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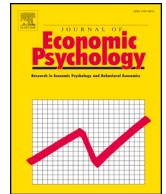
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Building versus maintaining a perceived confidence-based tax climate: Experimental evidence



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ABSTRACT

A confidence-based climate between public administrations and citizens is essential. This paper argues and provides empirical evidence that depending on the perceived interaction history, different policies are needed to build versus maintain confidence. Applying the extended Slippery Slope Framework of tax compliance, an online and a laboratory experiment were conducted to explore whether tax authorities' coercive and legitimate power have different effects depending on whether they are situated in an antagonism-based or confidence-based climate. Results showed that in an antagonism-based interaction climate, a combination of high coercive and high legitimate power changed the climate into a confidence-based interaction climate. In contrast, in a confidence-based climate the same power combination did not maintain but erode the climate. Results also suggest that confidence-based climates are maintained by low coercive power combined with high legitimate power. The paper concludes that interaction climates operate as psychological frames which guide how policy instruments affect taxpayers' trust in the tax authorities.

1. Introduction

Mutual confidence is important. This is as true for couples and families, as it is for societies. A confidence-based climate in which citizens and the public administration trust each other, share the same values, and perceive each other as partners enhances cooperation and is an important pillar for functioning democracies (Goodsell, 2008; Putnam, 1995). In this paper we want to focus on trust in tax authorities, as an essential determinant of citizens' tax compliance and thus, the provision of public goods such as schools or health care (Kirchler, Hoelzl, & Wahl, 2008). However, countries differ concerning the prevailing level of trust in their tax authorities. Whereas trust is low in some countries such as in the U.S. or Italy (Drake, 2013) there is high trust in other countries such as in Switzerland (Lozza & Castiglioni, 2018).

Some tax authorities are perceived as antagonistic and need to build a confidence-based climate with citizens, whereas others already have citizens' trust so that they face the challenge of maintaining trust. Both building and maintaining trust may be imperative for tax authorities to ensure cooperation. Research identified several determinants of trust in public administrations, such as law enforcement or legitimacy (Mishler & Rose, 2001; Tyler, 2003). But do tax authorities in need of building trust have to implement

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the same policy measures as those in need of maintaining trust? One might argue that measures that are good for building trust will also work for maintaining trust. Note, however, that a climate in which trust is absent (or low) presents a markedly different context than a climate in which trust is already present (and high).

In particular, determinants of trust may differ depending on whether the initial interaction climate is antagonism-based (i.e., related to mutual hostility) versus confidence-based (e.g., in a trusting partnership with shared values). Testing this relation requires a set-up that addresses the situational differences and temporal dynamics of building versus maintaining confidence-based climates; aspects that empirical research has not yet incorporated (Keele, 2007; Rothstein, 2000). Also theoretical accounts, for public administration in general (Battaglio, Nicola, Paolo, & Paola, 2018) and tax administration in particular (Braithwaite, 2003) as well as empirical studies (Batrancea et al., 2019), highlighted the importance of context for the effect of authorities' enforcement but only for rule compliance and not for trust in authorities.

Additionally, these assumed contextual and temporal dependencies were rarely tested empirically. Based on the theory of the extended Slippery Slope Framework, the aim of the present research is to experimentally examine the differential determinants of trust building versus trust maintenance.

2. The extended Slippery Slope Framework

The Slippery Slope Framework was developed as a conceptual tool to summarize determinants of tax compliance into the dimensions power of authorities (i.e., the perception that authorities are able to ensure compliance) and trust in authorities (i.e., the perception that authorities work for the common good; Kirchler et al., 2008). The extended Slippery Slope Framework (eSSF) posits that the dynamic between power and trust explains how interaction climates between taxpayers and tax authorities can be built and changed (Gangl, Hofmann, & Kirchler, 2015). It distinguishes between two types of power (perceived coercive and legitimate power) and two types of trust (reason-based and implicit trust) which in combination constitute different perceived interaction climates between citizens and the tax authorities. Thereby, the eSSF examines and predicts the perceptions of taxpayers which motivate tax compliance behavior.

With coercive and legitimate power, the eSSF connects to the main power theories in economics and psychology concerning the potential and perceived ability of a party to influence another parties' behavior (French & Raven, 1959; Tyler, 2003). Coercive power is the perceived ability of the administration to enforce law compliance through incentives (i.e., the capability to control and punish or reward citizens). Legitimate power is the administration's ability to convince citizens to comply voluntarily with rules and regulations through legitimate procedures, expertise, information, and a positive image.

Reason-based and implicit trust are defined in line with the socio-cognitive trust theory of Castelfranchi and Falcone (2010), and relate to distinctions made in include a dash theories of social cognition (Kahneman, 2003). Reason-based trust means that citizens deliberately trust the tax authorities on which they depend, because it pursues an important goal, is perceived as motivated, competent, and benevolent, and external conditions allow it to work professionally. In contrast, implicit trust is considered a more automatic trust reaction to associative learned stimuli, such as perceived shared identity, friendly faces, or official documents.

Referring to research on regulation (Adler, 2001; Haslam & Fiske, 1999), the eSSF defines three interaction climates: antagonism-based, service-based, and confidence-based climates. Antagonism-based climates are defined as hostile climates in which mistrust prevails and authorities and citizens work against each other like "cops and robbers" (Kirchler et al., 2008). In service-based climates, such as in new public management approaches (Bryson, Crosby, & Bloomberg, 2014), the tax administration (as service provider) and citizens (as clients) cooperate on the basis of a technical-bureaucratic relationship. In confidence-based climates, tax authorities and taxpayers share the same values, trust each other implicitly and collaborate as partners (Alm & Torgler, 2011; Brenninkmeijer, 2016). Compared to antagonism-based and service-based climates, confidence-based climates are likely also characterized by positive social norms concerning tax honesty. This belief that most other citizens are honest taxpayers is another important determinant of high individual tax honesty (Hallsworth, List, Metcalfe, & Vlaev, 2017). Thus, confidence-based climates need fewer resources on monitoring and administrative procedures as citizens are committed to cooperate with the authorities. It is therefore advantageous for administrations to build a confidence-based climate or to maintain it.

3. Building, changing, and maintaining interaction climates

The eSSF describes how tax administrations can build, change, and maintain perceived interaction climates ranging from antagonism-based to service-based and confidence-based climates (see Fig. 1). A key element is the notion that tax authorities' use of power may affect trust, and thereby affect interaction climates. In particular, coercive power is assumed to foster mistrust and to hinder implicit trust reactions which, in turn, builds an antagonism-based climate in which the tax authorities and taxpayers work against each other (Gangl et al., 2015; Hofmann, Gangl, Kirchler, & Stark, 2014; Hofmann, Hartl, Gangl, Hartner-Tiefenthaler, & Kirchler, 2017). This notion fits well with research showing that control and sanctioning can undermine trust (Das & Teng, 1998; Kramer, 1999), and fuel suspicion about the good intentions of an administration (Feld & Frey, 2007; Rothstein, 2000) or fellow citizens (Bohnet & Baytelman, 2007; Mulder, Van Dijk, De Cremer, & Wilke, 2006). Experiments also show that coercive power leads to reactance and enforcement, and drives out the moral implications of tax cooperation (Gangl, Pfabigan, Lamm, Kirchler, & Hofmann, 2017).

The eSSF framework also posits that, by combining high coercive power with high legitimate power, tax administrations may increase reason-based trust which can change antagonism-based climates into service-based ones (Gangl et al., 2015; Hofmann et al., 2017). This insight relates to findings showing that legitimate and fair sanctioning systems overcome the negative effects of pure

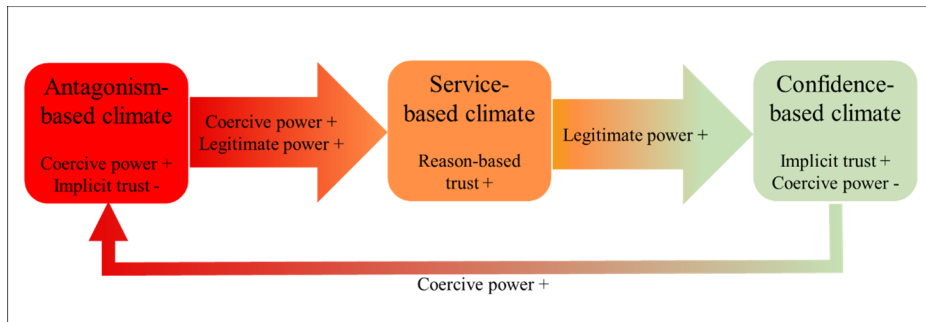


Fig. 1. Building, changing, and maintaining interaction climates according to the eSSF.

sanctioning systems and instead, foster trust in public administrations (Mooijman, Van Dijk, Van Dijk, & Ellemers, 2017). Thus, coercive power combined with legitimate power might foster the feeling that sanctions are used in a professional and targeted way, to restore justice and uphold cooperation (Mooijman et al., 2017; Wenzel, 2003). Actually, there is a large body of literature from other disciplines than tax research that argues that coercion which is used in a fair manner is essential for cooperation (Fehr & Rockenbach, 2003) because it generates instead of destroys legitimacy and trust (Hough, Jackson, Bradford, Myhill, & Quinton, 2010; Tyler, 2011). Based on this literature, the eSSF suggests that coercive power which is combined with high legitimate power gives good reasons to trust, reduces perceptions of an antagonism-based climate and increases perceptions of service-based climates.

