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On Social Cohesion and Social Disintegration

Philipp Harms* and Jana Niedringhaus†

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Abstract

In this paper, we argue that the recent erosion of the societal consensus in many democratic countries reflects a mix of economic and non-economic forces, which potentially reinforce each other. We present a simple model of a society that consists of different income groups, and in which the government uses redistributive taxation to maximize its political support. Under *social cohesion*, all citizens identify with the *society at large*, setting aside their own non-economic priorities and ambitions in the interest of the common good. We analyze the consequences of an exogenous *identification shock*, which induces high-income earners to no longer identify with the society at large. This shock forces the government to reconsider its tax policy and other citizens to reconsider their identification choices. We establish conditions that must be satisfied to prevent such a society from dropping into a state of *social disintegration* – i.e. a situation in which neither high-income earners nor low-income earners identify with the society – and highlight the parameters that determine the likelihood of such an outcome. Tentative empirical evidence supports the model's main hypotheses.

Keywords: Social Identity · Redistribution · Social Conflict
JEL codes: D72, D74, D91, H23, Z13

1 Introduction

In recent years, many democracies have come under strain, facing a rise of extremist positions and an erosion of the societal consensus that sustains the acceptance of democratic decisions. While these developments are often interpreted as a consequence of economic phenomena – e.g. the rise in equality in the wake of the global financial crisis or due to countries' growing exposure to globalization – we argue that they reflect a mix of economic and non-economic forces, which potentially reinforce each other. We present a simple model of a society that consists of different income groups, and in which the government uses redistributive taxation to maximize its political support. Initially, we observe a state of *social cohesion*, i.e. a situation in which all citizens identify with the *society at large*, setting aside their own – material and non-material – ambitions and priorities in the interest of the common good. The government's tax policy both reflects and supports this identification pattern, with the equilibrium tax mirroring the trade-off between the deadweight costs of redistribution, individuals' distributional preferences, but also the costs of *cognitive dissonance* that are associated with large income discrepancies.

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We then use this model to analyze the consequences of an exogenous *identification shock*, which induces high-income earners to no longer identify with the society at large. This shock possibly triggers a chain reaction, which forces the government to reconsider its tax policy and other citizens to reconsider their identification choices. We establish conditions that must be satisfied to prevent such a society from dropping into a state of *social disintegration* – i.e. a situation in which neither high-income earners nor low-income earners identify with the society – and highlight the parameters whose size determines the likelihood of such an outcome. More specifically, we demonstrate that social disintegration can be avoided if the society is characterized by a large middle class, and if there is a strong *identification externality*, through which the benefits of identifying with the society at large depend on the number of other individuals who share this identification. Conversely, the likelihood of social disintegration is high if low-income earners' non-economic priorities and preferences strongly differ from those in the rest of society.

To explore the empirical relevance of our theoretical framework, we use data from the World Values Survey, which offers information on participants' attitudes on a wide range of topics for a reasonably large number of countries. We proxy the identification shock as an increase of the average acceptance of tax cheating among a country's high-income earners, and we explore whether this shock affects the extent of redistribution and the level of trust in other people expressed by the respective country's low-income earners. Moreover, we test whether proxies for key model parameters – specifically, the intensity of identification externalities, the heterogeneity in attitudes towards non-economic issues, as well as the size of the middle class – affect the marginal effect of the identification shock as suggested by our theory. The empirical results we present lend tentative support to our model's key hypotheses.

The rest of the paper is structured as follows: In Section 2, we start by reviewing the relevant literature and by highlighting our own contribution. Section 3 presents our theoretical model. Section 4 is devoted to our empirical analysis. Section 5 offers a summary and some conclusions.

