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Exploring the Morality of Tax Morale

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ABSTRACT

Tax morale, commonly measured as a moral evaluation of cheating on taxes, is important for shaping policy to increase voluntary compliance. Although tax morale is commonly understood as citizens' moral responsibility to pay taxes, there is a dearth of empirical research on whether and how differences in basic morality shape tax morale. Three studies investigated associations between moral ideals, as defined by Moral Foundations Theory, and tax morale. Study 1 ($N = 103{,}474$; 57 countries) examined how national differences in moral foundations predict individuals' tax morale. Study 2 ($N = 1019$) and Study 3 ($N = 1001$) focused on individual-level differences. All studies employed multiverse analyses, iterating through multiple combinations of control variables. Despite the apparent semantic similarities between morality and tax morale, consistent empirical connections emerged only with respect to individualising foundations, in particular, fairness. Findings provide first evidence for the role of morality in tax morale, while contributing to a better understanding of why people pay taxes.

1 | Exploring the Morality of Tax Morale

A well-functioning tax system is essential for countries to fund investments in infrastructure, education, healthcare, welfare, and other public services. For tax systems to work effectively, taxpayers need to fulfil their tax obligations. Tax morale has been established as one of the key factors influencing tax compliance, the actual behaviour of paying taxes (e.g., Cummings et al. 2009), and has also gained increasing attention of policy makers. For example, the Organisation for Economic Co-operation and Development (OECD) has repeatedly emphasised the importance of tax morale, in particular for developing countries (OECD 2019, 2022).

Tax morale is usually measured as the perceived (moral) justifiability of cheating on taxes, which makes tax morale a potentially important topic of moral psychology. Yet, no research to date has examined the role of more general moral values in tax morale. Are basic moral principles and values that are considered to guide individuals' moral judgement and behaviour, associated with tax morale? Which of such moral principles—for example, fairness, or in-group loyalty, or obedience to authority—predict tax morale? The present research seeks to answer these questions by looking at tax morale through the lens of the Moral Foundations Theory (Haidt and Graham 2007; Haidt and Joseph 2004), a theory that maps out the content of individuals' moral values and beliefs, and how these determine moral judgement and behaviour. Moral Foundations Theory thus provides a potentially valuable framework for assessing the empirical connections between moral values and tax morale and for exploring the "morality" of tax morale.

1.1 | Tax Morale

The concept of tax morale can be traced back to the middle of last century, when it was defined as people's attitude towards

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accomplishing their tax duties (Schmölders 1960). The word duty alone suggests a clear connection with morality. The definition was later updated, focusing predominantly on the individuals' intrinsic motivation to pay taxes (e.g., Braithwaite and Ahmed 2005; Frey 1997; Torgler 2007). Nowadays, by some, tax morale is used as an umbrella term for any psychological factor that influences voluntary tax compliance (e.g., Horodnic 2018; Luttmer and Singhal 2014).

In practice, tax morale is typically measured in a much narrower way, as the perceived justifiability of cheating on paying taxes. This single-item operationalization of tax morale, asking if it is it justified to cheat on taxes (e.g., World Values Survey, European Values Survey, Latinobarómetro), is one of several questions in the Morally Debatable Behaviours Scale (MDBS; Harding, Phillips, and Fogarty 1986). Multiple previous studies using this or variations of this operationalization, have found tax morale to be a predictor of tax paying behaviour. This has been illustrated in research relating higher tax morale to less tax evasion (e.g., Brink and Porcano 2016), to a decreased shadow economy (Halla 2012; Torgler, Schaffner, and Macintyre 2007; Torgler, Schneider, and Schaltegger 2007; Torgler and Schneider 2009), as well as to reduced participation in undeclared work (e.g., Williams and Horodnic 2015). As such, it seems important to identify the determinants and correlates of tax morale. Indeed, it has been found that tax morale is associated with the characteristics of formal institutions (e.g., trust in government, perceived government fairness) and informal institutions (e.g., culture, religion), as well as with sociodemographic characteristics (e.g., gender, age) and personal values (e.g., support for democracy) (Horodnic 2018).

We believe that previous research overlooked one especially relevant factor: the obvious conceptual connection with moral psychology (for one, tax morale is most commonly measured as a moral evaluation of cheating on taxes). While research has established links between moral emotions/judgement with tax compliance behaviour (Jacquemet et al. 2019), there are no empirical studies on whether and how individual differences in moral values might shape tax morale. The present research aims to explore the associations between individuals' moral values—as specified by the commonly applied Moral Foundations Theory (Graham et al. 2013) – and tax morale as typically measured in the taxation literature.

1.2 | Morality

People vary in what basic principles guide their moral judgement and decision making. For example, when making a moral judgement, some people weigh the question of whether a certain action is fair or not more strongly, while other people give more weight to whether a certain action shows respect to authority or reflects in-group loyalty. While psychologists have been trying to understand and classify these guiding principles of moral judgement for decades (e.g., Fiske 1992; Rozin 1999; Shweder et al. 1997), Moral Foundations Theory (hereafter: MFT) has emerged as one of the more prominent theoretical approaches (Haidt and Graham 2007; Haidt and Joseph 2004). MFT proposes five "foundations" upon which individuals, social groups, and cultures base their moral judgement and behaviour (Graham et al. 2011). These foundations and their relevant virtues are summarised in Table 1 (adapted from; Graham et al. 2013). The foundations can be further split based on the locus of moral values, where either individuals or the group as a whole are in focus. Consequently, the former set (*care* and *fairness*) has often been referred to as the "individualising" foundations, and the latter set (in-group, authority, purity) as "binding" foundations (Graham, Haidt, and Nosek 2009). The current research examines the relation between these five moral foundations and tax morale.

Importantly, as MFT proposes that moral foundations describe differences among individuals as well as among cultural groups, in the current research, we consider moral foundations as characteristics of both, individuals and national cultures. Prior research has shown that individuals' personal characteristics and the same characteristics aggregated at the level of larger geographic areas can affect their beliefs, behaviour, and life outcomes (e.g., Ebert et al. 2021). For example, individuals who score higher on neuroticism as well as individuals who just live in areas with higher aggregate neuroticism scores tend to report lower life satisfaction (Stavrova 2015). Similarly, research on norms has shown that both privately held beliefs as well as the beliefs broadly endorsed by one's national culture can shape individuals' life experiences (Stavrova and Fetchenhauer 2015; Stavrova, Schlösser, and Fetchenhauer 2011). Hence, we assume that one's own moral foundations, as well as the moral foundations of one's national culture, can contribute to explaining individual differences in tax morale.

1.3 | Exploring the Morality of Tax Morale

The aim of the present research is to identify whether the moral foundations are associated with individuals' tax morale, and if so, which ones—*care*, *fairness*, *authority*, *loyalty*, or *purity*. In order to do so, we examined whether moral foundations scores on the country level (Study 1) and on the individual level (Studies 2 & 3) predict individuals' tax morale. Cheating on taxes usually gives rise to some kind of moral judgement, and this begs the question of which of the moral foundations are violated by such behaviour, if any. Below we will summarise theoretical arguments for the associations of tax morale with each moral foundation.

We assume that people who are concerned about violations of *fairness* are likely also going to be concerned about effective

TABLE 1 | Descriptions of the moral foundations and the associated virtues.

Moral foundations	Relevant virtues
Care/Harm	Caring, kindness
Fairness/Reciprocity	Fairness, justice, trustworthiness
Ingroup/Loyalty	Loyalty, patriotism, self-sacrifice
Authority/Respect	Obedience, deference
Purity/Sanctity	Temperance, chastity, piety, cleanliness

Note: Adopted from Graham et al. (2013).