Service-based climates fall in-between antagonism-based and confidence-based climates. Over time and with positive experiences related to legitimate power, service-based climates change into confidence-based climates (Gangl et al., 2015). A good reputation and positive experiences with legitimate power can transform reason-based trust into implicit trust. This idea streams from the literature on dual-process theories suggesting that cognitions, initially based on more deliberate processes, over time and through repetition can change to more automatic processes (Evans 2008). Thus, trust first based on and built by deliberate considerations may transcend to new settings through automatic and associative learning processes (Castelfranchi & Falcone, 2010).

Confidence-based climates are jeopardized if authorities use coercive power. In a high trust relationship harsh coercive power might be perceived as a betrayal of trust (Joskowicz-Jablonek & Leiser, 2013). Thus, the eSSF suggests that if individuals perceive a confidence-based climate, only low coercive power combined with high legitimate power can maintain this climate. High coercive power, even when applied legitimately, will be seen as a sign of distrust (Kramer, 1999; Van der Weele, 2009). It will interrupt implicit trust reactions and trigger deliberate considerations about whether or not to trust. Thus, it will erode a confidence-based climate and change it into an antagonism-based climate. However, this assumption that high coercive power combined with high legitimate power erodes a confidence-based climate and thus, only has a positive effect in an antagonism-based climate, to the best of our knowledge, has not yet been tested empirically. This differential effect of legitimate coercion has also rarely been tested related to other theories than the eSSF. This is surprising, as behavioral science scholars state that the effectiveness of any public policy intervention is depending on the context (Ruggeri, 2019).

4. Research aims and research questions

The current psychological research aims to experimentally examine how perceptions of antagonism-based and confidence-based climates can be changed or maintained by the means of perceived coercive and legitimate power and how this affects cooperation, i.e., tax payments. In the following we present our research questions.

Research Question 1 (RQ1): Does high coercive power compared to low coercive power decrease implicit trust, foster a perceived antagonism-based climate and reduce a perceived confidence-based climate?

Research Question 2 (RQ2): Does high legitimate power compared to low legitimate power increase reason-based trust, reduce a perceived antagonism-based climate and foster a perceived confidence-based climate?

Research Question 3 (RQ3): Does high coercive power combined with high legitimate power in a confidence-based climate compared to in an antagonism-based climate, decrease reason-based trust, implicit trust, a perceived confidence-based climate and increase a perceived antagonism-based climate?

Research Question 4 (RQ4): Does low coercive power combined with high legitimate power maintain reason-based trust, implicit trust and a perceived confidence-based climate in an initial confidence-based climate?

Research Question 5 (RQ5): Does high coercive power compared to low coercive power increase tax payments?

Research Question 6 (RQ6): Does high legitimate power compared to low legitimate power increase tax payments?

5. Experiment 1

To examine our research questions with a sample of citizens, we conducted an online experiment. We used scenarios to manipulate the interaction between tax authorities and taxpayers in a 2 (antagonism-based versus confidence-based climate) \times 2 (low versus high coercive power) \times 2 (low versus high legitimate power) within-between factorial design.

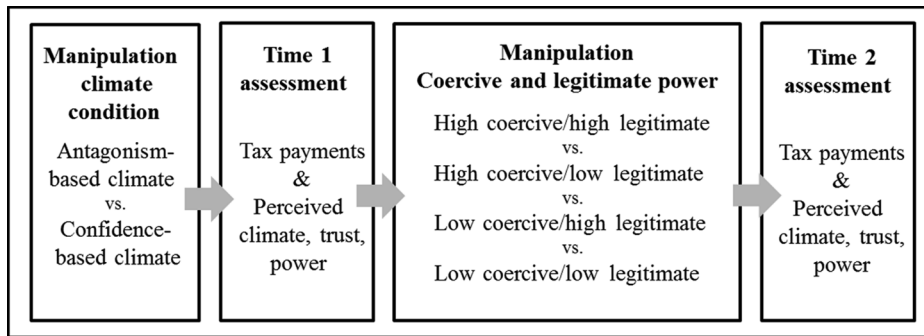


Fig. 2. Experimental procedure.

5.1. Sample and design

Two hundred and thirty participants were recruited in Austria online via postings in newspaper comment sections, among family and friends of students, and among Rotary club members. After finalizing data collection, we excluded data of 31 participants (because they indicated in an open comment box to not have followed instructions or because their responding time was longer than the mean plus three standard deviations; these participants did not differ concerning gender or age from the final sample, all $ps < .11$). The final sample of 199 participants consisted of 72.9% men with an average age of 42.2 years ($SD = 12.58$; range 21–74; two missing values on age). Participants were allowed to give multiple answers on their educational status; most had a university degree (51.3%, high school degree: 39.2%, vocational school: 7.0%, vocational training: 6.0%, basic school degree: 3.5%, other: 9.5%). Concerning working status most were employed (66.3%, self-employed: 28.6%, in education: 13.1%, retired 8.0%, maternity leave: 2.5%, at home: 2.5%, unemployed: 2.0%).

5.2. Procedure

Participants were randomly assigned to one of eight conditions of a 2 (antagonistic versus confidence climate) \times 2 (low versus high coercive power) \times 2 (low versus high legitimate power) factorial design (see Fig. 2). At the beginning, participants were asked to imagine being in their first year of business as a self-employed in the fictitious country Chomland. They were also asked to imagine to earn a specific yearly gross income in Euro over several years on which they would have to pay taxes. Moreover, the tax authorities would conduct audits with a 1:6 change (approx. 17%) and those who would be detected as evaders would have to pay back the evaded amount plus the same amount as a fine. After this introduction, the study proceeded with the manipulation of the interaction climate, the first assessment at time 1 (T1) of tax payments, perceived climate, trust and power; the manipulation of coercive and legitimate power and the second assessment at time 2 (T2) of tax payments, perceived climate, trust and power. In addition, sex, age, employment status, and income were assessed as sociodemographic characteristics. The original material in German is presented in the Supplementary material.

5.3. Experimental manipulations:

5.3.1. Manipulation of Perceived Antagonistic- (Confidence-) based climate condition (T1).

Assume that as a self-employed in Chomland you are talking to another self-employed friend about the tax climate in Chomland. He tells you that the climate between the state tax authorities and the citizens of Chomland is characterized by mutual (mis)trust. The tax authorities assume that most taxpayers evade (pay) taxes and therefore must be prosecuted (respected) and punished (supported). The taxpayers, in turn, feel tortured (understood). They think the authorities are interested to catch taxpayers doing something wrong (in working in the interest of taxpayers). Put yourself in this situation! How do you think you'd be treated personally by this authority? What feelings and thoughts would you have as a taxpayer to that tax office in Chomland? Write down three of these feelings or thoughts:

5.3.2. Manipulation of Perceived high (low) Coercive and Legitimate Power (T2).

Participants read that the government of Chomland changed which also led to a change in the tax administration: The tax authority is now imposing very high (low) penalties for tax evasion and is (not) acting in an exemplary manner. It works both based on legal (illegal) measures and with frequent (rare) controls. In addition, the tax authority is mainly composed of very well (poorly) trained employees who provide (un)professional consulting and apply strict (few) tax audits. Their working principles are based especially (little) on the traceability of their decisions and especially (little) on penalties for tax evasion. Overall, the rigour of controls and the severity of penalties for tax evasion are of great (minor) importance to the tax authority and the accuracy of tax returns is of minor (great) importance.

5.4. Dependent variables

Tax Payments. All participants filled in five identical tax compliance scenarios (Alm, Sanchez, & Juan, 1995), representing five years of a self-employed taxpayer at T1 and T2. In each scenario, participants learned their income (ranging from 20,000 to 30,000 Euro), the tax rate (30%), audit probability (1:6), and fine (twice the evaded amount).

Assume it has passed another year. In this year you have earned a gross income of 35,000,- (30,000; 25,000; 40,000; 20,000) Euro. According to the legal regulations, you have to pay 10,500 (9,000; 7,500; 12,000; 6,000) Euros (30%) as taxes from your gross income. You have various options for claiming payments that are not necessarily tax deductible, or to not declare some revenues. If a tax audit should take place, you will have to pay back the evaded amount as well as a penalty of the same amount. How much tax do you decide to pay (0 to 10,500 (9,000; 7,500; 12,000; 6,000)) Euros?

Participants filled in the concrete number themselves. We calculated the mean of the relative honesty at T1 and T2 resulting in values between 0 (full dishonesty) and 1 (full honesty).

After the tax scenario, we assessed the following scales, adapted from Hofmann et al. (2014), all answered on a seven-point Likert type scale with labeled endpoints (1 = I totally disagree/7 = I totally agree):

Perceived antagonism-based climate was assessed with three items (time 1: Cronbach $\alpha = 0.87$, time 2: $\alpha = 0.88$): Between the tax authority and taxpayers there exists a climate... of inconsiderateness/ruthlessness/cops and robbers.

Perceived Confidence-based climate was assessed with three items (time 1: $\alpha = 0.94$, time 2: $\alpha = 0.95$): Between the tax authority and taxpayers there exists a climate which is characterized by... mutual trust/shared responsibility/cooperation.