2 Relevant literature and own contribution

Two concepts play a crucial role in our argument: social cohesion and social identity. The concept of social cohesion can be traced back to Emile Durkheim, and is defined as "a state of affairs concerning both the vertical and the horizontal interactions among members of society as characterized by a set of attitudes and norms that includes trust, a sense of belonging and the willingness to participate and help, as well as their behavioural manifestations" (Chan et al. 2006, p. 290). *Vertical* social cohesion refers to the interaction between the state and society, while *horizontal* social cohesion is applied to the connections between the members of society. Moreover, social cohesion can be *subjective* (e.g., a sense of belonging, trust, willingness to cooperate) or *objective* (e.g., an actual participation, such as volunteering, (political) group activities, social support networks, etc. as well as cooperation). According to Chan et al. (2006, p. 289), three criteria have to be met for societies to exhibit a high degree of cohesion, namely their members "(1) [...] can trust, help and cooperate with their fellow members of society; (2) they share a common identity or a sense of belonging to their society; [and] (3) the subjective feelings in (1) and (2) are manifested in objective behaviour." In our analysis, we will focus on a combination of horizontal and subjective social cohesion, which can be measured using items such as "trust with fellow citizens," the "[w]illingness to cooperate and help fellow citizens, including those from 'other' social groups" as well as a "[s]ense of belonging or identity"

(Chan et al. 2006, p. 294).

Importantly, social cohesion is understood as a bounded concept, often linked to a society or a nation state, which is why it is closely connected to the concept of social identity. According to Tajfel (1978) and Tajfel and Turner (1979), social identity is "that *part* of an individual's self-concept which derives from knowledge of membership in a social group (or groups) together with the value or emotional significance attached to that membership" (Tajfel 1978, p. 63). Starting with the seminal contribution by Akerlof and Kranton (2000), economic analysis has become increasingly aware of the role of social identity in shaping individuals' preferences and decisions. Departing from the notion that "[...] the impact of an action [. . .] on utility [. . .] depends in part on its effect on identity [. . .]" (Akerlof and Kranton 2000, p. 721), various contributions document that accounting for social identity helps to explain decisions that seem to go against individuals' material interests, be it on goods and labor markets, or in the political arena. Thus, Shayo (2009) and, more recently, Bonomi et al. (2021) (BGT) demonstrate that the identification of low-income earners along "national" (Shayo) or "cultural" (BGT) instead of "class" lines induces them to support a policy platform that combines a low degree of redistribution with a nationalist (Shayo) or culturally conservative (BGT) position.[1]

One of the key challenges faced by the theoretical analyses mentioned above is to *endogenize* individuals' social identity, i.e. to make sure that – for a specific constellation of parameters – individuals find it optimal to identify with a given group and have no incentive to deviate from this choice. In Shayo (2009) and most other contributions, individuals seek to identify with a group that is characterized by higher *social status* but refrain from identifying with a group if their own traits differ too much from those of the average group member, i.e. if cognitive dissonance is too high.[2] In models with a political economy focus, this generates the following feedback loop: the identification pattern determines individuals' policy preferences and, eventually, policy decisions.[3] Policy decisions, in turn, affect market outcomes and the income distribution, which have to be consistent with individuals' identification choices.[4] This framework is then used for comparative-static analyses, i.e. to explore how changes in preferences or the economic environment shift identification patterns and equilibrium policies.

Our analysis adopts the existing literature's focus on the interdependence of distri-

[1]Further models on the interdependence of identification patterns and redistribution within countries or economic unions are offered by Lindqvist and Östling (2013) and Holm (2016). Yuki (2023) integrates the concept of social identity into a model of redistribution, educational spending, and development, while Besley and Persson (2021) describe how identity patterns, political cleavages, and policies evolve over time. Grossman and Helpman (2021) demonstrate how workers' identification with their country as a whole induces them to desire less trade protection than what would be economically optimal from an individual perspective, and Abramson and Shayo (2022) explore how social identity affects the feasibility of international integration. Recent surveys on the role of social identity for economic and political outcomes are offered by Ash et al. (2021) and Shayo (2020), while Klor and Shayo (2010) as well as Hett et al. (2020) provide experimental evidence that supports the relevance of this concept.

[2]Akerlof and Kranton are careful to note that "[...] we use the verb 'choose' advisedly. We do not presume one way or another that people are aware of their own motivations, as in standard utility theory which is agnostic as to whether an individual shopper is aware or not of the reasons for her choices" (Akerlof and Kranton 2000, p. 719). In a similar vein, Shayo argues that "[i]t should be stressed, however, that this is an equilibrium requirement. It is not asserted that there exists some controlled, deliberative process in which individuals 'choose' their social identities optimally" (Shayo 2009, p. 151).