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redistribution policies and about people getting their "fair share," as well as disapprove of rule breaking and dishonesty of others. All these elements are part of a well-functioning taxation system. People who value respect for *authority* might similarly think that paying taxes is seen as a sign of respect towards the tax authorities or government, and failing to do so as a violation one's moral duties. Within taxation research, the perceived power of tax authorities, as well as trust in them, have been consistently linked to higher tax compliance (e.g., Kirchler, Hoelzl, and Wahl 2008) and therefore might be closely associated with respecting authority. *Care/harm*, as well as *ingroup/loyalty* concerns have a close association with altruistic and prosocial tendencies (Fiedler et al. 2018; Nilsson, Erlandsson, and Västfjäll 2016, 2020). People who score high on the foundation of *care/harm* and *ingroup/loyalty* might also be more inclined to have higher tax morale, as taxes contribute to the collective good (e.g., Brizi et al. 2015). Lastly, *purity/sanctity* may not have a direct association with taxation, yet these values are often held by highly religious individuals (i.e., Graham et al. 2011), who were shown to score higher on tax morale (e.g., Alm and Torgler 2004, 2006).

To our knowledge, no study to date has investigated the relation of the MFT with tax morale, which is why the current studies are of exploratory nature. To increase the transparency of the procedure, especially considering the variety of potentially relevant control variables, we used a multiverse analysis (also called specification curve analysis) approach (Steegen et al. 2016). A multiverse analysis performs analyses across multiple combinations of variable sets. The results are interpreted in a cumulative fashion, rather than by singling out specific model specifications. In the present studies, we varied across different reasonable combinations of control variables, for each of the five foundations as predictors of tax morale.

1.4 | Transparency and Openness

Studies 1 & 2 used archival data and hence did not determine the sample size beforehand and the studies were not preregistered. Study 3 was preregistered. We did not exclude any data (unless exclusions were preregistered), and report all measures used in the analysis. All preregistrations, openly available data, analysis code, research materials, and online supplements for the studies are available at: https://osf.io/xu5jb, where we also describe how to access proprietary data used.

2 | Study 1

2.1 | Method

2.1.1 | Data and Participants

2.1.1.1 | Tax Morale. To assess tax morale, we used data from the European Values Survey (EVS) and the World Values Survey (WVS). The present study used version 3.0.0 of the joint EVS/WVS 2017–2022 dataset (EVS/WVS 2022). The dataset contained 147,260 observations of participants from 88 different countries. Seven countries[1] had data collected for both the EVS and WVS, in which case the data was simply aggregated within the respective country. Tax morale was measured in all participating countries, with little to no missing observations (min = 0%, max = ~5%).

2.1.1.2 | Moral Foundations. The data on moral foundations was taken from a large dataset collected on the "YourMorals.org" website (YourMorals 2022). Access to the dataset was granted by the YourMorals team in June 2022, which at the time included observations from 517,590 participants. After excluding participants with a non-identifiable country of residence (i.e., through self-reported residence or IP addresses), and excluding countries with less than 100 observations (cf. Atari, Lai, and Dehghani 2020), the dataset contained observations of 492,512 participants from 65 different countries. Moral foundation scores were averaged on the country-level.

2.1.1.3 | Final Dataset. The final dataset was constructed by merging the EVS/WVS dataset, containing individual-level scores for tax morale and sociodemographic data, with country-level indicators for moral foundations (YourMorals.org), as well as country-specific development indicators (World Bank, 2022a, 2022b). The final dataset consisted of 103,474 observations from 57 different countries. There was a minimum of 985 (Argentina and Chile) and a maximum of 4319 (Netherlands) individual observations ($M = 1815.33$, SD = 837.49). Descriptive statistics, including individual-level and country-level sample sizes for each country, are depicted in Table 2.

2.1.2 | Measurement

2.1.2.1 | Tax Morale. Tax morale is measured with the question from the Morally Debatable Behaviours Scale (MDBS; Harding, Phillips, and Fogarty 1986). People were asked, "Please tell me for each of the following whether you think it can always be justified, never be justified, or something in between, using this card: Cheating on tax if you have the chance". Participants were asked to indicate on a 10-point scale whether they think the behaviour is justifiable (1 = *never justifiable*; 10 = *always justifiable*). The responses were, as in prior studies, highly skewed (with ~64% of the respondents selecting 1 = *never justifiable*). Therefore, and following the established practice (e.g., Alm and Torgler 2006; Doerrenberg and Peichl 2013; Heinemann 2011), the tax morale measure was dichotomized (0 [previously 2–10] = *sometimes or always justifiable*; 1 [previously 1] = *never justifiable*) and we used logistic regression models for the analyses.

2.1.2.2 | Moral Foundations. The moral foundations were assessed using the 30 item Moral Foundations Questionnaire (MFQ), the validity of which has been established in prior studies, including cross-national samples (e.g., Atari, Lai, and Dehghani 2020; Graham et al. 2011). The questionnaire contains five subscales for each of the foundations (*care/harm*, *fairness/reciprocity*, *ingroup/loyalty*, *authority/respect*, and *purity/sanctity*). Each foundation is measured with two types of questions. First, participants are asked to indicate the extent to which the different considerations representing each foundation (three considerations per foundation) are guiding their moral judgement (e.g., When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking: "Whether or not someone

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TABLE 2 | Descriptive statistics with number of observations per country, mean moral foundations scores, and mean tax morale scores.

	Individual-Level		Country-Level					
Country	N_{tax}	**Tax morale**	N_{moral}	**Care**	**Fairness**	**Ingroup**	**Authority**	**Purity**
Argentina	985	0.65	491	3.41	3.73	2.19	2.17	1.43
Australia	1791	0.67	9937	3.50	3.54	2.17	2.27	1.62
Austria	1629	0.69	506	3.37	3.64	2.17	1.97	1.34
Bulgaria	1535	0.79	170	3.14	3.47	2.41	2.20	1.62
Brazil	1708	0.61	2244	3.41	3.71	2.17	2.20	1.42
Canada	4018	0.51	23,538	3.45	3.52	2.32	2.30	1.66
Switzerland	3147	0.62	1044	3.38	3.62	2.33	2.13	1.50
Chile	985	0.59	451	3.41	3.66	2.39	2.33	1.54
China	3023	0.78	1204	3.20	3.43	2.49	2.36	1.79
Colombia	1520	0.73	332	3.55	3.74	2.20	2.24	1.55
Czechia	1768	0.65	485	3.21	3.47	2.17	2.03	1.45
Germany	3663	0.76	4311	3.41	3.63	2.15	2.03	1.39
Denmark	3358	0.75	758	3.29	3.57	2.19	1.98	1.13
Ecuador	1187	0.65	125	3.54	3.77	2.43	2.32	1.80
Egypt	1178	0.79	160	3.60	3.71	2.47	2.16	1.92
Spain	1175	0.54	1172	3.55	3.75	2.33	2.21	1.52
Estonia	1275	0.69	130	3.34	3.48	2.30	2.17	1.65
Finland	1191	0.66	1247	3.27	3.66	2.27	1.95	1.21
France	1859	0.64	2072	3.39	3.70	2.22	2.08	1.39
United Kingdom	1779	0.73	20,337	3.46	3.61	2.15	2.13	1.46
Greece	1193	0.72	408	3.45	3.72	2.35	2.10	1.50
Guatemala	1198	0.62	358	3.62	3.65	2.71	2.63	2.41
Hong Kong SAR China	2071	0.58	1589	3.28	3.49	2.50	2.45	1.95
Croatia	1472	0.73	405	3.51	3.74	2.21	2.02	1.57
Hungary	1503	0.80	345	3.43	3.63	2.34	2.09	1.51
Indonesia	3193	0.61	930	3.50	3.52	2.80	2.85	2.61
Iceland	1608	0.65	252	3.57	3.74	2.10	1.95	1.29
Italy	2256	0.66	895	3.42	3.69	2.23	2.07	1.42
Japan	1329	0.88	1672	3.33	3.43	2.24	2.30	1.78
Kenya	1231	0.40	166	3.65	3.70	2.70	2.89	2.54
South Korea	1245	0.43	1103	3.30	3.52	2.26	2.19	1.74
Lithuania	1408	0.48	133	3.08	3.42	2.49	2.21	1.56
Latvia	1276	0.56	226	3.33	3.44	2.78	2.45	1.92
Mexico	1722	0.47	1118	3.56	3.74	2.31	2.32	1.61
Malaysia	1313	0.35	488	3.60	3.61	2.57	2.59	2.20
Netherlands	4319	0.60	2157	3.43	3.60	2.14	2.08	1.47
Norway	1119	0.71	1198	3.25	3.50	2.26	2.11	1.41