Perceived Implicit Trust was assessed with three items (time 1: $\alpha = 0.88$, time 2: $\alpha = 0.90$): I trust the tax authority... mostly without thinking about it/without much concern/in most cases automatically.

Perceived Reason-based Trust was assessed with seven items (time 1: $\alpha = 0.82$, time 2: $\alpha = 0.87$): I trust the tax authority because... there is no alternative/its goals seem plausible to me/it has dedicated employees/it does its job well/it is benevolent to the taxpayers/the stable economic situation guarantees its work/it has the necessary support to carry out its work.

5.5. Assessment of manipulation checks

Perceived Coercive Power (time 1: $\alpha = 0.82$, time 2: $\alpha = 0.91$) was assessed with three items: The tax authority... punishes severely/prosecutes taxpayers with controls and fines/enforces its demands with audits and fines.

Perceived Legitimate Power (time 1: $\alpha = 0.80$, time 2: $\alpha = 0.91$) was assessed with five items. The tax authority ... due to the legal situation, is in the position to levy taxes/shares comprehensible information/knows how a correctly filled in tax return should look like/makes all taxpayers understand which taxes they have to pay and how they have to pay them/knows how the correct tax return of every singly taxpayers should look like.

5.6. Statistical power

To examine our research questions, we investigated the direct effect of our manipulations on the dependent variables. Therefore, we conducted 2 (antagonistic-based versus confidence-based climate) by 2 (low versus high coercive power) by 2 (low versus high legitimate power) ANOVAs with perceived antagonism-based climate, perceived confidence-based climate, reason-based trust and implicit trust as well as tax payments as dependent variables at Time 1 and Time 2 as repeated measurement factor. It should be noted that the present between-within subject design requires smaller sample sizes than a pure between subject design (Bellemare, Bissonnette, & Kröger, 2005). Detailed sensitivity analyses were conducted with the program G*power. Generally, sensitivity analyses for an ANOVA: repeated measures, within-between interaction (F-tests, $p = .05$, power = 0.80, six groups, two measures) indicated that with an $N = 199$ we can detect effects of $f = 0.13$ ($d = 0.25$). Concerning RQ1 and RQ2, sensitivity analyses for t-tests for dependent means (two-sided, $p = .05$, power = 0.80) showed that we can detect effects between $d = 0.27$ and $d = 0.29$ (min. $N = 93$; max. $N = 106$). The same sensitivity analyses (t-tests for dependent means, two-sided, $p = .05$, power = 0.80) indicated that for RQ3 ($N = 30$ and $N = 23$) effects of $d = 0.53$ and $d = 0.61$ and for RQ4 ($N = 25$) effects of $d = 0.58$ can be detected. For RQ5 and RQ6, effects between $d = 0.27$ and $d = 0.29$ (min. $N = 93$; max. $N = 106$) are detectable with the current design (t-tests for dependent means, two-sided, $p = .05$, power = 0.80). Cohen (1988) suggests that $d = 0.20$ are small effects, $d = 0.50$ are medium effects and $d = 0.80$ are large effects. Thus, we can detect at least medium effects.

5.7. Manipulation checks

Perceived Tax Climate (Time 1). Participants in the antagonism-based condition perceived the interaction climate as more antagonism-based ($M = 4.29$, $SD = 1.72$) than participants in the confidence-based condition ($M = 1.77$, $SD = 0.99$), $t(197) = 12.05$, $p < .001$; Cohen's $d = 1.73$. In a similar vein, participants in the confidence-based condition perceived the interaction climate as more confidence-based ($M = 5.69$, $SD = 1.48$) than participants in the antagonism-based condition ($M = 2.31$, $SD = 1.25$), $t(197) = 17.44$, $p < .001$, $d = 2.50$. These findings suggest that our manipulation of interaction climate was successful.

Perceived Coercive and Legitimate Power (Time 2): As intended, participants in the high coercive power condition ($M = 5.93$, $SD = 1.21$) perceived more coercive power than participants in the low coercive power condition ($M = 3.65$, $SD = 1.66$), $t(197) = 11.19$, $p < .001$, $d = 1.59$. Participants in the high legitimate power condition ($M = 5.64$, $SD = 1.33$) perceived more

legitimate power than participants in the low legitimate power condition ($M = 3.37$, $SD = 1.21$), $t(197) = 12.62$, $p < .001$, $d = 1.79$.

5.8. Results

Detailed analyses of direct and indirect effects are presented in Supplementary material (1.2; 1.3). To examine our research questions, we conducted five 2 (antagonism-based versus confidence-based climate) by 2 (low versus high coercive power) by 2 (low versus high legitimate power) ANOVAs with perceived antagonism-based climate, perceived confidence-based climate, reason-based trust, implicit trust, and tax payments as dependent variables, and T1 and T2 assessment as repeated measurement factor. We also conducted planned comparisons (paired t-tests) to examine the differentiated effect of combinations of coercive and legitimate power in the antagonism-based versus confidence-based climate¹. Fig. 3 provides an overview of the results. Descriptive results (mean, standard deviation) concerning all main and interaction effects are presented in the Supplementary material.

Perceived Antagonism-based Climate. Supporting the assumptions of RQ1, the Coercive power \times Time interaction ($F[1, 191] = 21.45$, $p < .001$, $\eta^2 = 0.10$) showed that low coercive power had no impact ($p = .13$), whereas high coercive power increased the perceived antagonism-based climate (T1: $M = 3.25$, $SD = 1.95$; T2: $M = 4.34$, $SD = 1.96$, $t[105] = 4.53$, $p < .001$; $d = 0.56$).

Supporting arguments underlying RQ2, the Legitimate power \times Time interaction ($F[1, 191] = 32.21$, $p < .001$, $\eta^2 = 0.15$) showed that low legitimate power increased the perceived antagonism-based climate (T1: $M = 3.39$, $SD = 2.01$; T2: $M = 4.49$, $SD = 1.88$, $t[98] = 4.07$, $p < .001$; $d = 0.57$), whereas high legitimate power had no effect ($p = .20$).

Supporting assumptions of RQ3, planned comparisons showed that the combination of high coercive and high legitimate power decreased the perceived antagonism-based climate in an initial antagonism-based climate (T1: $M = 4.27$, $SD = 1.68$; T2: $M = 3.41$, $SD = 1.59$; $t[29] = 2.21$, $p = .035$, $d = 0.52$), and increased the perceived antagonism-based climate in an initial confidence-based climate (T1: $M = 1.88$, $SD = 1.15$; T2: $M = 3.33$, $SD = 1.92$; $t[22] = 3.87$, $p = .001$, $d = 0.92$).

Perceived Confidence-based Climate. Supporting assumptions of RQ2, the Coercive power \times Time interaction ($F[1, 191] = 9.49$, $p < .001$, $\eta^2 = 0.05$) showed that low coercive power had no impact on the perceived confidence-based climate ($p = .95$). High coercive power, however, decreased the climate (T1: $M = 3.64$, $SD = 2.24$; T2: $M = 2.80$, $SD = 1.87$; $t[105] = 2.91$, $p = .004$, $d = 0.41$).

Supporting arguments underlying RQ2, the Legitimate power \times Time interaction ($F[1, 191] = 102.11$, $p < .001$, $\eta^2 = 0.35$) indicated that low legitimate power decreased (T1: $M = 3.56$, $SD = 2.05$; T2: $M = 1.91$, $SD = 0.99$, $t[98] = 7.88$, $p < .001$, $d = 1.02$) and high legitimate power increased the perceived confidence-based climate (T1: $M = 3.91$, $SD = 2.23$; T2: $M = 4.66$, $SD = 1.91$; $t[99] = 2.72$, $p = .008$, $d = 0.36$).

Supporting assumptions of RQ3, planned comparisons showed that the combination of high coercive with high legitimate power led to an increase in an initial antagonism-based climate (T1: $M = 2.09$, $SD = 1.40$; T2: $M = 4.02$, $SD = 1.82$; $t[29] = 4.25$, $p < .001$, $d = 1.19$) and to a decrease in an initial confidence-based climate (T1: $M = 5.39$, $SD = 2.10$; T2: $M = 3.72$, $SD = 2.19$; $t[22] = 7.67$, $p = .014$, $d = 0.78$). Supporting arguments underlying RQ4, low coercive power combined with high legitimate power did not strongly influence the perceived confidence-based climate (T1: $M = 5.81$, $SD = 1.19$; T2: $M = 5.69$, $SD = 1.62$, $t[24] = 0.41$, $p = .685$).

Perceived Implicit Trust. Not supporting arguments underlying RQ1, results showed no main effect of Coercive power ($p = .293$) and no Coercive power \times Time interaction ($p = .085$).

Supporting assumptions of RQ3, planned comparisons showed that the combination of high coercive with high legitimate power increased implicit trust in an initial antagonism-based climate (T1: $M = 3.38$, $SD = 1.53$; T2: $M = 4.06$, $SD = 1.81$; $t[29] = 2.31$, $p = .028$, $d = 0.40$), whereas the same power combination had no impact in an initial confidence-based climate ($p = .13$). Supporting assumptions of RQ4, the combination of low coercive power with high legitimate power did not have a strong effect on implicit trust in a confidence-based climate (T1: $M = 4.25$, $SD = 1.55$; T2: $M = 4.24$, $SD = 1.82$, $t[24] = 0.07$, $p = .940$).