[3]Analyses differ with respect to the political process they specify, with Shayo (2009) using the median-voter model and Bonomi et al. (2021) or Grossman and Helpman (2021) modeling policymakers as maximizing a political support function.

[4]In Shayo (2009), this feedback loop, combined with the fact that low-income individuals represent the majority and thus determine equilibrium policies, gives rise to multiple equilibria.

butional interests, identification choices, and political decisions. However, unlike Shayo (2009), Bonomi et al. (2021), or Grossman and Helpman (2021), we do not assume that identification along "national" or "cultural" lines competes with identification along "class" lines. Instead, we assume that non-economic interests and priorities are perfectly aligned with – and thus *augment* – distributional motives.[5] The resulting centrifugal forces are kept in check by what we call "identification with the society at large". By this, we mean individuals' ability and willingness to subordinate individual – or group-specific – priorities and ambitions in the interest of the common good. Throughout our text, we will keep emphasizing that the society at large should not be confused with the *nation*. Instead, we characterize the identification with the society at large as the willingness to tolerate (if not: embrace) diversity and to endorse the rules that guarantee the peaceful and productive coexistence of individuals in a heterogenous society.[6] We describe a situation in which all members of society identify with the society at large as a situation of social cohesion, while social disintegration occurs if individuals prioritize their respective (income) groups and are unwilling to endorse a comprehensive societal consensus. While we do not explicitly model the material and non-material benefits of social cohesion, we implicitly assume that societies in which all citizens are loyal to a common set of rules, and in which compromise dominates antagonism, yield higher welfare.

The second dimension along which our theoretical setup differs from existing studies is the concept of identification externalities: We argue that, for each individual, the attractiveness of identifying with the society at large depends on the number of other individuals who share this identification choice. We thus deviate from the notion established by, e.g., Shayo (2009) that "[...] in principle, one may identify with a group regardless of whether other members of that group identify with it" (Shayo 2009, p. 152). Note, however, that, in our context, it is the *number* of individuals who share the same identification choice which matters, not their *composition*.[7] Given the vast number of non-market transactions that are characterized by strategic complementarities – with the individual benefit of a decision increasing in the number of other individuals who take the same decision – we believe that the assumption of identification externalities is plausible. Our model will allow us to analyze how the presence and strength of these externalities affect equilibrium outcomes.

Finally, while other studies, including Shayo (2009), Bonomi et al. (2021) and Grossman and Helpman (2021), predominantly focus on the consequences of a changing identification pattern among *low-income* individuals, i.e. a "populism shock", we focus on the consequences of high-income individuals abandoning their identification with the society at large. We explore how this change affects the identification pattern among the other members of society, how it influences a support-maximizing government's choice of

[5]While Bonomi et al. (2021) endogenize the relative weight of distributional and cultural priorities in shaping individuals' identification choices, their key results are based on the assumptions that individuals' assessment of public spending is affected by their cultural position, and that relative income positions and positions on cultural issues are correlated, i.e. rich individuals are more *socially progressive* on average than poor individuals.

[6]Our concept of an identification with the society at large thus comes closest to Sen's (2007) notion of "plural identies", which implies that individuals do not just identify with *one* particular group, but acknowledge the multiple contexts that they are embedded in. Or, to quote Sen (2007, p. 16): "Rather the main hope of harmony in our troubled world lies in the plurality of our identities, which cut across each other and work against sharp divisions around one single hardened line of vehement division that allegedly cannot be resisted."

[7]In Bernard et al. (2016), group status – and thus the attractiveness of identifying with that group – may be lowered by additional "entrants", and this may induce incumbent group members to apply exclusion strategies.

redistributive taxation, and how identification and taxation decisions interact with each other. Finally, we highlight the parameters at the individual, economic and societal level that determine whether the society ends up in a state of disintegration or maintains a minimum level of social cohesion.