(Continues)

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TABLE 2 | (Continued)

	Individual-Level		Country-Level					
Country	N_{tax}	**Tax morale**	N_{moral}	**Care**	**Fairness**	**Ingroup**	**Authority**	**Purity**
New Zealand	1028	0.67	2783	3.51	3.54	2.19	2.18	1.60
Pakistan	1926	0.73	164	3.69	3.82	2.35	2.51	2.39
Peru	1372	0.70	510	3.30	3.41	2.73	2.58	2.00
Philippines	1198	0.32	907	3.51	3.68	2.79	2.78	2.45
Poland	1334	0.80	1318	3.49	3.56	2.27	1.96	1.52
Puerto Rico	1117	0.87	305	3.70	3.75	2.77	2.75	2.16
Portugal	1201	0.63	448	3.57	3.78	2.41	2.21	1.42
Romania	2809	0.68	516	3.38	3.62	2.29	2.15	1.61
Russia	3510	0.34	521	3.11	3.44	2.12	1.97	1.59
Singapore	1998	0.78	2228	3.44	3.48	2.59	2.54	2.15
Serbia	2440	0.66	178	3.29	3.74	2.23	2.02	1.63
Slovakia	1416	0.45	229	3.34	3.62	2.18	2.05	1.59
Slovenia	1066	0.70	274	3.55	3.88	2.32	2.19	1.54
Sweden	1188	0.69	2419	3.24	3.51	2.26	2.07	1.26
Thailand	1486	0.69	988	3.41	3.51	2.56	2.51	1.96
Turkey	2395	0.79	550	3.59	3.82	2.07	1.89	1.69
Taiwan	1223	0.67	663	3.28	3.46	2.42	2.30	1.91
Ukraine	2765	0.45	139	3.03	3.50	2.16	1.95	1.55
United States	2572	0.62	385,469	3.46	3.50	2.44	2.51	1.95
Vietnam	1200	0.38	301	3.37	3.50	2.54	2.44	1.97

Note: N_{tax} = Number of observations for the tax morale scores, used as the dependent variable. N_{moral} = Number of observations used to calculate the mean country-level scores for each moral foundation. Mean scores for tax morale were computed using the dichotomized tax morale variable, with 0 indicating low and 1 indicating high tax morale. For the moral foundations, the mean scores are on a scale from 0 which indicates no relevance, to 5 which indicates high relevance of the respective foundation.

acted unfairly": 0 = *not at all relevant*; 5 = *extremely relevant*). Second, participants are shown a list of statements reflecting each foundation's principles (three statements per foundation) and are asked to indicate their (dis-)agreement (e.g., "Justice is the most important requirement for a society": 0 = *strongly disagree*; 5 = *strongly agree*). Scores for the moral foundations were averaged and aggregated at the country level (Cronbach's α's: 0.70 [*care*], 0.64 [*fairness*], 0.72 [*ingroup*], 0.75 [*authority*], and 0.84 [*purity*]).

2.1.3 | Control Variables

Study 1 included control variables both at the individual and national level. Our choice of controls has been guided by prior research (e.g., Horodnic 2018) and data availability. The models control for sex (0 = *male*; 1 = *female*), age (16 years to 82 years and older[2]), religiosity of the participant (0 = *not religious/atheist*; 1 = *religious*), as well as trust in the government (i.e., "How much confidence do you have in the government?": 1 = *a great deal*; 4 = *none at all*) and subjective assessment of household income (i.e., participants were asked to rank their household in comparison to others in their respective country; 1 = *lowest income group*; 10 = *highest income group*). The question about household income was stated slightly different in the EVS and WVS questionnaires, but the content and scale were the same. All individual level control were group mean centered within country. These control variables were part of the joint EVS/WVS dataset.

The country-level variables were the GDP_{pc} and the Gini index. GDP_{pc} is the sum of gross value added by all resident producers, divided by midyear population of the respective country. The data is in current U.S. dollars (for full definition, see World Bank, 2022a). The Gini index measures to which extent the distribution of income deviates from a perfectly equal distribution. An index of 0 represents perfect equality and an index of 100 perfect inequality (for full definition, see World Bank, 2022b). The development indicators were taken from the World Development Indicators Database (World Bank, 2022a, 2022b). As these indicators are often not available for each year in every country, the closest available match (to when the EVS/WVS data for the respective country was collected) was used.

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2.2 | Results

We used logistic multilevel regression models (with individuals nested within countries) to predict individual differences in tax morale using country average moral foundations scores. Correlations between these foundations are reported in Table 3. To increase the generalizability and robustness of the models, we used a multiverse analysis approach (e.g., Steegen et al. 2016). The multiverse analysis involved fitting models for all possible combinations of the individual control variables (165 models in total). As our focal predictor is on the national level, we decided to include the country-level predictors consistently in all combination – except for five models, one for each combination, that did not include any controls. All models were fitted using random intercepts for each country to account for the multilevel structure of the data. A summary of the multiverse analysis is presented in Figure 1.

The majority of model specifications revealed significant associations with tax morale for the *care* ($OR_{care} = 2.32$) and *fairness* ($OR_{fairness} = 2.44$) foundations. Specifically, in 21 out of 33 models featuring *fairness*, and in 20 out of 33 models featuring *care*, higher foundation scores predicted higher tax morale. The other moral foundations were less impactful ($OR_{ingroup} = 0.79$; $OR_{authority} = 0.66$; $OR_{purity} = 0.94$). In 3 out of 33 models, lower *authority* foundation scores predicted higher tax morale. The *purity* foundation was negatively associated with tax morale in one single model and the *ingroup* foundation was not associated with tax morale in any of the models.

In addition to reporting the proportion of models that revealed a significant (at a 5% level) effect of each foundation, we calculated the mean *p*-values of all models featuring each of the foundations. Following prior studies, we report the arithmetic mean (e.g., Steegen et al. 2016) and the asymptotically exact harmonic mean[3] (e.g., Heyman et al. 2022; Wilson 2019) of the *p*-values. Only the harmonic mean of the *care* and *fairness* foundation *p*-values is below the set significance threshold ($\alpha = 0.05$), while all other means are above the threshold. One exception is *authority* ($p = 0.023$), yet, given the extremely low share of significant models, we tend to consider this result with caution. Results of the multiverse analysis are depicted in Figure 2.

2.3 | Discussion

The results of Study 1 indicate that individuals residing in countries that are sensitive to violations of *fairness* and *care* foundations tend to have higher tax morale. This is supported by the share of significant models, the harmonic (but not by the arithmetic) mean of the *p*-values, and average odds ratios of these models. We have also found some limited evidence of lower tax morale in countries that are sensitive to violations of *authority*. Yet, given that this evidence is only supported by the harmonic *p*-value being slightly below 0.05, for now, we tend to conclude that our results, taken together, provide initial evidence that—of all moral foundations—*fairness* and *care* might play a role in tax morale.

3 | Study 2

Study 1 provided first suggestive evidence that tax morale might be related to violations of *care* and *fairness* foundations, when examining national differences in moral foundations. Study 2 aimed to extend the analysis to the individual-level. Here, we explored whether the extent to which individuals endorse *care* and *fairness* foundations predicts their tax morale.

3.1 | Method

3.1.1 | Data and Participants

To assess tax morale and moral foundations, we used data from the LISS panel, which is a representative sample of Dutch individuals who participate in monthly internet surveys. The panel is based on a true probability sample of households drawn from the population register by Statistics Netherlands. Self-registration is not possible, and households that would otherwise be unable to participate are provided with a computer and internet connection. All participants of studies commissioned by the LISS panel receive a unique identifier, allowing for matching participants across studies. For our purposes, we combined tax morale data from the Dutch WVS dataset from 2012 (Puranen 2014), and moral foundations data (for the *care* and *fairness* foundations) from the

TABLE 3 | Means, standard deviations, and correlations of the moral foundations in study 1 ($N = 103{,}474$).

