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# Distributive Justice in Marriage: Experimental Evidence on Beliefs about Fair Savings Arrangements

**Objective:** This study examines fairness perceptions of experimentally manipulated savings arrangements in couples (i.e., distribution of control and ownership of savings) to identify distributive justice principles in marriage.

**Background:** Theoretically, competing norms about individual ownership rights and autonomy (equity principle) and marital sharing (equality principle) in interaction with gender ideology (entitlement principle) may explain how individuals perceive the fairness of different savings

arrangements, but these explanations have not been tested against each other yet.

**Method:** In a nationally representative factorial survey experiment, implemented in the German GESIS Panel, 3,948 respondents evaluated the fairness of randomly presented savings arrangements (N = 19,648 evaluations).

**Results:** Respondents rated equal control as more important than equal ownership to establish fairness in marriage. The ownership of savings does not seem to be directly linked to control, providing evidence against the equity principle. Inequality in ownership is rated fairer if it is in favor of the husband, whereas inequality in control is rated fairer if it is in favor of the wife. This suggests that gender is an ascriptive characteristic according to which resources should be allocated (entitlement principle).

**Conclusion:** The results indicate that the ideal of marital sharing is widespread, but is rather accomplished by equal control than by equal ownership. Individuals' fairness perceptions of inequality in marriage are gendered, that is, depend on whom inequality favors.

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*Key Words:* family dynamics, family economics, family resource management, gender, inequalities, marriage.

How valued resources should be distributed is a major question in society in general, but also in the private sphere including marriage. Distributive justice principles morally guide individuals on how to distribute resources. Little is known about which justice principles

individuals apply within marriage. Generally following Deutsch (1975), the equity principle (i.e., allocating rewards proportional to inputs) is dominantly applied to enhance productivity, whereas the equality principle (i.e., allocating rewards equally neglecting inputs) is dominantly applied to foster enjoyable relationships and promote harmony. Within marriage, the entitlement principle (i.e., allocating rewards according to gender) may also be an important justice principle (Hülle, Liebig, & May, 2018). For example, individuals may believe in men's greater financial competence and therefore think that it is fair if husbands have the last word in major financial decisions.

Prior research in this area has primarily focused on couples' outcomes of distributive justice processes by studying financial arrangements and the treatment of income in marriage (for a review, see Bennett, 2013). However, studying behavior can only partially explain which justice principles spouses apply in marriage (Pepin, 2019). For example, observed financial arrangements do not necessarily reveal intentions to share resources (Burgoyne & Sonnenberg, 2009). Having a joint bank account may not indicate that couples apply the equality principle as individual access to the account might be unequal following the equity principle (Elizabeth, 2001). Further, financial arrangements do not always reflect both spouses' norms and attitudes. On the one hand, financial arrangements may not be explicitly negotiated and rather evolve unconsciously for practical reasons and convenience (Addo, 2017). On the other hand, if spouses' norms conflict, the spouse with more financial resources may enforce her or his preferred financial arrangement (Blood & Wolfe, 1960).

In this study we experimentally examine if individuals apply the equality, the equity, or the entitlement principle when rating the fairness of different savings arrangement of fictitious couples. Here, savings arrangements refer to the distribution of control (i.e., who has the final say in important financial decisions) and ownership (i.e., in which name savings are held) of monetary savings between spouses. Revealing justice principles in marriage helps examining the subjective relevance of within-couple inequalities in savings. In addition, we can answer the question if individuals would feel fairly treated under different saving arrangements, which is essential for spouses' well-being

and the stability of marriage (Burgoyne & Lewis, 1994).

We focus on savings as an important component of wealth. Whereas earnings are flows of money, which can be clearly ascribed to each spouse, wealth is a stock of assets, where sources are more diffuse. Therefore, distributing control and ownership of wealth likely involves more ambiguous fairness considerations than distributing income.

By studying savings, we can address an empirical puzzle regarding substantial within-couple wealth inequalities in Germany. Whereas the formal ownership of wealth is unequally distributed, informal control of finances is more equally distributed between opposite-sex partners in Germany. For instance, women own about €33,000 less personal wealth than men in married and cohabiting couples (Grabka, Marcus, & Sierminska, 2015). However, in over 80% of the couples, respondents indicate that the partners share the last word in important financial decisions (Lott, 2009). This discrepancy may be explained by individuals prioritizing equal control over equal ownership.

Our study contributes in several ways to the literatures on distributive justice and on money in marriage. The overarching aim of this study is to identify distributive justice principles in marriage. First, we aim to address the question whether equality or equity is the dominant justice principle in marriage. Prior research showed experimental evidence that individuals apply both the equity and the equality principle when evaluating the fairness of housework and income allocations within couples (Auspurg, Iacovou, & Nicoletti, 2017; Burgoyne & Routh, 2001; Pepin, 2019). We test if individuals apply those two principles also when distributing the control and ownership of savings and ask if equity and equality are two equally relevant justice principles in marriage. Further, as prior research found mixed results regarding the question if men are more likely to apply the equity and women the equality principle (Auspurg et al., 2017; Burgoyne & Lewis, 1994), we exploratively examine differences in justice evaluations of male and female respondents.

Second, by considering entitlement as an additional justice principle and by testing if gender is a characteristic according to which resources should be distributed, we aim to contribute to the literature on gendered money in couples (Bennett, 2013). Prior research showed

that gendered inequalities in power over money within couples exist (Vogler & Pahl, 1994). Whereas wives have been more likely to manage money, that is, organize money and make ends meet, husbands have been more likely to control money, that is, make major financial decisions (Vogler, Lyonette, & Wiggins, 2008). However, the reasons why wives have less power over money than husbands have yet to be investigated in detail. We contribute to this literature by asking if individuals perceive the fairness of inequalities in control and ownership in favor of the husband differently than inequalities in favor of the wife.

Last, we aim to respond to the question of how couples reconcile the competing norms of autonomy and sharing in marriage (Bennett, 2013). For example, whereas the norm of autonomy may be fulfilled by having separate savings accounts, the norm of sharing may be met by having an equal say in major financial decisions. Prior experimental research showed that equality is an important ideal in marriage (Burgoyne & Routh, 2001; Pepin, 2019). However, little is known about how individuals would like to establish equality and what marital sharing comprises (Elizabeth, 2001). Equality can be established by pooling financial resources, but also by sharing control over financial resources. We test if sharing control is more important for fairness than sharing ownership. Further, we quantitatively examine if having separate savings accounts but equal control could be one option to reconcile autonomy and sharing.