3 A model of social identity, social cohesion, and social disintegration

3.1 Structure and assumptions

We consider an economy that is populated by three (internally) homogenous groups that differ with respect to their income y_i, which is assumed to be exogenous. *High-income earners (H)* earn an income y_H, *low-income earners (L)* an income y_L. Finally, *medium-income earners* – i.e. members of the *middle class (M)* – earn the average income, i.e. $y_M = \bar{y}$. By definition, $y_H > \bar{y} > y_L$. Total population size is normalized to one, and the shares of the three groups are given by λ_H, λ_M and λ_L, respectively.

We will focus on a government's decision on a linear tax rate τ, with tax revenues being evenly redistributed among the entire population. Our assumption that redistribution is associated with deadweight costs is reflected by the fact that the per-capita transfer accruing to each individual is given by $T = \tau\bar{y} - \frac{\varphi}{2}\tau^2$, with $\varphi \geq 0$. The utility V_i of a representative member of group i has two components: the first component is linear in the sum of her after-tax income and the transfer she receives: $(1-\tau)y_i+T = (1-\tau)y_i+\tau\bar{y}-\frac{\varphi}{2}\tau^2$. The second component reflects the utility of identifying with a certain group. Identification with her own group – which implies subscribing to the group's values, perspectives and attitudes – is associated with a utility ϕ_i, which we assume to be identical for all members of group i.[8] By contrast, identification with the society at large implies that group-specific values are abandoned in order to reach a consensus with other members of society.[9] The utility derived by a representative member of group i from identifying with the society at large is given by $\delta_i + \gamma \sum_{j\neq i} \mathbf{1_j}\lambda_j - \frac{\beta_i}{2}(y_i - \bar{y})^2(1-\tau)^2$, with $\delta_i \geq 0, \gamma \geq 0, \beta_i \geq 0$. This specification reflects the following assumptions: identification with the society at large comes with a fixed benefit (δ_i). Moreover, if $\gamma > 0$, there is an additional benefit that depends on the number of *other* citizens who *also* identify with society ($\gamma \sum_{j\neq i} \mathbf{1_j}\lambda_j$), with the indicator function $\mathbf{1_j} = 1$ if a representative member of group j identifies with the society at large, and $\mathbf{1_j} = 0$ otherwise. Finally, there is a cost associated with (income-related) cognitive dissonance, which increases in the squared difference between the group member's own after-tax income and *average* after-tax income ($\frac{\beta_i}{2}(y_i - \bar{y})^2(1-\tau)^2$).[10] Combining all these components allows writing

[8]Note that this assumption implies a perfect correlation between an individual's relative income position and her views on other – cultural or social – issues.

[9]We are deliberately vague on the type of values that we have in mind: they may refer to cultural interests and lifestyle decisions, but also attitudes towards religion and sexuality. For all these examples, identification with society at large implies that members of a group are willing to tolerate and respect the choices made by members of other groups, even if these choices widely differ from their own orientations.

[10]Note that this aspect of cognitive dissonance potentially adds to the cognitive dissonance arising from subscribing to society-wide values at the expense of group-specific values, as reflected by the difference between δ_i and ϕ_i. Moreover, we allow the importance of income-related cognitive dissonance – as reflected by β_i – to vary across groups.

$$V_i = (1-\tau)y_i + \tau\bar{y} - \frac{\varphi}{2}\tau^2 + \mathbf{1_i}\left[\delta_i + \gamma\sum_{j\neq i}\mathbf{1_j}\lambda_j - \frac{\beta_i}{2}(y_i-\bar{y})^2(1-\tau)^2\right] + (1-\mathbf{1_i})\,\phi_i. \quad (1)$$

We define $\alpha_i \equiv \delta_i - \phi_i$ as the net fixed benefit of identifying with the society at large, i.e. of supporting the societal consensus, possibly at the expense of group-specific values. Note that this difference may actually be negative and vary over time: while identification with the society at large may raise self-esteem and thus utility, group-specific values, priorities and taboos may differ substantially from those that may be required to support a society-wide consensus. We will later interpret a greater value of α_i as indicating a greater *homogeneity of values* across different income groups. In Section 3.4, we will endogenize an individual's decision whether to identify with the society at large or not, i.e. whether to choose $\mathbf{1_i} = 1$ or $\mathbf{1_i} = 0$.