Foundation	*M*	SD	Care	Fairness	Ingroup	Authority
Care	3.41	0.15	—	—	—	—
Fairness	3.61	0.12	0.70***	—	—	—
Ingroup	2.36	0.20	0.21	−0.18	—	—
Authority	2.25	0.24	0.38**	−0.11	0.88***	—
Purity	1.70	0.34	0.38**	−0.08	0.80***	0.89***

***$p < 0.001$.
**$p < 0.01$.

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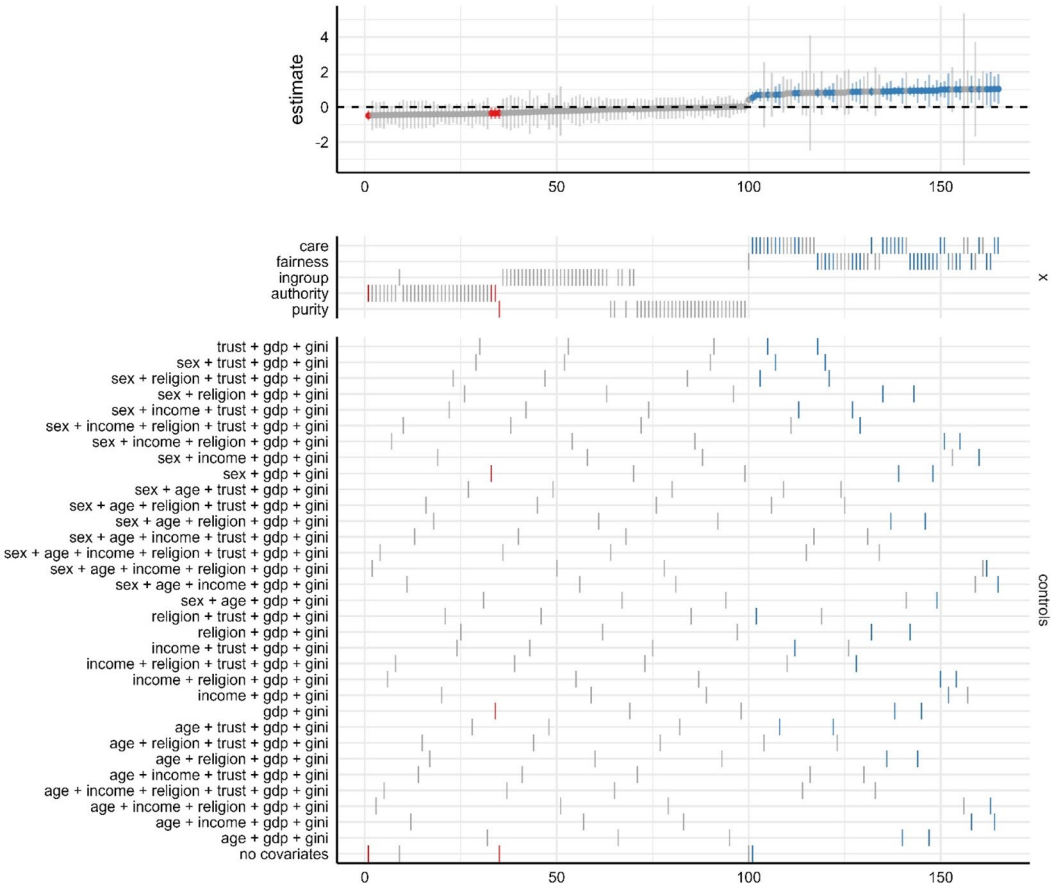

FIGURE 1 | Multiverse analysis of moral foundations predicting tax morale. The x-axis represents the 165 fitted models. The top section shows the effects (unstandardized regression estimates) of the foundations on tax morale in each model, ordered in the size of the estimate. The middle section shows which specific foundation this effect refers to. The vertical lines represent the 95% confidence interval. Blue lines indicate a significant positive relationship, red lines indicate a significant negative relationship, and grey lines indicate no significant relationship. The bottom section indicates which combination of control variables was used in each model. For example, Model 1 (very first model on the left) included no covariates and showed a significant negative effect of authority on tax morale.

2012/2013 project on "Consumer Heterogeneity with Respect to Morality in Consumption Decisions and Perceptions of Animal Welfare" (De Jonge 2014). After matching the participants, the final dataset consisted of 1019 individuals.

3.1.2 | Measurement

Tax morale was measured with the same question as in Study 1 (i.e., whether it is justified to cheat on taxes) and was dichotomized as well ($M = 0.67$, SD = 0.47). Moral foundations were measured by asking which considerations are guiding participants' moral judgement (e.g., When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking: "Whether or not someone acted unfairly"). The questionnaire included three items each, for *care* ($M = 4.67$, SD = 0.90, Cronbach's $\alpha = 0.76$) and *fairness* ($M = 4.64$, SD = 0.92, Cronbach's $\alpha = 0.79$).

The control variables included the same individual-level controls as in Study 1: sex (69.0% female), age ($M = 55.34$, SD = 15.04), religiosity (48.0% religious), trust in the government (i.e., "How much confidence do you have in the government?": 1 = *none at all*; 4 = *a great deal*; $M = 2.22$, SD = 0.69), and subjective assessment of household income (i.e., participants were asked to rank their household in comparison to others in their respective country; 1 = *lowest income group*; 10 = *highest income group*; $M = 4.21$, SD = 2.19), as well as political orientation (i.e., "In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking?": 1 = *left*; 10 = *right*; $M = 5.48$, SD = 2.03; note that political orientation was not included in the analyses of Study 1, as it had not been measured consistently in all countries).

3.2 | Results

We used logistic regression models with individuals' tax morale as outcome, and the moral foundations *care* and *fairness* as predictors. Correlations between foundations are reported in Table 4. To increase the generalizability and robustness of the models, we again used a multiverse analysis approach (128 models in total), with all possible combinations of the control variables. A summary of the multiverse analysis is presented in Figure 3.

For the *fairness* foundation the majority of model specifications revealed significant associations with tax morale

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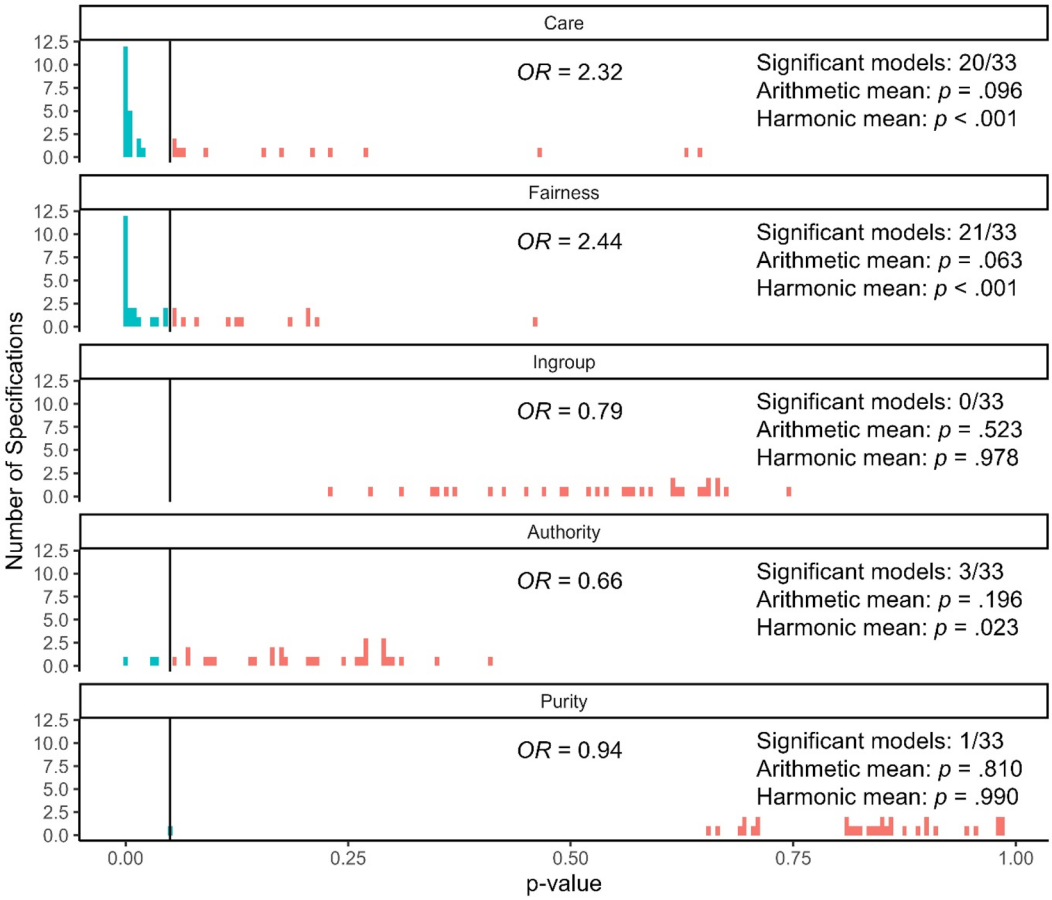