Perceived Reason-based Trust. Supporting assumptions of RQ2, the Legitimate power \times Time interaction ($F[1, 191] = 117.89$, $p < .001$, $\eta^2 = 0.38$) revealed that low legitimate power decreased reason-based trust (T1: $M = 3.82$, $SD = 1.21$; T2: $M = 2.79$, $SD = 0.98$; $t[98] = 8.32$, $p < .001$, $d = 0.94$) and high legitimate power increased reason-based trust (T1: $M = 3.90$, $SD = 1.42$; T2: $M = 4.67$, $SD = 1.41$; $t[99] = 5.05$, $p < .001$, $d = 0.54$).

In agreement with the reasoning underlying RQ3, planned comparisons showed that the combination of high coercive with high legitimate power increased reason-based trust in an initial antagonism-based climate (T1: $M = 3.30$, $SD = 1.22$; T2: $M = 4.41$, $SD = 1.37$; $t[29] = 4.52$, $p < .001$, $d = 0.86$), whereas the same power combination had no impact in an initial confidence-based climate ($p = .54$). Supporting assumptions of RQ4, the combination of low coercive power with high legitimate power increased reason-based trust in the confidence-based climate (T1: $M = 4.73$, $SD = 1.26$; T2: $M = 5.14$, $SD = 1.38$, $t[24] = 3.43$, $p = .002$, $d = 0.31$).

Tax Payments. Results showed a main effect for Climate, ($F[1, 199] = 6.024$, $p = .015$, $\eta^2 = 0.03$), indicating that a confidence-based climate led to higher tax payments (T1: $M = 0.88$ [$SD = 0.22$]; T2: $M = 0.86$ [$SD = 0.21$]) than an antagonism-based climate (T1: $M = 0.80$ [$SD = 0.28$]; T2: $M = 0.78$ [$SD = 0.21$]). In addition, the main effect for Time was significant ($F[1, 199] = 4.45$, $p = .036$, $\eta^2 = 0.02$), indicating that at T1 ($M = 0.83$, $SD = 0.26$) tax payments were higher than at T2 ($M = 0.81$, $SD = 0.26$).

¹ All analysis were also conducted as ANCOVAs in which sex and age were used as covariates. All significant effects remained significant and all non-significant effects remained non-significant.

Experiment 1

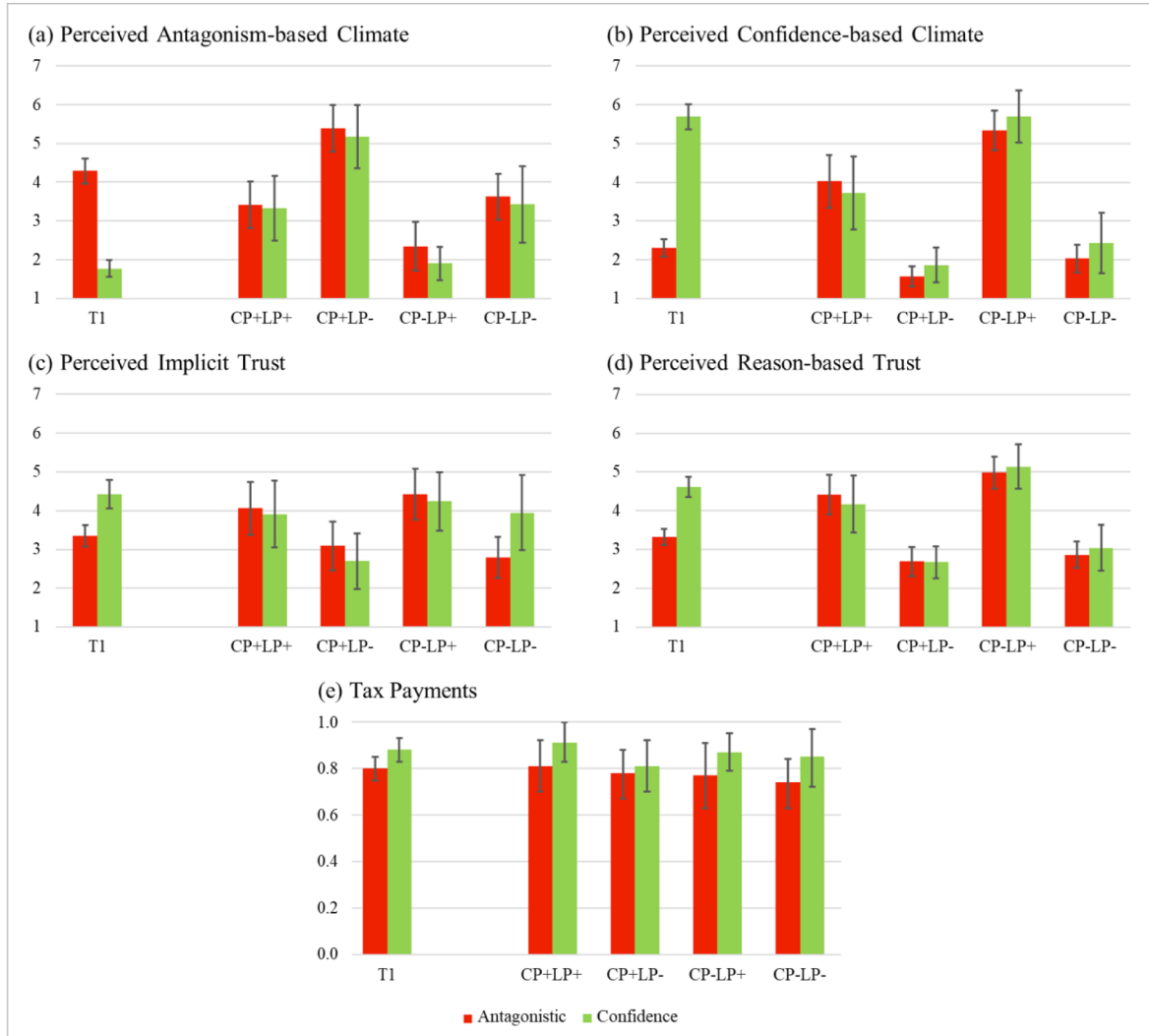


Fig. 3. Overview of results of Experiment 1. *Notes:* The figure shows how, depending on the initial antagonism-based climate (red T1) or confidence-based climate (green T1), the combinations of coercive and legitimate power at T2 led to an increase or decrease of (a) the perceived antagonism-based climate, (b) the perceived confidence-based climate, (c) implicit trust, or (d) reason-based trust (red for the initial antagonism-based climate and green for the initial confidence-based climate). Means are presented with 95% confidence intervals. T1 = Time 1 (in the figure, in contrast to the text, all four T1 assessments are presented in combination). Time 2 assessments are given for CP + LP+ = coercive power high, legitimate power, CP + LP- = coercive power high, legitimate power low, CP-LP+ = coercive power low, legitimate power high, CP-LP- = coercive power low, legitimate power low.

Not supporting assumptions of RQ5, the Coercive power \times Time interaction ($F[1, 199] = 1.66, p = .20, \eta^2 = 0.01$) was not significant, indicating that the change in tax payments from T1 to T2 was not moderated by coercive power.

Supporting assumptions of RQ6, the Legitimate power \times Time interaction ($F[1, 199] = 23.19, p < .001, \eta^2 = 0.11$) was significant: Low legitimate power decreased tax payment (T1: $M = 0.86, SD = 0.22$; T2: $M = 0.78, SD = 0.27$; $t[98] = 4.56, p < .001, d = 0.33$), whereas high legitimate power increased tax payments (T1: $M = 0.81, SD = 0.29$; T2: $M = 0.84, SD = 0.26, t[99] = 2.19, p = .03, d = 0.13$). No other main or interaction effects were significant (all $ps > .10$).

5.9. Discussion

Experiment 1 offered first insights into the building, changing, and maintenance of interaction climates. Confirming the assumptions of RQ1, results showed that high but not low coercive power affected the perceived interaction climates. However, in contrast to expectations, no impact on implicit trust was found. These results corroborate studies showing that coercive power triggers an antagonism-based climate, but it has no robust and strong effect on implicit trust (Hofmann et al., 2014, 2017).

Results also supported the assumptions of RQ2 that, compared to low legitimate power, high legitimate power increased reason-based trust, reduced a perceived antagonism-based climate, and fostered a confidence-based climate. In addition, low but not high legitimate power had an impact on the perceived antagonism-based climate and implicit trust. This indicates that low legitimate power might be a more important signal to citizens than high legitimate power. Importantly, our findings showed that also under dynamic conditions legitimate power maintains its characteristic impact on trust, interaction climates, and tax compliance (Hartl, Hofmann, Gangl, Hartner-Tiefenthaler, & Kirchler, 2015; Hofmann et al., 2017; Mooijman et al., 2017).

As assumed in RQ3, compared to in an antagonism-based climate, in a confidence-based climate high coercive power combined with high legitimate power decreased reason-based trust and implicit trust and decreased a confidence-based climate and increased an antagonism-based climate. These results provide first evidence showing that the effect of legitimately applied coercive power depends on the initial climate and, thus, is not always fostering trust. Results also showed, as outlined in the RQ4, that in an initial confidence-based climate low coercive power combined with high legitimate power maintained the confidence-based climate.