We use data from a factorial survey experiment, which was implemented for this study in a nationally representative panel survey in Germany (GESIS Panel, <https://doi.org/10.4232/1.13245>). Each respondent received five different vignettes, which are descriptions of fictitious situations of a couple, and respondents were asked to evaluate the fairness of the described situations. The vignettes varied in the degrees of inequality in control and ownership of savings. We can clearly identify how single characteristics of a hypothetical couple affect fairness evaluations because these characteristics are randomly presented to respondents. This can be achieved by comparing the fairness evaluations of different vignettes, which include different combinations of couple's characteristics. The main advantage of the factorial survey approach is to overcome the empirical confoundedness of ownership and control over savings with

different individual characteristics such as gender, which is the central limitation of prior observational studies.

## BACKGROUND

Early qualitative literature on money in marriage focused on establishing a typology to categorize couples' financial management and control, differentiating between the whole wage, allowance, shared management, and independent management system (e.g., Pahl, 1983; Vogler & Pahl, 1994). To operationalize Pahl's (1983) typology in quantitative surveys, Pahl (1990) suggested to use two criteria to create a classification of couple's financial arrangements, namely if the couple pools their money and who "really" controls the money. On the basis of these two criteria, Kenney (2006) identified six systems of financial arrangements: separate money, women's control; separate money, men's control; separate money, equal control; pooled money, women's control; pooled money, men's control; and pooled money, equal control.

More recent studies refined and tested these typologies in different countries and over time, and tried to find couples' characteristics which explain couples' choices of financial arrangements (e.g., Coelho, 2014; Knudsen & Wærness, 2009; Lott, 2017). This research shows that the majority of married couples pool their money but men are more likely than women to have control over money independent of the couple's pooling mode (Kenney, 2006; Lauer & Yodanis, 2011; Vogler et al., 2008). Further, when women have the necessary resources they seem to prefer financial autonomy by separating income and have the highest probability to have at least equal control (Kenney, 2006; Lott, 2017; Vogler et al., 2008). There seems to be a general trend toward more separateness in couples' finances involving the risk that men have control over more money than their female partner due to, on average, lower earnings of women (Knudsen & Wærness, 2009). However, even if no money is pooled, personal money might be used to provide the partner with an economic buffer and some degree of control might be granted to the partner (Evertsson & Nyman, 2014).

The starting point of our study are Pahl's (1990) two criteria to classify couple's financial arrangements, but we focus on savings instead of income. We label the two criteria ownership and control. Ownership is

concerned only with the legal ownership of savings, that is, in whose name savings are held. Spouses may have separate savings accounts, joint accounts, or both. Control relates to which partner has the final say in major financial decisions (Pahl, 1983). Control has to be distinguished from money management, which refers to organizing money and making ends meet on a day to day basis (Vogler et al., 2008).

### *The German Context*

The meaning and relevance of inequalities in ownership and control over savings may depend on the social context. Because we use representative data from Germany, we briefly describe three aspects of the German context which are most relevant to contextualize ownership and control over savings. First, private savings are relatively common in Germany. The average household saving rate in 2018 was about 11% in Germany and is among the highest rates in OECD countries (e.g., 7% in the United States in 2017) (OECD, 2020). The high saving rate in Germany is explained with underdeveloped credit markets and strict mortgage regulations which necessitate private savings. In addition, tax incentives and public subsidies encourage saving (Börsch-Supan, Reil-Held, & Schnabel, 2003).

Second, the default marital property regime in Germany is separation of property (similar to most states in the United States) with community of accrued gains at divorce. In other words, within marriage both spouses remain the owners of their complete personal wealth including wealth that they accumulate during marriage. Their individual control is only limited in cases of very significant financial decisions and in cases which pertain to the joint household, for example, concerning the marital home. At divorce, the wealth gained during marriage (except for inheritances) is equally divided between both partners. Spouses can opt out of this default regime with a marital contract, but it is unclear how many couples choose alternative property regimes (Dutta, 2012; Tammen, 2007).

Third, Germany used to be classified as a strong male breadwinner society with a prevalent traditional gender ideology (Cooke & Baxter, 2010; Treas & Widmer, 2000). In recent decades, more egalitarian gender ideologies have spread (Grunow, Begall, & Buchler, 2018). In addition, welfare reforms such as the parental

leave reform of 2007 with two additional months of paid leave if each parent takes at least 2 months of leave shifted the gendered division of labor toward a modified breadwinner model with 1.5 earners. Still clear gender inequalities in the labor market persist with women remaining the main care givers (Trappe, Pollmann-Schult, & Schmitt, 2015).

To derive our hypotheses about fairness evaluations of couples' savings arrangements, we combine the literature on money in marriage with the literature on distributive justice in marriage considering the German context. Distributive justice theory addresses the fairness in the distribution of goods, such as ownership and control over savings. We test which justice principles (equality, equity, and entitlement) individuals apply when evaluating the fairness of different saving arrangements.

### *Equality Principle*

Equality refers to allocating resources equally neglecting inputs (Deutsch, 1975). In many modern societies, intimate relationships are perceived as "partnerships between equals, based on love, sharing and equality, in which all resources are shared equally, regardless of who contributes what to the household" (Vogler, 2005, p. 3). Particularly, this applies to marriage. In qualitative studies, participants reveal a rhetoric of sharing and equality, which shows that the norm of marital sharing is widespread (e.g., Burgoyne & Lewis, 1994; Elizabeth, 2001). If individuals have internalized the norm of sharing, they would apply the equality principle. Because the output of equality is not tied to any individual inputs, we expect that both equal ownership and equal control are rated fairer than unequal ownership and unequal control. In this study, we define equal ownership as a couple having a joint savings account, where both spouses legally own an equal share of the savings.

Hypothesis 1 (H1): Individuals judge situations fairer in which partners own equal savings (joint account) compared to unequal savings, adjusted for control.

Hypothesis 2 (H2): Individuals judge situations fairer if both partners jointly control savings compared to only one partner controlling savings, adjusted for ownership.

Prior research showed that individuals apply the equality principle when allocating money or housework within couples (Auspurg et al., 2017; Burgoyne & Routh, 2001; Pepin, 2019). However, it is unclear what individuals mean by equal sharing of money (Elizabeth, 2001). If individuals have the equality principle in mind, do they seek for equality in ownership of money or for equality in control over finances or both? To establish equality in marriage, having equal control over savings might be more important than having a joint bank account because control relates more to power than ownership of joint resources. Even when couples pool their money or when both partner work, women have been found to have on average less economic power than their partners (Kenney, 2006). To put it differently, “neither mere work in economic activities nor even ownership of economic resources is enough if the person doesn’t control them” (Blumberg, 1988, p. 54). Whereas a joint account does not guarantee equal informal rights to access money and to decide how to spend it (Burgoyne, 1990), having control over savings enables partners to enjoy these benefits. For example, a non-working partner might not feel entitled to spend the savings although jointly held. Thus, hidden economic inequalities may arise (Burgoyne, 1990). However, if partners equally control the savings although the account is held in only one name, both partners may benefit from this account. For example, a couple may always jointly decide over major financial issues. Thus, we expect equality of control to be more important for fairness judgments than equality of ownership.