FIGURE 2 | Distribution and summary of results of the multiverse analysis. Distribution of *p*-values for each foundation. The black vertical line indicates the 5% significance threshold, thus blue bars indicate significant results, and red bars non-significant results. For visualisation purposes, similar *p*-values are stacked together. Each panel contains the share of significant models, the arithmetic, and the harmonic mean of the *p*-values for the respective foundation, as well as the average odds ratio of all specifications.

TABLE 4 | Means, standard deviations, and correlations of the moral foundations in study 2 ($N = 1019$).

Foundation	*M*	SD	Care
Care	4.67	0.90	
Fairness	4.64	0.92	0.75***

***$p < 0.001$.

($OR_{fairness} = 1.19$). Specifically, in 46 out of 64 model featuring fairness higher foundation scores predicted higher tax morale. In contrast, for the *care* foundation only in one single model a higher score predicted higher tax morale, with all other models showing no such associations ($OR_{care} = 1.10$).

We also calculated the mean *p*-values of all models featuring each of the two foundations. Both the arithmetic and harmonic means for the *fairness* foundation are below the set significance threshold ($\alpha = 0.05$), while both means of the *care* foundation are above the threshold. Results of the multiverse analysis are depicted in Figure 4.

3.3 | Discussion

The results of Study 2 suggest that individuals who are concerned about *fairness* have higher tax morale. Higher scores on the foundation of *care* were not associated with tax morale. The result for *fairness* is supported by the share of significant models, both the arithmetic and harmonic means of the *p*-values, and the average odds ratio of these models. The results of Study 2 add to the results of Study 1 by showing a robust positive relationship between people's valuations of *fairness* and tax morale, but not for the *care* foundation.

4 | Study 3

While Study 2 provided some evidence that tax morale is mainly associated with *fairness*, when measured on an individual level, it had clear limitations. The data was available only for two of the five moral foundations, collected as part of two different surveys. Study 3 addressed these limitations.

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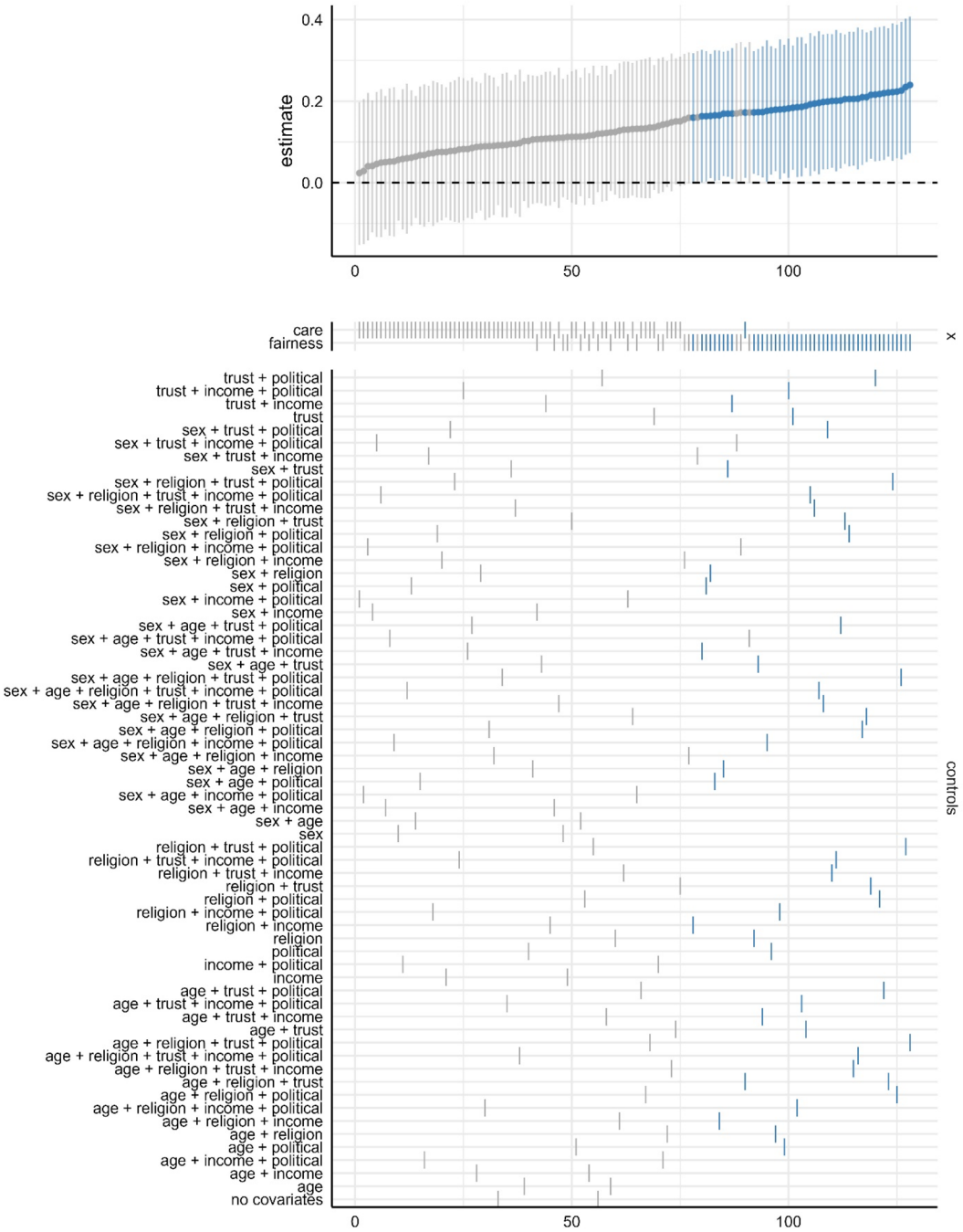

FIGURE 3 | Multiverse analysis of moral foundations care and fairness predicting tax morale. The x-axis represents the 128 fitted models. The top section shows the effects (unstandardized regression estimates) of the foundations on tax morale in each model, ordered in the size of the estimate. The middle section shows which specific foundation this effect refers to. The vertical lines represent the 95% confidence interval. Blue lines indicate a significant positive relationship, and grey lines indicate no significant relationship. The bottom section indicates which combination of control variables was used in each model. For example, Model 1 (very first model on the left) included the covariates sex, subjective assessment of household income, and political orientation. It showed no significant effect of care on tax morale.

4.1 | Method

4.1.1 | Data and Participants

We recruited 1002 participants from the United Kingdom via Prolific Academic. One participant was excluded due to completing the study in under 1.5 min (our preregistered exclusion criterium), with the median completion time being ~5.5 min. The sample size was based on the sample size of Study 2. This study has been preregistered (https://osf.io/k5tye).