In addition, our results did not confirm that high coercive power increased tax payments (RQ5). Supporting assumptions of RQ6, results showed that legitimate power increased tax payments.

6. Experiment 2

To assess the robustness of the results of our first (online) experiment, we conducted a second, laboratory experiment, which allowed us to incentivize tax behavior and collect data in a more controlled environment.

6.1. Sample and design

Two hundred and sixty-three Austrian university students ($M_{age} = 25.45$ years, $SD = 7.79$; 56.7% female) were recruited for a behavior-dependent remunerated laboratory study on tax decision-making. Participants could provide multiple answers on their educational status; most had a high school degree (71.5%, university degree: 26.6%, vocational training: 1.5%, basic school: 1.5%, vocational school: 0.4%, other: 1.5%). Participants also were allowed to give multiple answers on their working status; most were in education (66.9%, employed: 31.6%, unemployed: 12.5%, self-employed: 8.0%, maternity leave: 0.8%, retired: 0.8%, at home: 0.4%).

6.2. Procedure

The study was conducted in a computer laboratory in which up to 16 participants were tested simultaneously. The experimental setting, the task, and the manipulations of initial interaction climates, coercive power, and legitimate power were identical to Experiment 1. Importantly, in contrast to Experiment 1, participants knew that the audits and possible fines for detected evasion also would determine their remuneration for participation. We used the fictitious currency ECU. Participants were informed that at the end of the study, based on one randomly chosen tax round, the experimenter would roll a die to determine whether this round would be audited. The number “1” would result in an audit and the other numbers (“2” to “6”) would not. If participants would be caught as evaders they would have to pay back the evaded amount plus the same amount as a fine. Participants also learned that at the end of the experiment their earned income in ECU would be converted into Euro (2800 ECU was equivalent to 1 Euro) and paid out. On average participants earned €5.48 for participating (min. €2.85; max. €7.14).

Dependent Variables. The same dependent variables as in Experiment 1 were assessed: Tax payments, perceived antagonism-based climate (T1: $\alpha = 0.86$, T2: $\alpha = 0.87$), perceived confidence-based climate (T1: $\alpha = 0.92$, T2: $\alpha = 0.90$), implicit trust (T1: $\alpha = 0.88$, T2: $\alpha = 0.90$), and reason-based trust (T1: $\alpha = 0.78$, T2: $\alpha = 0.83$).

Manipulation Check Variables. The same scales as in Experiment 1 were used: Perceived coercive power (T1: $\alpha = 0.81$, T2: $\alpha = 0.90$) and legitimate power (T1: $\alpha = 0.82$, T2: $\alpha = 0.87$).

6.3. Statistical power

The same sensitivity analyses as for Experiment 1 were conducted. Generally, sensitivity analyses for an ANOVA: repeated measures, within-between interaction (F-tests, $p = .05$, power = 0.80, six groups, two measures) indicate that with an $N = 263$ we can detect effects of $f = 0.11$ ($d = 0.22$). Concerning RQ1 and RQ2, sensitivity analyses for t-tests for dependent means (two-sided, $p = .05$, power = 0.80) showed that we can detect effects between $d = 0.24$ and $d = 0.25$ (min $N = 123$; max $N = 140$). The same sensitivity analyses (t-tests for dependent means, two-sided, $p = .05$, power = 0.80) indicated that for RQ3 ($N = 35$ and $N = 28$) effects between $d = 0.49$ and $d = 0.55$ can be detected and for RQ4 ($N = 24$) effects of $d = 0.60$ can be detected. For RQ5 and RQ6, effects between $d = 0.24$ and $d = 0.25$ (min $N = 123$; max $N = 140$) are detectable with the current design (t-tests for dependent means, two-sided, $p = .05$, power = 0.80). Cohen (1988) suggests that $d = 0.20$ are small effects, $d = 0.50$ are medium effects and $d = 0.80$ are large effects. Thus, with the current design we can detect at least medium effects.

6.4. Manipulation checks

Perceived Tax Climate (Time 1): Results showed that participants in the antagonism-based condition perceived the climate as more antagonism-based ($M = 4.58$; $SD = 1.34$) than those in the confidence-based condition ($M = 2.53$, $SD = 1.44$), t

(261) = 11.96, $p < .001$, $d = 1.41$. In a similar vein, participants in the confidence-based condition perceived the interaction climate as more confidence-based ($M = 5.25$, $SD = 1.49$) than those in the antagonism-based condition ($M = 2.66$, $SD = 1.37$), $t(261) = 14.63$, $p < .001$, $d = 1.89$. These findings suggest that our manipulation of interaction climate was successful.

Perceived Coercive and Legitimate Power (Time 2): Results showed, as intended, that: (1) participants in the high coercive power condition ($M = 5.77$, $SD = 1.31$) perceived more coercive power than those in the low coercive power condition ($M = 3.78$, $SD = 1.76$; $t[261] = 10.32$, $p < .001$, $d = 1.28$) and (2) participants in the high legitimate power condition ($M = 5.50$, $SD = 1.22$) perceived more legitimate power than those in the low power condition ($M = 3.77$, $SD = 1.40$; $t[261] = 10.68$, $p < .001$, $d = 1.32$).

6.5. Results

Detailed analyses of direct and indirect effects are presented in Supplementary material (2.1). As in Experiment 1, we examined our research questions with repeated measurement ANOVAs and planned comparisons (paired t-tests)². Fig. 4 provides an overview of the results. Descriptive results on all main and interaction effects are presented in the Supplementary material.

Perceived Antagonism-based Climate. Supporting assumptions of RQ1, the Coercive power \times Time interaction ($F[1, 255] = 94.66$, $p < .001$, $\eta^2 = 0.21$) showed that low coercive power decreased (T1: $M = 3.58$, $SD = 1.75$; T2: $M = 2.95$, $SD = 1.41$; $t[139] = 3.66$, $p < .001$, $d = 0.40$) and high coercive power increased the perceived antagonism-based climate (T1: $M = 3.59$, $SD = 1.70$; T2: $M = 4.56$, $SD = 1.76$; $t[139] = -5.01$, $p < .001$; $d = 0.56$).

Supporting assumptions of RQ2, the Legitimate power \times Time interaction ($F[1, 255] = 64.40$, $p < .001$, $\eta^2 = 0.15$) showed that low legitimate power increased (T1: $M = 3.49$, $SD = 1.69$; T2: $M = 4.34$, $SD = 1.69$, $t[137] = 4.98$, $p < .001$; $d = 0.50$) and high legitimate power decreased the perceived antagonism-based climate (T1: $M = 3.69$, $SD = 1.76$, T2: $M = 2.99$, $SD = 1.59$; $t[124] = 3.53$, $p < .001$; $d = 0.42$).

In agreement with the reasoning underlying RQ3, planned comparisons showed that the combination of high coercive and high legitimate power decreased the perceived antagonism-based climate in an initial antagonism-based climate (T1: $M = 4.48$, $SD = 1.23$; T2: $M = 3.56$, $SD = 1.47$; $t[34] = 3.88$, $p < .001$, $d = 0.75$) and increased the perceived antagonism-based climate in an initial confidence-based climate (T1: $M = 2.26$, $SD = 1.10$; T2: $M = 4.02$, $SD = 1.74$; $t[27] = 5.76$, $p < .001$, $d = 1.17$).

Perceived Confidence-based Climate. Supporting assumptions of RQ1, the Coercive power \times Time interaction ($F[1, 255] = 13.93$, $p < .001$, $\eta^2 = 0.05$) revealed that low coercive power had no impact on the perceived confidence-based climate (T1: $M = 3.95$, $SD = 1.97$; T2: $M = 3.81$, $SD = 1.79$; $t[139] = 0.61$, $p = .55$), whereas high coercive power decreased the perceived confidence-based climate (T1: $M = 3.87$, $SD = 1.88$; T2: $M = 3.08$, $SD = 1.73$; $t[122] = 3.77$, $p < .001$, $d = 0.44$).

In agreement with the reasoning underlying RQ2, the Legitimate power \times Time interaction ($F[1, 255] = 63.44$, $p < .001$, $\eta^2 = 0.20$) showed that low legitimate power decreased (T1: $M = 4.04$, $SD = 1.82$; T2: $M = 2.61$, $SD = 1.42$, $t[137] = 8.38$, $p < .001$, $d = 0.88$) and high legitimate power increased the perceived confidence-based climate (T1: $M = 3.77$, $SD = 2.03$, T2: $M = 4.42$, $SD = 1.69$; $t[124] = 2.91$, $p = .004$, $d = 0.35$).

Supporting assumptions of RQ3, the combination of high coercive with high legitimate power increased the perceived confidence-based climate in an initial antagonism-based climate (T1: $M = 2.46$, $SD = 1.16$; T2: $M = 4.14$, $SD = 1.82$; $t[35] = 5.57$, $p < .001$, $d = 1.08$) and decreased it in an initial confidence-based climate (T1: $M = 5.73$, $SD = 0.99$; T2: $M = 3.63$, $SD = 1.41$; $t[27] = 7.23$, $p < .001$, $d = 1.71$). In addition, supporting assumptions of RQ4, in an initial confidence-based climate, low coercive power combined with high legitimate power did not influence the perceived confidence-based climate (T1: $M = 5.24$, $SD = 1.73$; T2: $M = 5.18$, $SD = 1.73$; $t[24] = 0.15$, $p = .884$).