Hypothesis 3 (H3): The control dimension is more important for fairness judgments than the ownership dimension.

Within-couple inequality in the ownership of savings may emerge deliberately or unconsciously, but couples may feel uncomfortable with unequal ownership in both ways as it conflicts with the norm of marital sharing. In contrast, there is a debate on the trend toward individualization of marriage (Yodanis & Lauer, 2014) and prior experimental research showed that individuals endorse some economic autonomy also for married couples (Pepin, 2019). Thus, modern couples have to reconcile the tensions between the norm of marital sharing and the desire for financial

autonomy. In a qualitative study, Evertsson and Nyman (2014, p. 78) found that “couples desired equality while attempting to maintain economic autonomy”. They interviewed couples, which did not pool their money at all, and found that although both partners had full control over their personal money in theory, they granted some degree of control to their partners. Thus, one way how couples could reconcile the competing norms of sharing and autonomy is to keep separate accounts but share control, that is, make major decisions together. Spouses may compensate inequality in the ownership of savings by sharing control over savings to establish equality. We therefore expect that inequality in ownership is rated fairer if control is equal compared to unequal control.

Hypothesis 4 (H4): Unequal ownership is judged fairer if both partners control the savings than if only one partner controls the savings.

### *Equity Principle*

Qualitative research showed that although the norm of marital sharing is widespread and the interviewed couples often aim to realize the ideal of equal sharing, in practice this was not always achieved (Burgoyne & Lewis, 1994). Instead, perceived ownership of joint money is often based on partners’ contributions, leading to (hidden) inequalities in accessing money (Burgoyne, 1990). In particular, the interplay of ownership and control may evoke equity considerations. Equity refers to allocating rewards proportional to inputs of different kind, such as contributions or efforts (Deutsch, 1975). Individuals may consider ownership as a valid input factor for the allocation of control. Therefore, they may think that owning more savings should go along with the right to control savings (Burgoyne & Lewis, 1994). Burgoyne (1990), for example, found that partners often only feel entitled to control household money if they have contributed to it. Therefore, we expect individuals to apply the equity principle.

Hypothesis 5 (H5): Individuals judge situations fairer in which the partner who owns more savings, also controls the savings than situations in which the other partner controls.

As prior research discussed if men are more likely to apply the equity principle than

women (Auspurg et al., 2017; Burgoyne & Lewis, 1994), we exploratively examine if male respondents are more likely than female respondents to apply the equity principle.

### *Entitlement Principle*

Traditional gender ideology, that is, individuals' support for a gendered division of labor, might affect fairness evaluations of couples' savings arrangements via the entitlement principle. This principle refers to allocating rewards according to gender or other ascribed status characteristics (Hülle et al., 2018). As mentioned above, despite a trend toward more egalitarian gender ideologies, a modified breadwinner model with 1.5 earners persists in large parts of the German population. Individuals with a rather traditional gender ideology may believe that men have a greater financial competence than women and that it is the role of the husband to be the main financial provider of the family. Nyman (2003, p. 92) termed this idea as "men's 'natural' right to money". The male breadwinner model implicitly induces the normative expectation that the male partner should have control over savings as he is responsible for the financial well-being of the family. In terms of the doing gender approach (West & Zimmerman, 1987), men do gender by owning and controlling savings. Women do gender by managing money and in particularly making ends meet. In contrast to control, money management is often perceived as part of housework (Vogler et al., 2008; Yodanis & Lauer, 2007). This implies that money and therefore economic inequality is not gender neutral. Therefore, we expect respondents to believe in men's entitlement to own and control savings.

Hypothesis 6 (H6): Unequal ownership is judged fairer if the husband owns more savings compared to the wife, adjusted for control.

Hypothesis 7 (H7): Unequal control is judged fairer if the husband has more control compared to the wife, adjusted for ownership.

Prior research found mixed evidence for gendered distributive justice in marriage. Gager and Hohmann-Marriott (2006) found that especially husbands' fairness evaluations of housework are based on the traditional gender-based division of labor. In contrast, Auspurg et al. (2017) found

little evidence for beliefs that gender is a characteristic according to which housework should be allocated. Regarding money, Pepin (2019) showed that respondents in the United States believe in gendered distributive justice. In her survey experiment, different vignettes were presented to respondents describing different hypothetical couples. Each respondent received one vignette and was asked to allocate the personal earnings of the couple to individual accounts and a shared account. Among others, the vignettes varied in the levels of both partners' earnings. In vignettes in which the woman was framed as the primary earner respondents allocated more money to her personal account compared to money on his personal account when the man was framed as the primary earner.

## METHOD

### *Data*

To test the hypotheses, we use the GESIS Panel (Version 29.0.0) (Bosnjak et al., 2018), a bimonthly probability-based mixed-mode access panel in Germany. That is, the GESIS Panel is accessible for academic researchers to field primary studies by passing through a peer review procedure. The reference population for the probability-based sample is the German-speaking population aged between 18 and 70 years permanently residing in Germany. To ensure representativeness also among non-Internet users, the GESIS Panel offers two participation modes. About two third of the respondents participate online (web-based), one third participate offline by mail.

Our factorial survey experiment on fairness perceptions of couples' savings arrangement was implemented in Wave fd 2018. Of 3,992, 3,948 respondents of this wave have participated in the factorial survey experiment. A total of 98% of the 3,948 respondents who started the factorial survey rated all presented vignettes. Because each respondent was asked to rate five vignettes, our analyses are based on 19,648 vignette evaluations, which are our units of analysis. There are 51% women in our sample. The average age of respondents is 53 years. We include both partnered and single respondents because we are interested in the general population's beliefs about fairness in couples. A total of 63% of the respondents are married. For further details see Table S2.

### Factorial Survey Design

Factorial surveys are used to gain deeper insights into respondents' judgment principles by comparing the influence of different stimuli on the outcome of interest. In our factorial survey, each respondent received five vignettes each describing a fictitious couple. These vignettes vary randomly on couple's savings arrangement. It was the respondents' task to evaluate the fairness of the five hypothetical situations. We employed a  $3 \times 3$  design, resulting in nine different vignettes. Thus, we had two dimensions (ownership and control) with each three levels (inequality in favor of wife, inequality in favor of husband, and equality). One of these vignettes is shown here (varying part in italics):

Imagine a married couple, woman and man, both at the same age. They have been living together in a rented flat for 5 years and are childless. Both work full-time and they share the housework. Both put some of their monthly incomes aside to save for major purchases or rainy days.

*They have €20.000 on a joint savings account and no individual savings accounts. Mainly the woman decides when and for what the whole savings are spent.*

How fair is this situation?