3.2 Preferred tax rates at the individual level

It follows from (1) that the preferred tax rate of a representative member of group i (τ_i^*) depends on whether she identifies with the society at large or not. Suppose she does *not*: setting $\mathbf{1_i} = 0$ in (1), maximizing V_i with respect to τ, and imposing the constraint that $0 \leq \tau \leq 1$ yields

$$\tau_i^*\left(\mathbf{1_i} = 0\right) = min\left[1, max\left[\frac{\bar{y}-y_i}{\varphi}, 0\right]\right]. \quad (2)$$

This is a standard result: if an individual does *not* identify with the society at large, the preferred tax rate reflects her "pure" distributional interests, adjusted for the aggregate costs of taxation. More specifically, $\tau_i^*\left(\mathbf{1_i} = 0\right) = 0$ for $i \in \{H, M\}$, and $\tau_L^*\left(\mathbf{1_i} = 0\right) = min\left[\frac{\bar{y}-y_i}{\varphi}, 1\right]$: while individuals with high or average incomes prefer no taxation at all, individuals with below-average incomes prefer a strictly positive tax rate, possibly (if $\bar{y} - y_L > \varphi$) hitting the upper limit of one, i.e. complete redistribution.

We now consider the optimal tax rate for a representative member of group i in case she *does* identify with the society at large. This identification gives rise to dissonance costs, which increase in the discrepancy between an individual's (after-tax) income and average (after-tax) income. Setting $\mathbf{1_i} = 1$ in (1), maximizing V_i with respect to τ, and imposing the constraint that $0 \leq \tau \leq 1$ yields

$$\tau_i^*\left(\mathbf{1_i} = 1\right) = min\left[1, max\left[\frac{\bar{y}-y_i+\beta_i(y_i-\bar{y})^2}{\varphi+\beta_i(y_i-\bar{y})^2}, 0\right]\right]. \quad (3)$$

Equation (3) indicates that identification with the society at large affects the individually optimal tax rate in a way similar to "inequity aversion" (Fehr and Schmidt 1999): the utility loss associated with cognitive dissonance strengthens individuals' desire to reduce income differences, and potentially raises the preferred tax rate. It is easy to show that $\tau_L^*\left(\mathbf{1_L} = 1\right) > \tau_L^*\left(\mathbf{1_L} = 0\right)$ if $\tau_L^*\left(\mathbf{1_L} = 0\right) < 1$, and that $\tau_H^*\left(\mathbf{1_H} = 1\right) > \tau_H^*\left(\mathbf{1_H} = 0\right)$ if $\beta_H > \frac{1}{y_H - \bar{y}}$, i.e. if the costs of cognitive dissonance dominate distributional interests for high-income earners – which is especially likely if $y_H - \bar{y}$ is large. Note, finally, that individuals with average income – i.e. members of group M – keep preferring a tax rate of zero – i.e. $\tau_M^*\left(\mathbf{1_M} = 1\right) = 0$ – since they have no interest in promoting or preventing redistribution and do not suffer from cognitive dissonance, regardless of the prevailing tax rate.

3.3 The government's choice of taxation

We assume that the government chooses the tax rate that maximizes the sum of individual utility levels, i.e. it maximizes

$$S = \sum_i \lambda_i V_i \tag{4}$$

where V_i is given by (1). While the objective function in (4) can be considered a social welfare function, we prefer to interpret it as a political support function that reflects individual agents' preferences as well as the weight they have in the political process. We proxy these weights by the size of the respective group.[11] Substituting individual utility into (4), and accounting for the (obvious) fact that $\lambda_L + \lambda_M + \lambda_H = 1$ yields

$$S = \bar{y} - \frac{\varphi}{2}\tau^2 + \Phi - \frac{(1-\tau)^2}{2}\Omega \tag{5}$$

with

$$\Phi = \sum_i \lambda_i \left[\mathbf{1_i} \left(\alpha_i + \gamma \sum_{j \neq i} \mathbf{1_j} \lambda_j \right) + \phi_i \right] \tag{6}$$

and

$$\Omega = \sum_i \lambda_i \mathbf{1_i} \beta_i \left(y_i - \bar{y} \right)^2 \tag{7}$$