Perceived Implicit Trust. In agreement with the reasoning underlying RQ1, the Coercive power \times Time interaction ($F[1, 255] = 5.47$, $p = .020$, $\eta^2 = 0.02$) revealed that low coercive power had no impact (T1: $M = 3.74$, $SD = 1.84$; T2: $M = 3.81$, $SD = 1.72$; $t[139] = 0.59$, $p = .56$) and high coercive power decreased implicit trust (T1: $M = 3.83$, $SD = 1.66$; T2: $M = 3.56$, $SD = 1.68$; $t[122] = 2.08$, $p = .04$, $d = 0.16$).

Supporting assumptions of RQ3, planned comparisons showed that the combination of high coercive with high legitimate power led to an increase in implicit trust in an initial antagonism-based climate (T1: $M = 3.30$, $SD = 1.72$; T2: $M = 3.70$, $SD = 1.74$; $t[34] = -2.21$, $p = .034$, $d = 0.23$), whereas the same power combination had no impact in an initial confidence-based climate ($p = .336$). Supporting assumptions of RQ4, results also showed that, the combination low coercive power with high legitimate power did not strongly decrease implicit trust in an initial confidence-based climate (T1: $M = 4.37$, $SD = 1.46$, T2: $M = 4.33$, $SD = 1.75$, $t[24] = 0.34$, $p = .74$).

Perceived Reason-based Trust. Supporting assumptions of RQ2, the Legitimate power \times Time interaction ($F[1, 255] = 56.78$, $p < .001$, $\eta^2 = 0.26$) revealed that low legitimate power decreased reason-based trust (T1: $M = 3.84$, $SD = 1.11$; T2: $M = 3.06$, $SD = 1.10$; $t[139] = 7.95$, $p < .001$, $d = 0.71$) and high legitimate power increased reason-based trust (T1: $M = 3.76$, $SD = 1.21$; T2: $M = 4.40$, $SD = 1.21$; $t[139] = 5.95$, $p < .001$, $d = 0.53$).

In agreement with the reasoning underlying RQ3, results of planned comparisons showed that the combination of high coercive with high legitimate power led to an increase in reason-based trust in an initial antagonism-based climate (T1: $M = 3.31$, $SD = 1.34$; T2: $M = 4.31$, $SD = 1.34$; $t[34] = 4.99$, $p < .001$, $d = 0.75$), whereas the same power combination had no impact in an initial

² All analyses were also conducted as ANCOVAs in which sex and age were used as covariates. All significant effects remained significant and all non-significant effects remained non-significant.

Experiment 2

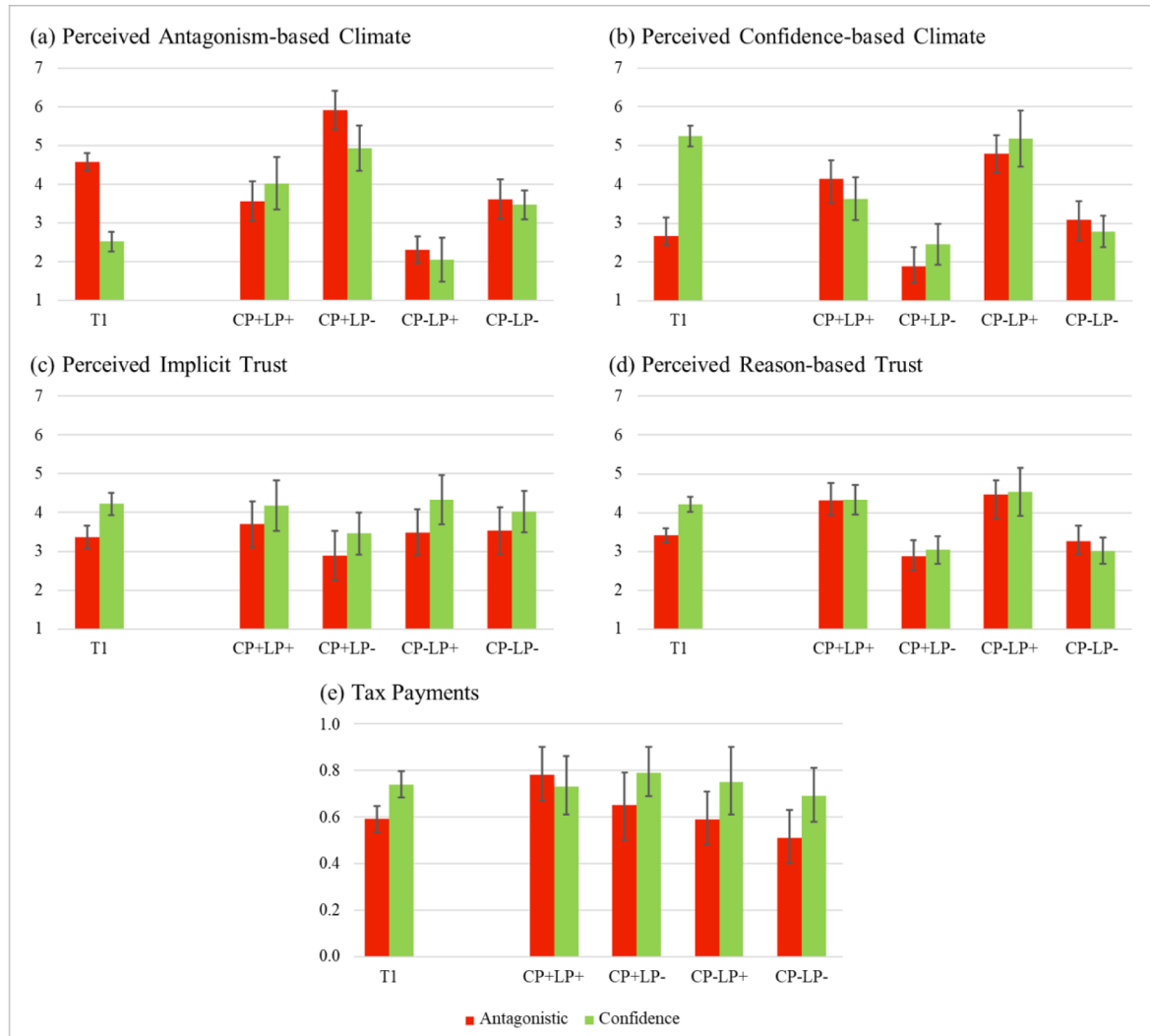


Fig. 4. Overview of results of Experiment 2. *Note:* The figure shows how, depending on the initial antagonism-based climate (red T1) or confidence-based climate (green T1), the combinations of coercive and legitimate power at T2 led to an increase or decrease of (a) the perceived antagonism-based climate, (b) the perceived confidence-based climate, (c) implicit trust, or (d) reason-based trust (red for the initial antagonism-based climate and green for the initial confidence-based climate). Means are presented with 95% confidence intervals. T1 = Time 1 (in the figure, in contrast to the text, all four T1 assessments are presented in combination). Time 2 assessments are given for CP + LP+ = coercive power high, legitimate power, CP + LP- = coercive power high, legitimate power low, CP-LP+ = coercive power low, legitimate power high, CP-LP- = coercive power low, legitimate power low.

confidence-based climate (T1: $M = 4.32$, $SD = 0.87$; T2: $M = 4.33$, $SD = 0.98$; $t[27] = 0.07$, $p = .94$). Supporting assumptions of RQ4, results also showed that the combination low coercive power with high legitimate power did not strongly influence reason-based trust in the confidence-based climate (T1: $M = 4.28$, $SD = 1.21$, $M = 4.53$, $SD = 1.46$; $t[23] = 1.20$, $p = .242$).

Tax Payments. Results showed a main effect for Climate ($F[1, 255] = 9.98$, $p = .002$, $\eta^2 = 0.04$) indicating that a confidence-based climate led to more tax payments than an antagonism-based climate (T1: confidence-based climate: $M = 0.74$, $SD = 0.33$ vs. antagonism-based climate: $M = 0.59$, $SD = 0.33$; T2: confidence-based climate: $M = 0.74$, $SD = 0.34$ vs. antagonism-based climate: $M = 0.63$, $SD = 0.36$). No other main effects were significant (all $ps > .07$).

Supporting assumptions of RQ5, the Coercive power \times Time interaction ($F[1, 255] = 6.03$, $p = .015$, $\eta^2 = 0.02$) showed that independent of the initial climate high coercive power increased tax payments (T1: $M = 0.68$, $SD = 0.33$; T2: $M = 0.74$, $SD = 0.33$, $t[122] = 3.45$, $p = .001$, $d = 0.18$), whereas low coercive power had no effect on tax payments ($p = .59$).

Supporting assumptions of RQ6, the Legitimate power \times Time interaction ($F[1, 255] = 8.68$, $p = .004$, $\eta^2 = 0.03$) showed that high legitimate power increased tax payments (T1: $M = 0.64$, $SD = 0.35$; T2: $M = 0.71$, $SD = 0.34$; $t[124] = -3.40$, $p = .001$,

$d = 0.21$), whereas low legitimate power had no effect (T1: $M = 0.68$, $SD = 0.34$; T2: $M = 0.66$, $SD = 0.36$, $t[137] = 1.23$, $p = .22$). No other interaction effects were significant (all $ps > .16$).