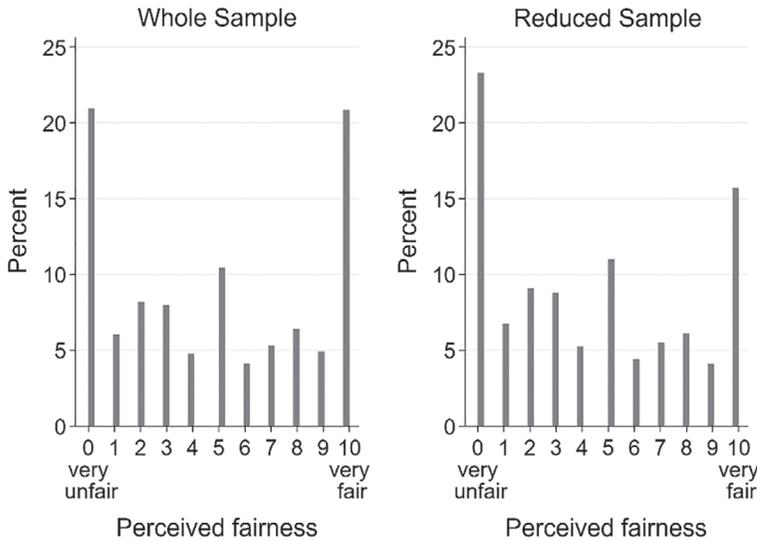
The first part of the vignette describes the vignette couple. This description stayed constant across the nine vignettes. The description is important to ensure that respondents think about the same scenario such that further characteristics, which individuals might associate with the hypothetical couple (e.g., different work effort of the spouses), cannot bias the analyses. By stating that both vignette partners work full-time, share the housework equally, are at the same age, and are married we hold important factors for fairness considerations constant. That means, we cannot generalize our findings to beliefs about fairness in couples deviating from these characteristics, for example, cohabiting couples. We deliberately left open the question of how the inequality in the ownership of savings has emerged (e.g., differences in income, in bequests, or in savings behavior between the spouses). The second part of the vignette includes the experimental manipulations, which are further explained in the measurement section.

To reduce methodological issues that could bias our estimates (e.g., order/carryover, learning, ceiling, and fatigue effects as well as censoring of responses), we took the following steps. To avoid fatigue effects we did not present all nine vignettes to all respondents. Instead, we built two decks including each five vignettes with a deliberate blocking technique (%MktEx Macro in SAS 9.4) to maximize orthogonality (dimensions do not correlate) and level balance (each level occurs with equal frequency) within each deck (Auspurg & Hinz, 2015, p. 39). Thereby, a most efficient design can be accomplished.

To control for differences in referent points between groups we used one anchoring vignette, that is, each respondent received the same vignette as the first vignette. Thus, only the remaining eight vignettes were assigned to the two decks. The anchoring vignette should be the baseline category of both dimensions to ensure statistical independence between vignette dimensions. We used equality in both dimensions as an anchor because this vignette makes it easier for respondents to judge the fairness of more unequal situations. Further, using this anchor vignette reduces ceiling effects because we expect respondents to rate this vignette as the fairest situation. To reduce order effects, we reversed the order of the four vignettes per deck, resulting in four experimental groups, each containing five vignettes (see Table S4). Finally, respondents could re-evaluate their answers to reduce ceiling effects. That is, by allowing re-evaluations we guarantee that the measuring range was not exceeded and respondents could rate each vignette in comparison to the other vignettes. The questionnaire was pretested qualitatively ( $N = 5$ ) and quantitatively ( $N = 132$ , convenience sample).

Factorial surveys are most efficient if the design is both orthogonal and balanced (Auspurg & Hinz, 2015). As we used one anchoring vignette, we do not have a balanced design. The equal control and joint ownership levels are oversampled. However, the two dimensions are almost orthogonal and are correlated only marginally ( $r = 0.05$ ,  $p < .001$ , see Table S1). Most importantly for the vignette experiment to work, the four different survey versions were randomly assigned to respondents. There are no significant correlations between the two dimensions of the vignettes' and the respondents' characteristics (see Table S1). Further, each

FIGURE 1. HISTOGRAM OF VIGNETTE EVALUATIONS.



Note.  $N = 19,648$  vignette evaluations in whole sample,  $N = 17,643$  in reduced sample.

Table 1. Vignette Dimensions and Levels

Dimensions	Levels
Ownership	(1) Joint ownership: They have €20,000 on a joint savings account and no individual savings accounts. (2) Wife owns more: The wife has got €15,000 on her savings account, the husband has got €5,000 on his savings account. (3) Husband owns more: The wife has got €5,000 on her savings account, the husband has got €15,000 on his savings account.
Control	(1) Equal control: They both decide equally when and for what the whole savings are spent. (2) Wife controls: Mainly the woman decides when and for what the whole savings are spent. (3) Husband controls: Mainly the man decides when and for what the whole savings are spent.

experimental group includes roughly the same number of respondents (see Table S4).

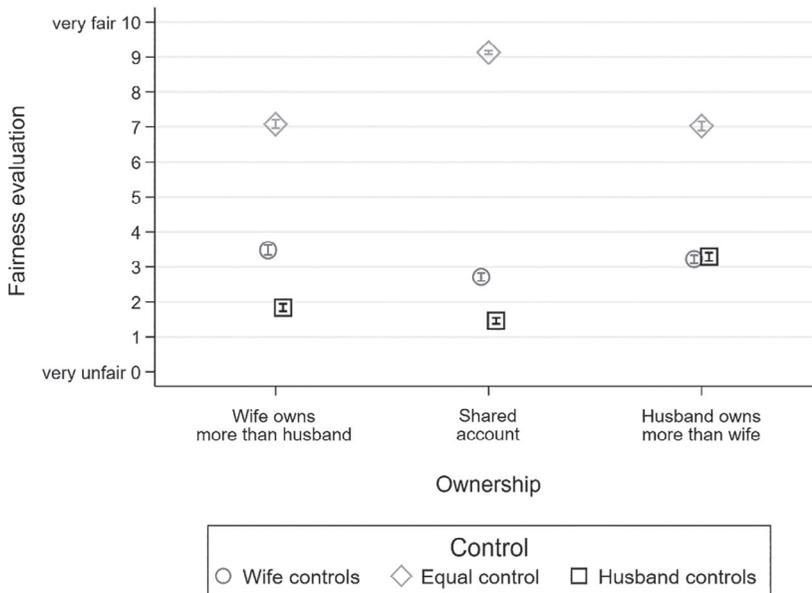
*Measurements*

For our analyses we use respondents' perceived fairness of the described situation as the dependent variable, which ranges from 0 (*very unfair*) to 10 (*very fair*). Figure 1 shows the histograms of the dependent variable for the whole sample and for a reduced sample with level balance. To generate the reduced sample, we randomly dropped half of the first vignette evaluations. Because each respondent first received the anchoring vignette (joint ownership and equal control), this vignette is oversampled in the original sample. The anchor vignette is the vignette, which is rated on average as the fairest,

explaining the higher percentage of the value 10 (*very fair*) in the whole sample.

