondents who are in favor of progressive labor taxation. They reject the first proposal with a slightly lower rate of 74% and reject the second proposal with a slightly higher rate of 57%. This shows that the opinion on labor taxation is not a driver of this result. Restricting the sample again to recipients of capital income only, the opposition against the proposal in E005 (capital progressive) was significantly higher, while the opposition against E004 was lower. In conclusion, there was no clear tendency for taxing capital higher or lower than labor. Both sides have a significant share of supporters. Applying the idea of an average or median citizen, it seems to be the best solution to tax income independent from its source. Recipients of capital income showed some self-interest in their answers, however the modus of the responses was not shifted from taxing capital higher to taxing capital lower. Instead, the self-interested group opted for an equal treatment much more strongly. This behavior implies that self-interest indeed plays a role but is complementary to common beliefs and not a replacement, a finding that is in line with other studies on tax morale (Heinemann and Hennighausen, 2010).

A second field of horizontal differences are circumstances of life related to the family situation. With respect to children (Question C001_05), a huge majority of 92% (90% of students and 93% of general) agrees that the society should support families by tax reduction. Indeed, 7 out of 10 supporters chose the answer *agree very much*. Among the respondents with children (Question G016), the approval rate increases up to 96% with a share of over 80% who chose *agree very much*. Since the support for children-based tax exemptions is very strong regardless of the participants having children themselves, this seems to be a life circumstance the society agrees on that it should be taken into account as a difference in terms of the ability to pay. This is not the case in the second life circumstance we reviewed. Only 46% (44% of students and 47% of general) support the idea of granting tax reductions for married couples (Question C001_04). If only married respondents (Question G014) are taken into account, the approval rate increases significantly to 62%. In contrast to Seidl and Traub (2001), we found that married people tend to support a tax reduction for being married, whereas the majority of singles opposes with an approval rate of only 37%. Marriage apparently is not seen as a life circumstance that reduces the ability to pay and therefore there is no majority supporting tax exemptions. In addition, the support for such an exemption to a significant degree is based on self-interests of married citizens. This is an additional difference of this tax exemption compared to the case of children discussed above, where self-interest has not played a role at all. It is important here to recognize the potential difference between a common believe and a majority believe. If a majority of people is self-interested and therefore favors a certain policy, this is no proof of a common believe of justice and fairness asking for this policy.

5. Conclusion

After performing two surveys among German; both participants of an online respondent pool and students, we found some interesting patterns. The first direct question was about the general fairness evaluation of the German tax system. In our surveys, the majority perceives the system as being unfair. A deeper analysis revealed that this belief is especially strong among people who are critical against progressive taxation. Also, people who would like to have a stronger progression perceive the whole system as being unfair but to a much lower extent.

We discussed several concepts that could be used to explain tax fairness: benefit-principle, vertical fairness, horizontal fairness and complexity. Our comparison showed that

vertical fairness is very important for the evaluation of the overall fairness of a tax system. A second important figure is complexity. In contrast, the benefit principle and horizontal fairness do not seem to be important issues for most people.

Delving deeper into the topic of vertical fairness, we found a close relation between the attitude towards progressivity and the wish for redistribution. Self-interest seems to play a role but the real effect of income is much more complex than a simple “the more people pay the more they are against progressivity”.

A closer look at the issue of horizontal fairness provides three interesting findings. First, the current system of dealing with capital and labor income is strongly rejected even in comparison to an alternative system that includes a flat-tax for labor. From a fairness point of view, income should be taxed merely according to the amount, ignoring the source. Second, the need for a fiscal support of children is a belief shared by many, whereas a special treatment of married couples is not. The political idea of transforming the special tax treatment for married couples, the so-called “Ehegattensplitting”, into a children-based tool for families seems to be reasonable from a fairness point of view. Third, we found self-interest in the answers of recipients of capital income and married people, while the support of children was not affected by parenthood at all.

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Appendix A. Tables and Figures

Figure 1. Relation between the 5 criteria of fairness to evaluate fairness

Table A1. Overview of demographic features

Variable	Category	N
Age – Student Survey	<25	107
	25-29	104
	30-34	24
	35-39	8
	40+	20
Age – Sosci Panel Survey	<25	51
	25-34	165
	35-44	78
	45-54	97
	55-64	70
Gender	65+	35
	Male	414
	Female	375
Children – Sosci Panel Survey	Yes	231
	No	291

Table A2. Importance of answers in question A002

Category	Student survey	General survey	Total
degree of redistribution	1	5	4
influence of income on tax rate	2	3	3
absolute tax burden	8	9	9
special high-income tax	5	2	2
personal tax rate	10	10	10
amount of social securities	4	4	5
amount of public goods	9	8	8
easy and understandable system	3	1	1
existence of loopholes	6	6	6
treatment of capital and labor	7	7	7