4.1.2 | Measurement

Tax morale was measured with the same question as in Studies 1 & 2, namely via the question of whether it is justified

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to cheat on taxes. Like in Studies 1 and 2, the responses were dichotomized ($M = 0.40$, SD = 0.49). To be consistent with the previous studies, the tax morale item was presented as part of the Morally Debatable Behaviours Scale (MDBS; Harding, Phillips, and Fogarty 1986), which included a total of 15 items[4].

The five moral foundations were measured in the same way as in Study 1, using the 30 item Moral Foundations Questionnaire (MFQ; Graham et al. 2011). Similarly, each foundation was measured with two types of questions (moral considerations & moral principles), with three items each. Scores for the five foundations were averaged for each participant (Cronbach's α's: 0.67 [*care*], 0.63 [*fairness*], 0.72 [*ingroup*], 0.70 [*authority*], and 0.77 [*purity*]). The order of the MDBS and the MFQ was randomised between participants.

The control variables included the same individual-level control variables measured in the same way as in Study 2: sex (49.25% female), age ($M = 42.94$, SD = 13.85), religiosity (20.28% religious), trust in the government (i.e., "How much confidence do you have in the government (in your nation's capital)?": 1 = *none at all*; 4 = *a great deal*; $M = 1.99$, SD = 0.68), and subjective assessment of household income (i.e., participants were asked to rank their household in comparison to others in their respective country; 1 = *lowest income group*; 10 = *highest income group*; $M = 6.03$, SD = 2.59), as well as political orientation (i.e., "In political matters, people talk of "the left" and "the right." How would you place your views on this scale, generally speaking?": 1 = *left*; 10 = *right*; $M = 4.58$, SD = 1.99).

4.2 | Results

We used logistic regression models with individuals' tax morale as outcome, and the five moral foundations as predictors. Correlations between foundations are reported in Table 5. To increase the generalizability and robustness of the models, we again used a multiverse analysis approach (320 models in total), with all possible combinations of the control variables. A summary of the multiverse analysis is presented in Figure 5.

Almost all model specifications, for all five foundations, revealed significant associations with tax morale ($OR_{care} = 1.60$; $OR_{fairness} = 1.57$; $OR_{ingroup} = 1.23$; $OR_{authority} = 1.41$; $OR_{purity} = 1.37$). Specifically, in 318 out of 320 models higher foundation scores predicted higher tax morale (with the exception of two models including *ingroup*, which showed no such associations). Looking at the mean *p*-values of all models, both the arithmetic and harmonic means are below the set significance threshold ($\alpha = 0.05$). Results of the multiverse analysis are depicted in Figure 6.

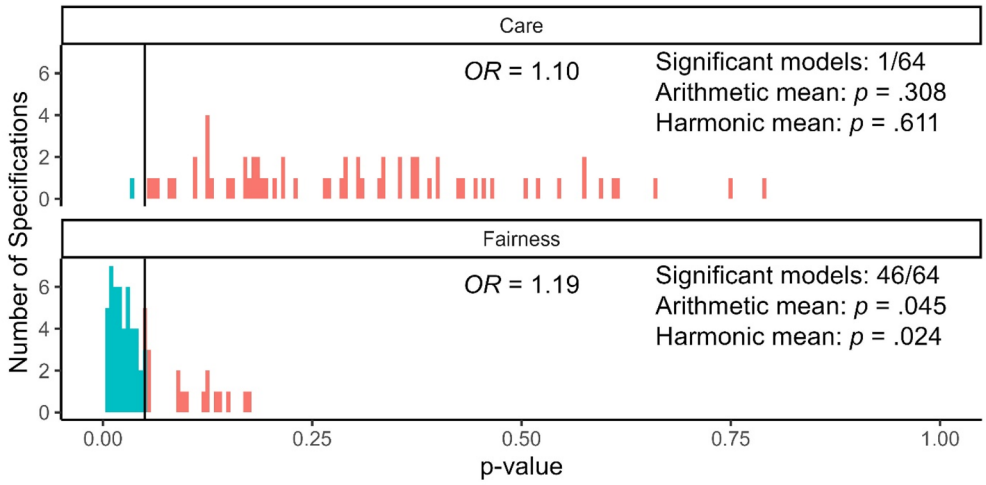

FIGURE 4 | Distribution and summary of results of the multiverse analysis. Distribution of *p*-values for each foundation. The black vertical line indicates the 5% significance threshold, thus blue bars indicate significant results, and red bars non-significant results. For visualisation purposes, similar *p*-values are stacked together. Each panel contains the share of significant models, the arithmetic, and the harmonic mean of the *p*-values for the respective foundation, as well as the average odds ratio of all specifications.

TABLE 5 | Means, standard deviations, and correlations of the moral foundations in study 3 ($N = 1001$).

Foundation	*M*	SD	Care	Fairness	Ingroup	Authority
Care	4.72	0.76	—	—	—	—
Fairness	4.55	0.69	0.62***	—	—	—
Ingroup	3.30	0.88	0.19***	0.14***	—	—
Authority	3.74	0.85	0.18***	0.10***	0.67***	—
Purity	3.32	1.00	0.23***	0.14***	0.58***	0.62***

***$p < 0.001$.

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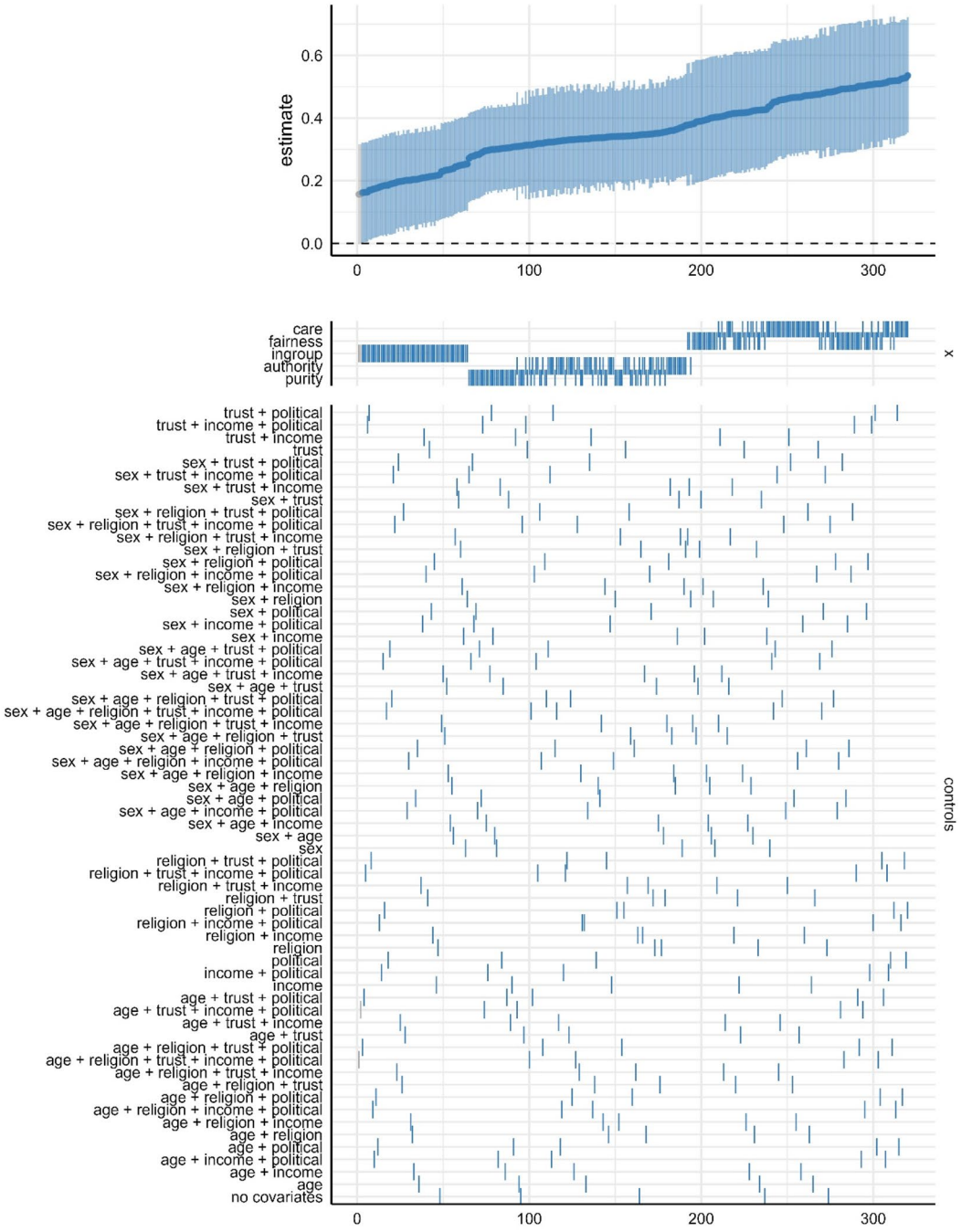