Our predictor variables are ownership and control, both with three levels. The ownership dimension comprises the levels: (a) joint ownership, (b) unequal ownership in favor of the wife, and (c) unequal ownership in favor of the husband. The control dimension comprises the following levels: (a) equal control, (b) wife mainly controls, and (c) husband mainly controls (see Table 1). For the control dimension, we focus on major instead of minor decision-making because we want respondents to think about who should control the savings and not only about who should have access to savings. In addition, we use the interaction terms of ownership and control to explain fairness evaluations. As the respondents were

FIGURE 2. PREDICTED FAIRNESS EVALUATIONS



Note.  $N = 19,648$  vignette evaluations, 95% confidence intervals. Full results in Table 3.

randomly assigned to vignettes, respondents' characteristics do not have to be included in the statistical models (Mutz, 2011).

### Analytical Approach

We preregistered our hypotheses at the Open Science Framework (<https://osf.io/6ued4>). To test the hypotheses, we estimate ordinary least squares (OLS) regressions. As respondents evaluated up to five different vignettes and, thus, the single judgments are the unit of analysis, we adjust standard errors for clustering within respondents. We will first show the results of the regression graphically and then test the hypotheses with additional  $F$ -tests using predicted margins.

## RESULTS

### Graphical Presentation of Regression Results

We start with a graphical presentation of the OLS regression results in Figure 2. Predicted fairness evaluations are depicted on the  $y$ -axis. The  $x$ -axis comprises the ownership dimension with its three levels. The markers comprise the control dimension. The circles depict situations in which the wife controls, the diamonds situations in which both spouses jointly control,

and the squares situations in which the husband controls. Respondents rated situations in which both spouses equally control the savings fairest. For example, if the wife owns more savings than the husband and both control equally, respondents rated this situation as 7.08 on a fairness scale from 0 (*very unfair*) to 10 (*very fair*) with a standard deviation of 3.78. Coefficients were precisely estimated and confidence intervals were narrow.

### Hypotheses Tests

The hypotheses were tested by comparing predicted margins (see Table 2 for hypotheses tests and Table 3 for regression results). H1 states that equal ownership is rated fairer than unequal ownership. We found support for this hypothesis. Having a joint account was rated on average as 4.9 on the fairness scale, adjusted for control. The level of fairness was rated significantly lower when the wife owns more (difference = 0.47,  $p < .001$ ) and when the husband owns more (difference = 0.14,  $p < .001$ ), adjusted for control. Thus, joint ownership was rated less than one fairness point fairer than unequal ownership.

H2 states that equal control is rated fairer than unequal control. We also found support for this

Table 2. Hypotheses Tests with Predictive Margins

Hypothesis	Difference	Test statistic
H1	Joint account (4.90) – W owns (4.43)	0.47***
	Joint account (4.90) – H owns (4.76)	0.33***
H2	Equal control (7.89) – W controls (3.09)	4.79***
	Equal control (7.89) – H controls (2.12)	5.77***
H3	Equal control vs. W controls (4.79) – Joint account vs. W owns (0.47)	4.32***
	Equal control vs. H controls (5.77) – Joint account vs. H owns (0.33)	5.44***
H4	W owns & Equal control (7.08) – W owns & H controls (1.84)	5.25***
	W owns & Equal control (7.08) – W owns & W controls (3.48)	3.60***
	H owns & Equal control (7.03) – H owns & W controls (3.22)	3.81***
	H owns & Equal control (7.03) – H owns & H controls (3.29)	3.74***
H5	W owns & W controls (3.48) – W owns & H controls (1.84)	1.65***
	H owns & H controls (3.29) – H owns & W controls (3.22)	0.07
H6	H owns (4.76) – W owns (4.43)	0.33***
H7	W controls (3.09) – H controls (2.12)	0.98***

Notes. *N* = 19,648 vignette evaluations. The table shows *F*-tests of differences between predictive margins presented in Figure 2 and Table S3. Predictive margins in parentheses. H = husband; W = wife.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

Table 3. Results of Ordinary Least Squares Regression

Variable	All <i>B</i> ( <i>SE</i> )	Female <i>B</i> ( <i>SE</i> )	Male <i>B</i> ( <i>SE</i> )	Difference Female – Male
Wife owns more	-2.05*** (0.06)	-2.04*** (0.09)	-2.05*** (0.09)	n.s.
Husband owns more	-2.10*** (0.07)	-2.05*** (0.10)	-2.15*** (0.10)	n.s.
Wife controls	-6.42*** (0.07)	-6.53*** (0.09)	-6.30*** (0.10)	n.s.
Husband controls	-7.67*** (0.06)	-8.02*** (0.08)	-7.33*** (0.09)	***
Wife owns more × Wife controls	2.82*** (0.11)	2.82*** (0.16)	2.81*** (0.16)	n.s.
Wife owns more × Husband controls	2.42*** (0.08)	2.49*** (0.11)	2.36*** (0.11)	n.s.
Husband owns more × Wife controls	2.60*** (0.08)	2.61*** (0.12)	2.59*** (0.12)	n.s.
Husband owns more × Husband controls	3.93*** (0.10)	4.04*** (0.14)	3.83*** (0.15)	n.s.
Constant	9.13*** (0.03)	9.17*** (0.04)	9.09*** (0.04)	
<i>N</i>	19,648	9,950	9,698	
AIC	91,781	46,302	45,435	

Note. Reference categories: equal control; joint account. n.s. = not significant.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001.

hypothesis. Figure 2 clearly shows that equal control was rated fairer than unequal control. Having equal control was rated on average as 7.89 on the fairness scale, adjusted for ownership. The level of fairness was rated significantly lower when the wife controls (difference = 4.79, *p* < .001) and when the husband controls (difference = 5.77, *p* < .001), adjusted for ownership. Thus, equal control was rated roughly 5 to 6 fairness points fairer than unequal control.

H3 states that the control dimension is more important for fairness evaluations than the ownership dimension. We found support for this hypothesis. We tested H3 by examining the

differences between the main effects of ownership and the main effects of control. Thus, we tested if the coefficients belonging to the control dimension are significantly larger than the coefficients belonging to the ownership dimension. A joint *F*-test indicated that the effects of unequal control in favor of the wife or in favor of the husband are larger than the effects of unequal ownership in favor of the wife or in favor of the husband (*F*[2, 3,947] = 3,542.88, *p* < .001).