6.6. Discussion

Experiment 2 replicated Experiment 1's main findings and offered additional support for the assumptions of our research questions on the effects of coercive power and legitimate power on building, changing, and maintaining climates. In agreement with the rational underlying RQ1, compared to low coercive power, high coercive power reduced implicit trust and increased a perceived antagonism-based climate and decreased a perceived confidence-based climate. Supporting assumptions of RQ2, high versus low legitimate power increased reason-based trust and fostered a perceived confidence-based climate and reduced a perceived antagonism-based climate. In agreement with the assumptions of RQ3, compared to in an initial antagonism-based climate, in a confidence-based climate the combination of high coercive power and high legitimate power decreased implicit trust, reason-based trust, and the perceived confidence-based climate, whereas it increased the perceived antagonism-based climate. Supporting assumptions of RQ4, low coercive power combined with high legitimate power maintained reason-based, implicit trust, and a confidence-based climate. Finally, supporting assumptions of RQ5 and 6, compared to low coercive or legitimate power, high coercive power and high legitimate power increased tax payments.

7. General discussion and conclusions

The aim of the present research was to expand the knowledge on building and maintaining confidence-based climates with regulating public administrations, in particular tax authorities. The present research is based on the extended Slippery Slope Framework which, similar to other theoretical accounts (Adler, 2001; Alm & Torgler, 2011; Haslam & Fiske, 1999), suggests that citizens and public administrations cooperate in different interaction climates ranging from antagonism-based to confidence-based climates. The framework posits that based on these climates, the policy measures needed to build or maintain trust are markedly different (Gangl et al., 2015). In an antagonistic-based climate, authorities can build trust by regulating with legitimate sanctioning systems. In a confidence-based climate, however, coercive control and sanctions, even if they are applied in a legitimate way, erode trust and confidence. Thus, in a prevailing confidence-based climate likely only perceived low coercion combined with high legitimate power can maintain confidence and trust.

Previous research indicated that existing individual perceptions and attitudes are cues that frame the meaning of policy measures (James & Van Ryzin, 2016; Olsen, 2017). However, to the best of our knowledge, no previous research examined experimentally how different initial interaction climates influence the building and maintaining of trust in public authorities. The literature typically reports that public institutions can increase citizens' trust with legitimate sanctioning systems (e.g., Mooijman et al., 2017) without taking situational differences or temporal developments into account. The current two experiments confirm the assumptions of the extended Slippery Slope Framework and showed that only if the individually perceived interaction climate is antagonism-based, legitimate sanctioning systems increase trust and, in turn, foster a confidence-based climate. If the individually perceived climate was already confidence-based, legitimate sanctioning systems can be seen as a betrayal of trust (Joskowicz-Jablonek & Leiser, 2013) and undermine the confidence-based climate. Moreover, our results suggest that high legitimate power combined with low coercive power maintained an initial confidence-based climate.

In addition to these novel findings, the present research corroborates prior research about the independent effects of coercive and legitimate power (Gangl et al., 2017; Hartl et al., 2015; Hofmann et al., 2014, 2017). Coercive power's negative effects on (implicit) trust and cooperation, however, are rather small and not robust (Costa & Bijlsma-Frankema, 2007; Hofmann et al., 2017). This result indicates that there exists no simple negative relationship between coercive power and trust. Legitimate power, on the other hand, seems to have a strong positive effect on reason-based trust, the perception of a low antagonism-based and high confidence-based climate, and on cooperation, independent of the initial interaction climate (Hartl et al., 2015; Hofmann et al., 2014, 2017).

Thereby, our results confirm that initial interaction climates can likely be changed and maintained by tax administrations' coercive and legitimate power, as proposed by the extended Slippery Slope Framework (Gangl et al., 2015). Our exploratory analyses also suggested that initial confidence-based climates lead to higher tax cooperation than antagonism-based climates. In addition, the initial climates can have a prolonged impact on cooperation. An initial confidence-based climate led to more cooperation (i.e., tax payments) than an initial antagonism-based climate even after power was introduced (at T2). Results also showed that legitimate power had a robust impact on reason-based trust and tax payments, whereas coercive power's impact was rather small and instable (Hofmann et al., 2017). This suggests that, compared to coercive power, legitimate power leads to more elaborate processing and highlights the moral implications of behaviour (Gangl et al., 2017). Results in line with previous research (Hartl et al., 2015; Hofmann et al., 2014, 2017) showed that, despite the differentiated impact on trust, coercive and legitimate power did not differ in their overall level of obtained tax compliance. This confirms that there is cooperation without trust (Yang, 2008). However, the cooperation obtained by trust and legitimate power is more efficient as costly monitoring can be reduced.

An important strength of the present research is that we replicated our main finding in two experiments with different samples and different settings. Participants in our online experiment were a bit older and predominantly male, whereas those in our laboratory experiment were younger and predominantly female. In the first experiment, responses had no consequences, whereas in the second experiment, students were paid depending on their decisions. Thus, the two experiments balanced each other's strengths and weaknesses. The converging evidence from two different experiments indicates that our findings are a robust phenomenon

(Hüffmeier, Mazei, & Schultze, 2016). Previous studies on the external validity of laboratory tax compliance experiments found that behavioural patterns of participants (also students) in the laboratory conform to those of taxpayers making similar decisions in naturally occurring settings (Alm, Bloomquist, & McKee, 2015). Nonetheless, tax experiments have like online or laboratory experiments in general, a lower external validity than for example representative survey studies which, however, do not allow causal conclusions (Muehlbacher & Kirchler, 2016). Thus, to increase external validity of the present results, ideally, a large-scale field experiment using administrative data in which coercive and legitimate power are implemented in different countries varying in their antagonistic- and confidence-based tax climate should be conducted (Mascagni, 2018). Finally, we also argue that perceptions of tax climates are probably more important than “actual” tax policy or what is written in the law, as behaviour is built on perceptions. For instance, previous research showed that also media reports can elicit perceptions of powerful authorities and in turn influence the intention to be tax honest (Kasper, Kogler, & Kirchler, 2015). Thus, our results are not only theoretically but also practically relevant.

The current experiments were designed to test the assumptions of the eSSF (Gangl et al., 2015). However, an important related question for future research would be whether there are threshold effects for coercive power. For instance, future experiments, ideally conducted in countries differing concerning their tax climates, could vary the degree of coercive power by using different audit frequencies while keeping a high degree of legitimate power constant, to examine the effect on the perceived confidence-based climate. Such investigations would inform authorities how much coercion is needed or too much in a specific situation. The current research examined how temporal changes influence trust and confidence development. However, also comparisons of the quality of relationship between different administrations might influence the interpretation of administrative measures and, thus, confidence development and change (Olsen, 2017). In addition, the relationship between trust in the administration and trust in fellow citizens and related perceived social norms needs further investigation. Empirical investigations are needed to examine how coercive and legitimate power impact the perceived social norm of cooperation and whether this also leads to trust in other citizens. Future research could also examine whether specific political orientations, religiosity or general trust are related to the perception of a specific interaction climate (Lozza, Kastlunger, Tagliabue, & Kirchler, 2013) and consequently to different reactions to coercive and legitimate policies. Moderator analyses also are relevant to further understand the relationship between coercive power and (implicit) trust.

Practically, the present research suggests that tax administrations are well-advised to consider the specific perceived interaction climate of their taxpayers. Regulating institutions have to develop diagnostic capabilities to be able to plan and process targeted policies to specific groups (Braithwaite, 2003). The perceived interaction climate could be determined by survey studies to select the most effective strategy to foster trust and a confidence-based climate for a specific group of citizens. This targeted approach also would save resources as trusting citizens who likely have a high level of cooperation require less monitoring by expensive auditing schemes (Braithwaite, 2003).

To conclude, the present results show that public administrations likely can change the interaction climate with their citizens by the means of coercive and legitimate power. They need to consider, however, the initial interaction climate, thus, the perceived interaction quality, before choosing the right combination of harsh and soft measures.