FIGURE 5 | Multiverse analysis of five moral foundations predicting tax morale. The x-axis represents the 320 fitted models. The top section shows the effects (unstandardized regression estimates) of the foundations on tax morale in each model, ordered in the size of the estimate. The middle section shows which specific foundation this effect refers to. The vertical lines represent the 95% confidence interval. Blue lines indicate a significant positive relationship, and grey lines indicate no significant relationship. The bottom section indicates which combination of control variables was used in each model. For example, Model 1 (very first model on the left) included the covariates age, religion, trust in the government, subjective assessment of household income, and political orientation. It showed no significant effect of ingroup on tax morale.

4.3 | Discussion

The results of Study 3 suggest that individuals that have higher scores on all five moral foundations, also have higher tax morale. This finding is consistent across almost all specifications of the multiverse. While the results of Study 3 differ from both previous studies in regards to the share of significant specifications, some similarities in terms of relative effects sizes emerge. Specifically, consistent with the results of Study 1, the strongest average effect sizes emerged for the *care* and *fairness* foundations. Yet, in contrast to Study 2, where only *fairness* (but not *care*) predicted tax morale, Study 3 found strong associations for both *care* and *fairness* foundations.

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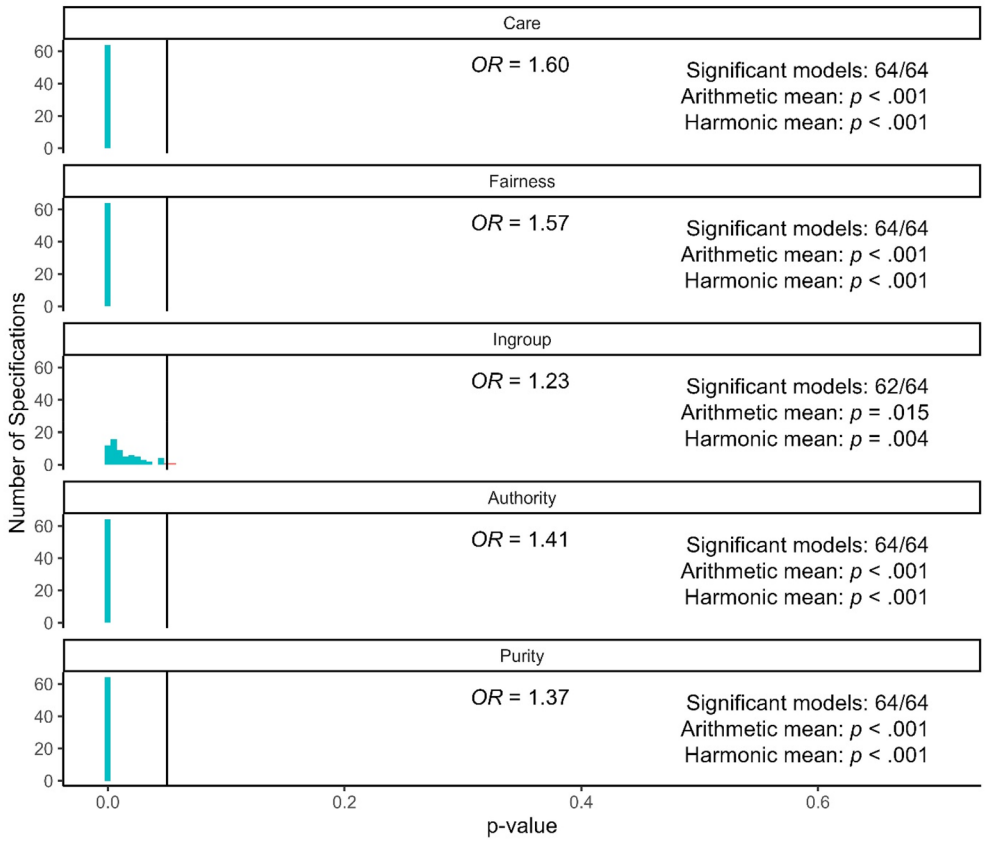

FIGURE 6 | Distribution and summary of results of the multiverse analysis. Distribution of *p*-values for each foundation. The black vertical line indicates the 5% significance threshold, thus blue bars indicate significant results, and red bars non-significant results. For visualisation purposes, similar *p*-values are stacked together. Each panel contains the share of significant models, the arithmetic, and the harmonic mean of the *p*-values for the respective foundation, as well as the average odds ratio of all specifications.

5 | Alternative Multiverse Analyses: Mutually Controlling for Moral Foundations

Different sets of the moral foundations consistently displayed high correlations throughout the three studies (see Tables 3–5). Specifically, the correlations between *care* and *fairness* (individualising foundations), as well as *ingroup*, *authority*, and *purity* (binding foundations) were particularly large. This was especially true for Study 1, where data was aggregated on the country-level. We therefore decided to fit another set of multiverse analyses, with specifications that iterate through all possible combinations of moral foundations. The results of these analyses are reported in detail within the online supplement (see Figure S1–S6). For the individualising foundations, the analyses with all possible combinations of foundations showed the same pattern of results as the analyses that included only a single foundation as the predictor (i.e., main analysis above).

For the binding foundations, the results of the main analysis and this new specification differed across the studies. In the main analysis, none of the binding foundations were associated tax morale in Study 1, while all binding foundations were positively associated with tax morale in Study 3 (albeit these associations were weaker than those of individualising foundations). In the new specification, *ingroup* showed marginally more frequent positive associations with tax morale in Study 1, but not in Study 3 (where it was not related to tax morale at all). *Authority* showed a negative association with tax morale in Study 1 and a positive association in Study 3. *Purity* remained unrelated to tax morale in Study 1 but was positively related to it in Study 3. In sum, despite these inconsistencies, taken together, this new specification supports the conclusion from the main analysis. The associations of tax morale with *care* and *fairness* showed the same patterns, while its associations with *ingroup*, *authority*, and *purity* were smaller and inconsistent across the studies. Throughout all studies and analysis approaches, the most consistently observed effect remained the positive relationship between *fairness* and tax morale.

6 | General Discussion

Tax morale stands out as one of the most important predictors of tax compliance—a prerequisite of a well-functioning society capable of supporting schools, roads, hospitals, and other public institutions (e.g., Cummings et al. 2009). Consequently, there is substantial interest in uncovering predictors and correlates of people's tax morale, including the psychological ones, such as broad moral values. While tax morale and morality seem theoretically and semantically connected, existing literature establishing whether or not they are linked empirically as well is scarce. We set out to precisely do that.

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We examined the associations between moral foundations, as defined by the MFT, and tax morale in its most common operationalization (i.e., moral judgement of cheating on taxes), across three studies ($N_1 = 103{,}474$; $N_2 = 1019$; $N_3 = 1001$), using multiverse analyses. The cross-national Study 1 found that national differences in the foundation of *care* and *fairness* predicted individuals' tax morale. Study 2 (Netherlands) extended this question to the individual-level and replicated the association between *fairness* (but not *care*) and tax morale. Study 3 replicated Study 2 in a different population (United Kingdom) using more reliable measures and found associations with all moral foundations and tax morale, the strongest being with *care* and *fairness*. Considering all studies and analysis specifications together, our results provided consistent evidence of the links between tax morale and individualising moral foundations, in particular, the foundation of *fairness*.