H4 states that unequal ownership is rated fairer if control is equally distributed compared to unequal control. In other words, equal control can compensate unequal ownership. We found

support for this hypothesis. Figure 2 clearly shows that unequal ownership (both in favor of the wife and the husband) was rated fairer if control is equally distributed. A joint  $F$ -test indicated that the differences between equal control and unequal control (both in favor of the wife and the husband) for both unequal ownership categories were significantly different from zero ( $F[4, 3,947] = 1,539.61, p < .001$ ).

H5 states that the one who owns more should also control the savings, thus, testing the equity principle. We found conflicting support for this hypothesis. When the wife owns more than her husband, respondents indicated it is fairer if she also controls the savings compared to her husband controlling (difference = 1.65,  $p < .001$ ). But when the husband owns more than the wife, we did not find a significant difference in fairness evaluation between husband controls and wife controls (difference = 0.07,  $p = .196$ ).

With hypotheses H6 and H7 we tested the entitlement principle. H6 states that respondents believe in husband's entitlement to own more savings than the wife. We found support for this hypothesis. Adjusted for control, respondents evaluated unequal ownership in favor of the husband fairer than unequal ownership in favor of the wife. However, the difference was substantially very small (difference = 0.33,  $p < .001$ ).

Last, H7 states that respondents believe in husband's entitlement to control more savings than the wife. We found no support for this hypothesis. Rather, results indicated that adjusted for ownership, respondents evaluated unequal control in favor of the wife fairer than unequal control in favor of the husband (squares below circles in Figure 2). Here, the difference between her controlling and him controlling (adjusted for ownership) was significant and close to 1 fairness point (difference = 0.98,  $p < .001$ ). This result indicated that respondents believed rather in wives' entitlement to control.

### *Gender Differences*

Female respondents differed little from male respondents in their fairness evaluations. Table 3 shows regressions results separately for female and male respondents. We conducted two separate regressions and tested all seven hypotheses in each subsample. There was only one difference in the hypotheses tests. For the male sample, we found support for the equity

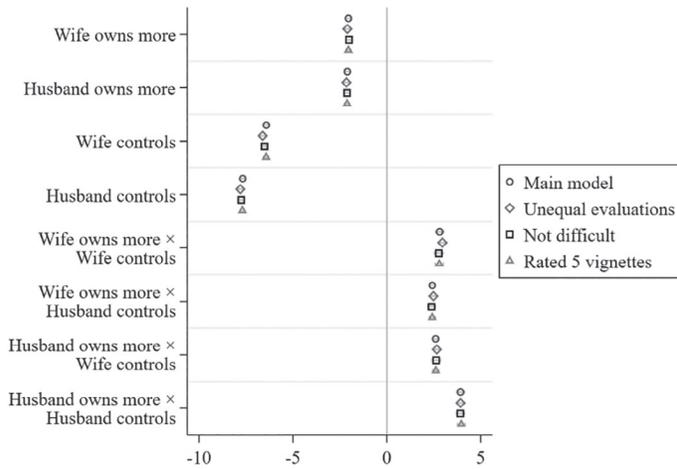
principle (H5), but for the female sample we did not find support. Male respondents indicated that if the wife owns more than her husband it is fairer if she controls the savings than he controlling (1.48,  $p < .001$ ) and if the husband owns more it is fairer if he controls instead of her (0.21,  $p < .01$ ). Female respondents also indicated that if the wife owns more than her husband it is fairer if she controls compared to him controlling (1.82,  $p < .001$ ). However, in the female subsample we did not find a significant difference in fairness evaluation between husband controls and wife controls when unequal ownership is in favor of the husband ( $-0.06, p = .475$ ), just like in the total sample. This suggested that men in contrast to women were more likely to apply the equity principle.

We further checked if this finding is caused by the fact that empirically men on average own more financial savings than their partner. That is, men may be more likely to apply the equity principle because empirically their financial contribution to the household may be greater (Cook & Hegtvædt, 1983). Considering only respondents who live together with their partners and controlling for respondent's actual within-couple wealth distribution (respondent owns more, respondent's partner owns more, and respondent owns as much as respondent's partner) interacted with the vignette dimensions, we no longer found evidence that male respondents apply the equity principle ( $p = .133$ , detailed results available upon request). Further, we found evidence for the equity principle only for respondents who own more savings than their partner ( $p = .000$ , detailed results available upon request). For respondents who own less or equal savings compared to their partner, we found no evidence for the equity principle. Thus, it seems that gender differences in the equity principle can be explained by respondents' characteristics such as their own financial contributions.

### *Supplementary Analyses*

With supplementary analyses we tested the robustness of the findings and the validity of the survey experiment. In the following, we discuss (a) if the sample indeed constitutes a valid random experiment, and if (b) satisfying by respondents (i.e., respondents attempt to minimize cognitive effort), (c) specifications, and (d) the order of vignettes biased the results.

FIGURE 3. ROBUSTNESS CHECKS: SATISFICING.



Note. Regression coefficients are shown.  $N = 19,648$  vignette evaluations (Main model),  $N = 19,163$  (Unequal evaluations),  $N = 18,354$  (Not difficult),  $N = 19,370$  (Rated 5 vignettes). 95% confidence intervals.

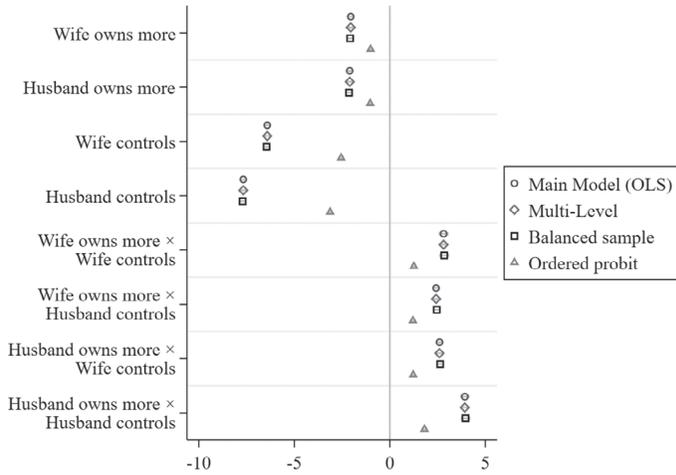
*Independence between vignette dimensions and respondents' characteristics.* For a valid experiment, vignettes must be randomly assigned to respondents. Thus, vignette dimensions should be uncorrelated with respondents' characteristics. Respondents were randomly assigned to the experimental groups. Due to nonresponse, however, vignette dimensions might be correlated with respondents' characteristics in the final sample. That is, some respondent's characteristics might lead to nonresponse on specific vignette evaluations. To check if vignette dimensions are uncorrelated with unobserved characteristics, we compared coefficients of a random effects and a fixed effects model (Auspurg et al., 2017). A cluster-robust version of Hausman's specification test, which allows for potential correlation in the errors within respondents, indicated that the coefficients do not differ significantly ( $\chi^2[8] = 9.57, p = .30$ , rhausman ado in Stata; Kaiser, 2015), suggesting that the vignette dimensions are uncorrelated with unobserved respondents' characteristics.