Table A3. Model (1) with B001 and B006 as representatives

	a001	a001
b001	0.291** (2.48)	
b006		0.221** (2.54)
c002	-0.162* (-1.73)	-0.151 (-1.59)
e004	0.297*** (2.91)	0.276*** (2.69)
f003	-0.429*** (-3.16)	-0.411*** (-3.00)
f008	-1.199*** (-8.75)	-1.206*** (-8.74)
g012	-0.217 (-1.20)	-0.177 (-0.98)
surveyid	-0.610*** (-2.83)	-0.590*** (-2.71)
g011	-0.0144** (-2.13)	-0.0122* (-1.80)
Observations	523	514
Pseudo R^2	0.136	0.135
AIC	1233.3	1213.5
BIC	1284.5	1264.4

Note: *t* statistics in parentheses. *, ** and *** represent 10%, 5% and 1% significance level respectively.

Table A4. Pattern matrix^a

	Factor			
	1	2	3	4
Cronbachs Alpha	0.860	0.825	0.680	0.749
b006	0.971			
inv_b004	0.828			
b001	0.780			
b003	0.770			
b007	0.702			
c001_01		0.798		
c001_02		0.688		
c002		0.668		
e001_02		0.580		
c001_03		0.460		
d003_03		0.440		
e005		0.390		
e003		0.345		
inv_f008			0.728	
a001			0.667	
inv_f003			0.505	
d003_01				0.943
inv_d003_02				0.672

Note: a. The Rotation has converged within 7 iterations

Table A5. Joint table for A001 and B007

	A001=1				A001=5	
B007=1	0.60	0.30	0.08	0.00	0.02	1
	0.05	0.53	0.24	0.16	0.01	1
	0.06	0.18	0.34	0.41	0.01	1
	0.09	0.43	0.27	0.20	0.01	1
B007=5	0.21	0.54	0.13	0.11	0.02	1

Table A6. Attitude towards Redistribution

	C002
General tendency	1.530*** (8.69)
E003	0.454*** (4.33)
Gender	0.482** (2.19)
Income quantiles	-0.464* (-1.75)
Age	0.0191** (2.47)
cut1	2.470***
Constant	(3.53)
cut2	4.143***
Constant	(6.28)
cut3	6.491***
Constant	(9.21)
cut4	9.209***
Constant	(11.55)
Observations	334
Pseudo R^2	0.183
AIC	716.4
BIC	750.7

Note: t statistics in parentheses. *, ** and *** represent 10%, 5% and 1% significance level respectively.

Appendix B. Survey Material

- A001: As how fair do you consider the German tax system to be?
A002: Which criteria are the most important for your evaluation of the tax system's fairness?
B001: In which way should income influence tax rates?
B003: In comparison to a flat tax, progressive taxes are ...
B004: The tax rate should ...
B005_01: To charge high incomes with especially high taxes is generally ...
B005_02: A "rich tax" in addition to a progressive tax scheme would be ...
B006: In comparison to a tax scheme where [...], tax rates which rise with income are
B007: If you were to decide, what role should income play within a future German tax scheme?
B008: How high should the maximum tax rate (top rate tax band), e.g. for an income higher than 500,000€ per year be for the tax system to be fair?
B009: In comparison to how it is done now, how should high incomes be taxed in the future?
C001_01: A redistribution of wealth through the tax system is desirable.
C001_02: It is right to redistribute wealth from high to low income groups.
C001_03: It is right to redistribute wealth from medium to low income groups.
C002: What should be the degree of redistribution in Germany in the future?
D001: Would you accept an increase in taxes if this would improve the following public services?
D002: Which of the abovementioned services are of special importance for you?
D003_1: To finance university education with the help of taxes only, is ...
D003_2: To (re-)establish tuition fees in Germany, is ...
D003_3: An additional tax on the incomes of university graduates is ...
B010_01: For me, it is important what sorts of benefits I get in return for my taxes.
B010_02: The personal tax rate should depend on one's usage of public services.
E001: Tax privileges for married people are useful.
E002: Tax privileges for people with children are useful.
E003: How should profits on investment be taxed in comparison to earned income?
E004: A tax system which taxes incomes on investment with a flat tax, earned incomes, however, with a progressive tax, would be ...
E005: A tax system which taxes earned income with a flat tax, income on investment, however, with a progressive tax, would be ...
F003: Do you think there are taxes wasted in Germany?
F008: In how far do you trust the German federal government?