This finding highlights the importance of fairness in taxation research. For example, evaluating the tax system as fair has been shown to be an important predictor of attitudes towards paying taxes, and consequently tax compliance (e.g., Murphy 2003; Van Dijke and Verboon 2010). It seems plausible that people that are concerned about a fair tax system (e.g., effective redistribution policies, punishing rule breakers), are also concerned about moral violations of fairness in general.

Based on our review of the taxation literature and the literature on moral foundations, we expected to find associations between tax morale and other foundations as well. For example, respect for *authority* could incorporate respect for tax authorities and result in higher tax morale (e.g., Kirchler, Hoelzl, and Wahl 2008). Similarly, both *care/harm* as well as *ingroup* loyalty are associated with prosocial behaviours, that is, actions that put others' well-being first, which, to some extent, paying taxes is as well.

The present analyses failed to find consistent support across the three studies for the associations of tax morale with these other moral foundations. An exception might be the relationship between *care* and tax morale. Both Study 1 and Study 3 found that most model specifications including *care* show significant associations. Beyond that, the average odds ratio for *care* is the largest in Study 3, and second largest in Study 1. Yet, these conclusions are limited, as Study 2 failed to find support for this relationship, which could have several reasons.

Study 2 measured tax moral and moral foundations as part of two different surveys administered with a time interval of about 1 month, on average across participants ($M_{\text{days}} = 30.39$, SD = 7.79). Given that the test–retest reliability of the MFQ has been previously criticised (e.g., Hatemi, Crabtree, and Smith 2019; Smith et al. 2017), this time lag could have led to attenuated associations between moral foundations and tax morale, rendering Study 2 associations smaller than they actually are. On the other hand, experimenter demand effects could have inflated the moral foundations-tax morale associations in Study 3: whereas Study 2 administered multiple sets of questionnaires, Study 3 only included the MFQ and MDBS questionnaires, which could have led to demand effects, rending Study 3 associations stronger than they actually are. Lastly, all three studies used data from different national samples. We know that people's perceptions of their respective tax authorities do vary across countries (Kogler et al. 2023). Hence, it might be the case that the associations between moral foundations and tax morale differ between countries (i.e., *care* could be relevant in the United Kingdom, Study 3, but not in the Netherlands, Study 2), or even specific population groups as well. In summary, while *care* seems to be connected to tax morale, the present studies—taken together—fail to provide consistent evidence for this relationship.

The associations between tax morale and the binding foundations (*ingroup*, *authority*, and *purity*) showed a positive relationship when analysed on the individual-level (Study 3), but not when analysed on the country-level (Study 1). A possible explanation for this inconsistency might be that the true associations are being concealed by potential moderating variables. For example, violations of *ingroup loyalty* might only be positively associated with tax morale if taxation is being perceived as beneficial for one's ingroup by the majority of the country's citizens, and negatively if taxation is perceived as burdensome. Similarly, the association of tax morale with the *authority* foundation might only be present if the tax authorities indeed represent a respected "authority" in a given country. The inconsistencies might also be due to one important limitation of Study 1, which pertains to between-country differences in the size of the recruited sample and the degree to which it can reflect the respective country's general population. Nevertheless, the YourMorals dataset has been used in cross-national research on morality before (e.g., Atari, Lai, and Dehghani 2020) and the validity for the Moral Foundations Questionnaire has been established in cross-national samples (i.e., Graham et al. 2011).

Finally, it is also possible that the way tax morale is commonly operationalised (including the present research) reflects a too narrow view of the tax morale concept. Asking people whether they find cheating on taxes acceptable could be only one of several facets of tax morale (see review of definitions in the introduction). A thorough analysis of tax morale operationalizations and definitions might be necessary to advance the field and provide more tailored advice on how to increase people's intrinsic motivation to pay taxes.

In our research, we opted for the multiverse analysis approach, which we thought was especially suited given the exploratory nature of our research. This approach provided us with a few interesting observations. Often, researchers choose to include a set of control variables, sometimes guided by theoretical considerations, but other times by the mere availability of the data (e.g., archival data). We find that especially in the case of aggregated data, as shown in Study 1, the choice of control variables can have a major impact on whether an effect is observed or not. Specifically, Figure 1 shows that the estimation error differs substantially between model specifications of the respective foundations and tax morale. If the majority of model specifications is found to have a significant relationship, this speaks for the robustness of the effect. Conversely, if only few specifications show a significant relationship, it might be either more likely that there is no association, or that specific control variables either boost or diminish the effect of interest. Looking at the specifications within the present studies, no specific controls were identified that would systematically lead to such artefacts. This is also why the interpretation of the current results should

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be seen in a cumulative fashion (i.e., share of significant model specifications), rather than by singling out specific models.

6.1 | Contributions

Moral psychology has been a rapidly emerging field of research that studies individuals' moral judgement and how it affects their behaviour and attitudes. Among others, specific moral foundations have been found to predict charitable giving (Nilsson, Erlandsson, and Västfjäll 2016, 2020; O'Grady et al. 2019), collective action (Milesi and Alberici 2018), and voting behaviour (Franks and Scherr 2015). We extend this stream of research to include a highly societally relevant phenomenon, tax morale, which has been ignored in (moral) psychology so far. The present findings show that tax morale is indeed linked to broad moral values (foundations), yet less consistently than could be expected. Across both the national and the individual-level analyses, only the *fairness* foundation showed a consistent association with tax morale.

Ironically, taxation research has also largely overlooked insights from moral psychology research. Although psychological factors like attitudes towards taxation, condemnation of tax evasion, and fairness perceptions have been already suggested in the middle of last century (Schmölders 1960), taxation research predominantly focused on studying deterrence factors, such as audits and fines (Allingham and Sandmo 1972). Later, more psychological factors like social norms (e.g., Wenzel 2004), trust (e.g., Kirchler, Hoelzl, and Wahl 2008), and emotions (e.g., Coricelli et al. 2010) started to gain prominence. Yet, despite the apparent relevance of moral considerations to tax paying decisions, the moral psychology perspective has not been integrated in the taxation research so far. The present study aimed to fill this gap by connecting tax morale with the moral foundations, as defined by MFT. In a more practical sense, providing clear links between morality and taxation could also guide and improve attempts of, for example, using moral appeals to increase tax paying behaviour, as was previously attempted in natural field experiments (e.g., Blumenthal, Christian, and Slemrod 2001; Fellner, Sausgruber, and Traxler 2013; Torgler 2004, 2013).

6.2 | Conclusion

The present studies tested the connections between moral judgements of individuals (and whole nations) with tax morale, that is, moral justification of cheating on taxes. Based on results of three studies, we find that there is a robust association between the moral foundation of *fairness* and tax morale. While the integration of moral psychology into tax morale research is still in its infancy, these findings might provide an initial link between both, and potentially aid in developing a better understanding of why people pay taxes.

Acknowledgements

In this paper, we make use of data from the LISS panel (Longitudinal Internet studies for the Social Sciences) managed by the non-profit research institute Centerdata (Tilburg University, the Netherlands).

Ethics Statement

The study was approved by the ERB of the School of Social and Behavioural Sciences of Tilburg University. Reference number: TSB_RP1173.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

All preregistrations, openly available data, analysis code, research materials, and online supplements for the studies are available at: https://osf.io/xu5jb, where we also describe how to access proprietary data used.

Endnotes

[1] These include (in alphabetical order) Armenia, Germany, Netherlands, Romania, Serbia, Russia, and Ukraine. Note that Armenia is not included in the final dataset due to an insufficient sample size for the moral foundations data.

[2] For anonymity purposes, the EVS and WVS code participants of ages 82 and above within the same category.

[3] The asymptotically exact harmonic mean has been specifically developed to generalise across a set of dependent *p*-values (i.e., *p*-values obtained from different tests of the same hypothesis).

[4] This scale if often slightly adjusted within different waves of the EVS/WVS. The 15-item version here is adapted from the Dutch WVS (2011–2012), as used in Study 2.

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