*Satisficing.* Another threat to validity is satisficing, that is, respondents attempt to minimize their cognitive effort (Oppenheimer, Meyvis, & Davidenko, 2009). For example, respondents did not read the different vignettes or did not think about the vignettes before evaluating the fairness. Vignette evaluations would then not

reflect respondents' true opinion, increasing noise and decreasing validity. Hints for satisficing behavior are that respondents (a) do not rate all five vignettes, (b) rate all five vignettes equally, and (c) indicate that they find the task of evaluating the vignettes difficult. Excluding respondents, (a) who did not evaluate all five vignettes ( $N = 19,370$  remaining observations), (b) who indicated the same fairness evaluation in all five vignettes ( $N = 19,163$  remaining observations), or (c) who indicated that the task was difficult or very difficult ( $N = 18,354$  remaining observations), did not change the results. For the latter, after the vignette evaluations, respondents were asked how difficult it was to rate the vignettes. Figure 3 shows that in all three additional models there are hardly differences to the main model, suggesting that there was no issue of fatigue or satisficing in the sample. However, we cannot completely rule out that respondents might have minimized their cognitive effort by answering according to social desirability rather than their true opinions, a problem which is inevitable in most studies of attitudes.

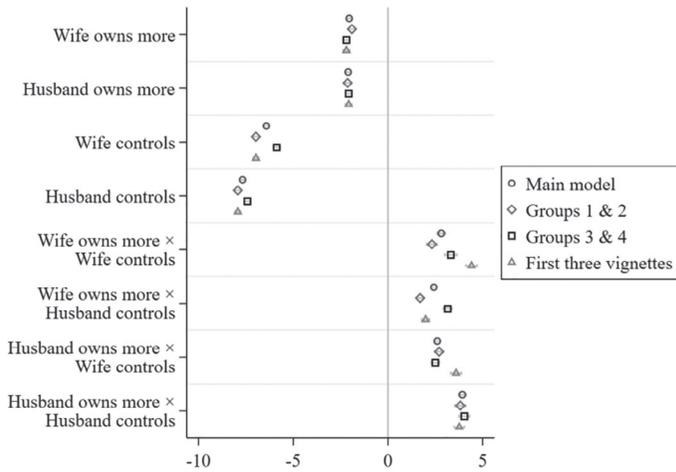
*Model specifications.* To test if model specifications affect the findings, we replicated the main model (OLS with cluster robust standard errors) using a multilevel model, which did not lead to a change in the coefficients or standard errors (see Figure 4). To check if the unbalanced

FIGURE 4. ROBUSTNESS CHECKS: MODEL SPECIFICATION.



Note. Regression coefficients are shown.  $N = 19,648$  vignette evaluations (Main model, Multi-Level, Ordered probit),  $N = 17,643$  (Balanced sample). 95% confidence intervals.

FIGURE 5. ROBUSTNESS CHECKS: ORDER EFFECTS.



Note: Regression coefficients are shown.  $N = 19,648$  vignette evaluations (Main model),  $N = 9,836$  (Groups 1 and 2),  $N = 9,812$  (Groups 3 and 4),  $N = 11,795$  (First three vignettes). 95% confidence intervals.

vignettes (oversample of anchoring vignette) affected results, we randomly split the sample in half, using the anchoring vignette only for half of the sample to reach level balance. Figure 4 shows that the coefficients did not change much. As the vignette evaluations might not be linear, that is, the differences between two fairness points may not be equal across the whole range, we performed an ordered probit regression as a sensitivity analysis. Figure 4 shows that all

coefficients were significant in the same direction as in the main model.

*Order effects.* Last, we checked if the order of the vignettes affects fairness evaluation. Indeed, we found evidence for this phenomenon. Because we split the sample in four experimental groups, with two groups each having the same set of vignettes but in reverse order, we could perform separate regressions with

each of the two experimental groups. Figure 5 indicates that the coefficients changed slightly in comparison to the main model. We run the additional hypotheses test in the same manner as before (see Table 2) and found differences to the main model only regarding H5 and H6. First, in the subsample with experimental groups 1 and 2 we found support for the equity principle (H5) ( $p = .047$ ). Second, in the subsample with experimental groups 3 and 4 we did not find support for men's entitlement to own more savings ( $p = .090$ ).

Another test for order effects is to include only the first three vignettes per respondents. By doing this, the dataset again included all vignette dimensions as each deck is reversely ordered once. The results of the hypotheses tests changed only regarding one hypothesis compared to the main model. We no longer found support for H1 (equal ownership is rated fairer than unequal ownership). In fact, in this subsample on average respondents rated unequal ownership in favor of the husband about 0.14 fairness points fairer than equal ownership ( $p = .01$ ). As respondents were randomly assigned to experimental groups, the results indicated that the order of the vignette matters for fairness evaluations. We rely on the analyses with the full sample because using all four experimental groups and all vignette evaluations will partly neutralize order effects.

## DISCUSSION

This study has examined fairness perceptions of experimentally manipulated savings arrangements in couples, that is, the distribution of ownership of and control over savings between partners. With a nationally representative factorial survey experiment in Germany, we tested competing norms about individual ownership rights and autonomy (equity principle) and marital sharing (equality principle) in interaction with gender ideology (entitlement principle). Respondents were asked to rate the fairness of hypothetical savings arrangements in couples with random inequality in ownership of and control over savings.

By examining the perceived fairness of married couples' saving arrangements, we contribute to the literatures on justice principles and money in marriage. With our methodological approach we overcome the empirical confoundedness between individual's characteristics such as gender and ownership of as

well as control over money, which is a central limitation of observational studies. Further, we quantitatively tested hypotheses derived from non-representative qualitative research (e.g., Elizabeth, 2001; Evertsson & Nyman, 2014). Last, we explicitly tested justice principles and focused on savings rather than income, complementing prior experimental research on money in couples (e.g., Pepin, 2019).

Our major aim was to identify justice principles in marriage, in particular regarding the distribution of savings. To this end, we first examined if individuals apply the equity and equality principle when evaluating the fairness of couples' savings arrangements and asked if equity and equality are two equally relevant justice principles in marriage. We found support for the equality principle, especially when looking at the control dimension. This is in line with prior experimental research studying justice principles in couples in different countries (Auspurg et al., 2017; Burgoyne & Routh, 2001; Pepin, 2019).