References

- Adler, Paul S. (2001). Market, hierarchy, and trust: The knowledge economy and the future of capitalism. *Organization Science*, 101(2), 215–234.
- Alm, James, Bloomquist, Kim M., & McKee, Michael (2015). On the external validity of laboratory tax compliance experiments. *Economic Inquiry*, 53(2), 1170–1186.
- Alm, James, Sanchez, Isabel, & de Juan, Ana (1995). Economic and noneconomic factors in tax compliance. *Kyklos*, 48(1), 3–18.
- Alm, James, & Torgler, Benno (2011). Do ethics matter? Tax compliance and morality. *Journal of Business Ethics*, 101(4), 635–651. <https://doi.org/10.1007/s10551-011-0761-9>.
- Batrancea, Larissa, Anca, Nichita, Jerome, Olsen, Christoph, Kogler, Erich, Kirchler, Erik, Hoelzl, ... Sarunas, Zukauskas (2019). Trust and power as determinants of tax compliance across 44 nations. *Journal of Economic Psychology*, 74, Article 102191.
- Battaglio, Paul R., Nicola, Bellé, Paolo, Belardinelli, & Paola, Cantarelli (2018). Behavioral public administration ad fonts: A synthesis of research on bounded rationality, cognitive biases, and nudging in public organizations. *Public Administration Review*, 79(3), 304–320.
- Bellemare, Charles, Luc, Bissonnette, & Sabine, Kröger (2005). Statistical power of within and between-subject designs in economic experiments. *IZA Discussion Paper No. 8583*.
- Bohnet, Iris, & Baytelman, Yael (2007). Institutions and trust: Implications for preferences, beliefs and behavior. *Rationality and Society*, 19(1), 99–135.
- Braithwaite, Valerie (2003). Dancing with tax authorities: Motivational postures and non-compliant actions. In Valerie Braithwaite (Ed.). *Taxing democracy. Understanding tax avoidance and tax evasion* (pp. 15–39). Aldershot, UK: Ashgate.
- Brennkmeijer, Alex (2016). Interfaces: How to connect effectively with citizens. *Public Administration Review*, 77(1), 10–11.
- Bryson, John M., Crosby, Barbara C., & Bloomberg, Laura (2014). Public value governance: Moving beyond traditional public administration and the new public management. *Public Administration Review*, 74(4), 445–456.
- Castelfranchi, Christiano, & Falcone, Rino (2010). *Trust theory: A socio-cognitive and computational model*. New York: John Wiley & Sons.
- Cohen, Joshua (1988). *Statistical Power Analysis for the Behavioral Sciences*. New York: Lawrence Erlbaum Associates.
- Costa, Ana Cristina, & Bijlsma-Frankema, Katinka (2007). Trust and control interrelations new perspectives on the trust–control nexus. *Group & Organization Management*, 32(4), 392–406.
- Das, T. K., & Teng, Bing-Sheng (1998). Between trust and control: Developing confidence in partner cooperation in alliances. *Academy of Management Review*, 23(3), 491–512.
- Drake, Bruce (2013). IRS viewed least favourably among federal agencies. Accessed February 7, 2019. <http://pewrsr.ch/H5EVit>.
- Evans, Jonathan St. B. T. (2008). Dual-processing accounts of reasoning, judgment, and social cognition. *Annual Review of Psychology*, 59, 255–278.
- Fehr, Ernst, & Rockenbach, Bettina (2003). Detrimental effects of sanctions on human altruism. *Nature*, 422, 137–140.
- Feld, Lars P., & Frey, Bruno S. (2007). Tax compliance as the result of a psychological contract: The role of incentives and responsive regulation. *Law & Policy*, 29(1), 102–120.
- French, John R., Jr., & Raven, Bertram H. (1959). The bases of social power. In Dorwin Cartwright (Ed.). *Studies in Social Power* (pp. 150–167). Ann Arbor, MI: Institute for Social Research.
- Gangl, Katharina, Hofmann, Eva, & Kirchler, Erich (2015). Tax authorities' interaction with taxpayers: A conception of compliance in social dilemmas by power and trust. *New Ideas in Psychology*, 37, 13–23.

- Gangl, Katharina, Pfabigan, Daniela M., Lamm, Claus, Kirchler, Erich, & Hofmann, Eva (2017). Coercive and legitimate authority impact tax honesty. Evidence from behavioral and ERP experiments. *Social Cognitive and Affective Neuroscience*, 12(7), 1108–1117. <https://doi.org/10.1093/scan/nsx029>.
- Goodsell, Charles T. (2008). A new vision for public administration. *Public Administration Review*, 66(4), 623–635.
- Hallsworth, Michael, List, John A., Metcalfe, Robert D., & Vlaev, Ivo (2017). The behavioralist as tax collector: Using natural field experiments to enhance tax compliance. *Journal of Public Economics*, 148, 14–31.
- Hartl, Barbara, Hofmann, Eva, Gangl, Katharina, Hartner-Tiefenthaler, Martina, & Kirchler, Erich (2015). Does the sole description of a tax authority affect tax evasion? - The impact of described coercive and legitimate power. *PLoS ONE*, 10(4), Article e0123355.
- Haslam, Nick, & Fiske, Alan P. (1999). Relational models theory. A confirmatory factor analysis. *Personal Relationships*, 6(2), 241–250. <https://doi.org/10.1111/j.1475-6811.1999.tb00190.x>.
- Hofmann, Eva, Gangl, Katharina, Kirchler, Erich, & Stark, Jennifer (2014). Enhancing tax compliance through coercive and legitimate power of tax authorities by concurrently diminishing or facilitating trust in tax authorities. *Law & Policy*, 36(3), 290–313.
- Hofmann, Eva, Hartl, Barbara, Gangl, Katharina, Hartner-Tiefenthaler, Martina, & Kirchler, Erich (2017). Authorities' coercive and legitimate power: The impact on cognitions underlying cooperation. *Frontiers in Psychology*, 8, 1–15.
- Hough, Mike, Jackson, Jonathan, Bradford, Ben, Myhill, Andy, & Quinton, Paul (2010). Procedural justice, trust, and institutional legitimacy. *Policing: A Journal of Policy and Practice*, 4(3), 203–210.
- Hüffmeier, Joachim, Mazi, Jens, & Schultze, Thomas (2016). Reconceptualising replication as a sequence of different studies: A replication typology. *Journal of Experimental Social Psychology*, 66, 81–92.
- James, Oliver, & Van Ryzin, Gregg G. (2016). Motivated reasoning about public performance: An experimental study of how citizens judge the affordable care act. *Journal of Public Administration Research and Theory*, 27(1), 197–209.
- Joskowicz-Jablonek, Lisa, & Leiser, David (2013). Varieties of trust–betrayal: Emotion and relief patterns in different domains. *Journal of Applied Social Psychology*, 43(9), 1799–1813.
- Kahneman, Daniel (2003). A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist*, 58(9), 697–720.
- Kasper, Matthias, Kogler, Christoph, & Kirchler, Erich (2015). Tax policy and the news: An empirical analysis of taxpayers' perceptions of tax related media coverage and its impact on tax compliance. *Journal of Behavioral and Experimental Economics*, 54, 58–63.
- Keele, Luke (2007). Social capital and the dynamics of trust in government. *American Journal of Political Science*, 51(2), 241–254.
- Kirchler, Erich, Hoelzl, Erik, & Wahl, Ingrid (2008). Enforced versus voluntary tax compliance: The "slippery slope" framework. *Journal of Economic Psychology*, 29(2), 210–225.
- Kramer, Roderick M. (1999). Trust and distrust in organizations: Emerging perspectives, enduring questions. *Annual Review of Psychology*, 50(1), 569–598.
- Lozza, Edoardo, & Castiglioni, Cinzia (2018). Tax climate in the national press: A new tool in tax behavior research. *Journal of Social and Political Psychology*, 6(2), 401–419.
- Lozza, Edoardo, Kastlunger, Barbara, Tagliabue, Semira, & Kirchler, Erich (2013). The relationship between political ideology and attitudes toward tax compliance: The case of Italian taxpayers. *Journal of Social and Political Psychology*, 1, 51–73.
- Mascagni, Giulia (2018). From the lab to the field: A review of tax experiments. *Journal of Economic Surveys*, 32(2), 273–301.
- Mishler, William, & Rose, Richard (2001). What are the origins of political trust? Testing institutional and cultural theories in post-communist societies. *Comparative Political Studies*, 34(1), 30–62.
- Mooijman, Marlon, Van Dijk, Wilco W., Van Dijk, Eric, & Ellemers, Naomi (2017). On sanction-goal justifications: How and why deterrence justifications undermine rule compliance. *Journal of Personality and Social Psychology*, 112(4), 577–588.
- Muehlbacher, Stephan, & Kirchler, Erich (2016). Taxperiments: About the external validity of laboratory experiments in tax compliance research. *DBW*, 76(1), 7–19.
- Mulder, Laetitia B., Van Dijk, Eric, De Cremer, David, & Wilke, Henk A. M. (2006). Undermining trust and cooperation: The paradox of sanctioning systems in social dilemmas. *Journal of Experimental Social Psychology*, 42(2), 147–162.
- Olsen, Asmus Leth (2017). Compared to what? How social and historical reference points affect citizens' performance evaluations. *Journal of Public Administration Research and Theory*, 27(4), 562–580.
- Putnam, Robert D. (1995). Bowling alone: America's declining social capital. *Journal of Democracy*, 6(1), 65–78.
- Rothstein, Bo (2000). Trust, social dilemmas and collective memories. *Journal of Theoretical Politics*, 12(4), 477–501.
- Ruggeri, Kai (2019). *Behavioural insights for public policy*. New York: Routledge.
- Tyler, Tom R. (2003). Procedural justice, legitimacy, and the effective rule of law. *Crime and Justice*, 30, 283–357.
- Tyler, Tom R. (2011). Trust and legitimacy: Policing in the USA and Europe. *European Journal of Criminology*, 8(4), 254–266.
- Van der Weele, Joel (2009). The signalling power of sanctions in social dilemmas. *The Journal of Law, Economics, & Organization*, 28(1), 103–126.
- Wenzel, Michael (2003). Tax compliance and the psychology of justice: Mapping the field. In Valerie Braithwaite (Ed.). *Taxing democracy: Understanding tax avoidance and tax evasion* (pp. 41–69). Hants, UK: Ashgate.
- Yang, Kaifeng (2008). Cooperation without trust. *Public Administration Review*, 68(6), 1164–1166.