In contrast, we did not find convincing evidence for the equity principle (H5). This finding conflicts with a study by Pepin (2019), who showed that respondents in the United States endorse the primary earner maintaining a greater amount of the total household income. It also conflicts with qualitative research in the United Kingdom concluding that patterns of personal spending money are dominantly based on equity (Burgoyne & Lewis, 1994). In contrast to prior studies, we examined savings instead of earnings and control instead of money management. Earnings can be clearly ascribed to individuals whereas savings are more diffuse because savings are stocks rather than flows. If a couple owns a joint savings account and both spouses irregularly put some money into this account, the spouses may not know how much money each spouse has contributed to the joint savings. Therefore, earnings might carry more than the ownership of savings implicit rights to control. Because money management is a rather executive task, it is less strongly linked to power than control (Vogler et al., 2008). Therefore, equality in control might also be subjectively more important than equality in money management. In addition, we looked at a country with a rather high prevalence of traditional gender ideology. Therefore, it might be that marital sharing and the equality principle is more established in Germany than in other countries. Further,

respondents in Germany might not perceive ownership of savings as relevant because the default German marital property regime of accrued gains provides financial security in the event of divorce. However, redistribution of property exists in many other contexts including the United States. All in all, our study suggests that marital sharing and the idea of equality trump equity considerations when looking at control and ownership of savings at least in Germany.

Regarding gender differences, we found support for the equity principle only for male respondents. However, after controlling for respondents' actual within-couple distribution of savings, we found no evidence for the equity principle for female or male respondents. Thus, gender differences in justice principles seem to be explained by respondents' characteristics such as their financial contributions to the household, which should be further examined in future research.

To examine if entitlement is another important justice principle in marriage, we tested if gender is a characteristic according to which resources should be distributed in marriage. We found evidence for the entitlement principle, but not in the expected direction. Based on traditional gender ideology we expected respondents to believe in men's entitlement to own more savings and to control them. Although our results comply with beliefs in men's entitlement to own, they also suggest that respondents believe in wives' entitlement to control savings. This result might be interpreted as beliefs in greater support for women's economic autonomy. This interpretation would be in line with findings of Pepin's (2019) experimental vignette study in the United States, in which respondents were asked to allocate the income of hypothetical couples between their individual accounts and a shared account. She showed that when women were presented as the primary earners, respondents put more money on their personal accounts than when men were presented as the primary earners. Pepin (2019) argues that the male breadwinner norm might suppress support for men's economic autonomy but not women's.

However, our evidence for beliefs in women's entitlement to control savings may also be explained by expectations about gender-specific behavior independent of traditional gender ideology. Respondents might have assumed that

the hypothetical wife but not the hypothetical husband would spend savings rather on goods benefiting both partners than on goods benefiting only one partner (Blumberg, 1988; Lundberg, Pollak, & Wales, 1997). Another explanation of the finding could be measurement error. Respondents might have misunderstood our measure of control as money management, which was traditionally the wife's role (Vogler et al., 2008). However, in our qualitative pilot we did not find hints that participants thought about management rather than control. Importantly, inequality in favor of the husband was rated differently than inequality in favor of the wife. Thus, unlike in the allocation of housework (Auspurg et al., 2017), when distributing money individuals seem to differentiate on the basis of gender, indicating that beliefs about money in marriage and fairness perceptions of inequality are gendered. Although savings are more common and therefore may play a more important role in German marriages compared to other countries, based on Pepin's (2019) findings regarding beliefs in women's economic autonomy our findings may be generalizable to other countries.

Last, we examined how individuals would like to establish equality and what marital sharing comprises. Our results suggest that the norm of marital sharing is widespread but is rather fulfilled by equal control than by equal ownership. We found that equal control is more important for fairness than equal ownership. We further showed that unequal ownership is judged fairer if both partners control the savings than if only one partner controls the savings. This is evidence for respondents' beliefs that unequal ownership can be compensated by equal control. Respondents seem to believe that autonomy and sharing can be reconciled by having separate savings accounts but equal control. Whereas separate saving accounts guarantee long-term autonomy in access, having equal control realizes the norm of sharing. Because prior qualitative research shows that couples in different countries try to reconcile the competing norms of autonomy and sharing (Evertsson & Nyman, 2014; Pepin, 2019), this finding may be generalizable to other contexts. However, comparative research is needed to understand how individuals' beliefs about sharing in couples are shaped by national contexts.

Our findings should be interpreted in light of its limitations. One limitation of this study is

that results are only transferable to the German general population's beliefs about the fairness of savings arrangements in married, childless, full-time working, and housework-sharing couples because we kept those characteristics constant in the vignettes. Important complements for future research would be to experimentally manipulate marital and parental status but also to examine other financial arrangements (income or other wealth components). Further, it would be interesting to look at justice principles in the context of divorce.

Another limitation is that we cannot completely rule out the possibility of order effects. We showed that the order of vignettes affects fairness evaluations. However, as we reversed the order of the vignettes within the two decks once to have four experimental groups, we at least reduced order effects when using the whole sample. Within the GESIS Panel it is only possible to use up to four experimental groups. An important methodological take-home message of this study is to always randomize the order of vignettes.

Last, the study is theoretically limited in neglecting access to and management of savings. By studying control over savings (i.e., final say over major financial decisions), we neglect access to savings for smaller purposes. Elizabeth (2001) cautions that if access to income is neglected, inequalities in personal spending power may emerge although control is shared. Although the difference between access to and control over savings might not be as severe as the difference between access to and control over income, access to savings is arguably another important factor affecting (financial) well-being.

One could conclude that wealth inequalities can be compensated by sharing equal control. Because control is shared in most German couples (Lott, 2009), the substantial within-couple wealth inequalities identified in prior studies (Grabka et al., 2015) might not be perceived as subjectively relevant by those affected. However, if equality is established by having equal control, hidden inequality through unequal access may be in place (Elizabeth, 2001). The acceptance of unequal ownership if control is shared, thus, involves the risk that inequalities in accessing savings still emerge due to beliefs in individual ownerships rights and equity considerations, affecting personal spending power and the (financial) well-being of individuals.

## NOTE

This research is supported by the German Research Foundation (DFG), grant number LE 3612/2-1. P.M. Lersch's research was partly supported by the Support Network for Interdisciplinary Social Policy Research (FIS) of the German Federal Ministry of Labor and Social Affairs. We thank Tamara Gutfleisch, Nicole Kapelle, and Theresa Nutz for helpful comments on earlier versions of this article and Miriam Liedtke and Anika Nelles for excellent research assistance. All errors remain those of the authors. For helpful suggestions regarding the design and implementation of the factorial survey experiment within the GESIS Panel we thank three anonymous reviewers and the GESIS Panel Team. Replication files are available at <https://osf.io/h4uvb/>.

## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

**Table S1.** Correlation Matrix

**Table S2.** Descriptive Statistics

**Table S3.** Predicted Margins, Separated for Female and Male Respondents

**Table S4.** Vignettes Across Survey Versions

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