The fact that individual group members' distributional interests do not appear in (5) is due to the linearity of the government's political support function and of individuals' utility functions, which makes political support insensitve to redistribution as long as we ignore the role of social identity. What is left are the aggregate losses associated with taxation ($\frac{\varphi}{2}\tau^2$), and the aggregate net benefits of a given identification pattern. Obviously, if $\Omega = 0$ (and if the pattern of identification is fixed), an optimizing government chooses $\tau = 0$. Conversely, if $\Omega > 0$, the government's optimal tax rate is given by

$$\tau_G^* = \frac{\Omega}{\varphi + \Omega}, \tag{8}$$

which is strictly positive and smaller than one for $\Omega > 0$ and $\varphi > 0$. It will later be of crucial importance that τ_G^* increases in Ω, i.e. the government's optimal tax rate is higher *ceteris paribus* if a larger share of the population identifies with the society at large. This is intuitive: in this model, the only reason for the government to implement redistributive taxation is to reduce cognitive dissonance. The importance of this motivation decreases if a lower share of the population identifies with the society at large.

3.4 The choice of social identity

We mentioned above that, in defining agents' preferred tax rate, cognitive dissonance acts in a way similar to *inequity aversion*. What distinguishes the two concepts, however, is the fact that inequity aversion characterizes individuals' preferences. By contrast, cognitive

[11] Both Bonomi et al. (2021) and Grossman and Helpman (2021) motivate the political support-interpretation of (4) by invoking a *probabilistic voting model* à la Coughlin et al. (1990), who describe the competition between two parties that converge to the platform which maximizes the expected number of votes.

dissonance matters only for individuals who identify with the society, and this identification is endogenous. More specifically, an individual of group i identifies with the society at large as long as the following condition is satisfied:

$$\alpha_i + \gamma \sum_{j \neq i} \mathbf{1_j} \lambda_j \geq \frac{\beta_i}{2}(y_i - \bar{y})^2(1-\tau)^2. \tag{9}$$

Equation (9) states that the net benefits of social identification must not be smaller than the costs of cognitive dissonance. Obviously, the right-hand side of the weak inequality in (9) is zero if $y_i = \bar{y}$, i.e. for members of group M. However, these individuals may still refuse to identify with the society at large if the left-hand side of (9) is negative. In what follows, we will assume that this situation never occurs and that $\alpha_M \geq 0$: members of the middle class identify with the society at large, regardless of other groups' identification choices, i.e. even if $\mathbf{1_L} = \mathbf{1_H} = 0$.

Unlike members of group M, low-income and high-income earners make their identification choices dependent on the tax rate, with a higher tax rate reducing cognitive dissonance and making it more likely that an individual chooses to identify with the society at large. This gives rise to a fixed-point problem: the tax rate τ_G^* in (8), whose choice by the government is based on a certain identification pattern, has to satisfy (9) for all those individuals who choose to identify with the society at large. We assume that, while the government's choices reflect aggregate identification patterns, individual group members do not choose their identities *strategically*, i.e. they do not account for the effect of their choices on the government's tax policy.

We also assume that the initial equilibrium is characterized by a state of social cohesion, i.e. *all* citizens identify with the society at large: $\mathbf{1_L} = \mathbf{1_M} = \mathbf{1_H} = 1$. As a consequence, $\Omega = \lambda_L \beta_L (\bar{y} - y_L)^2 + \lambda_H \beta_H (y_H - \bar{y})^2$, which we denote by Ω_F. To support this *full identification equilibrium*, in which the government chooses $\tau_{G,F}^* = \frac{\Omega_F}{\varphi + \Omega_F}$, we need

$$\alpha_i + \gamma \sum_{j \neq i} \mathbf{1_j} \lambda_j \geq \frac{\beta_i}{2}(y_i - \bar{y})^2 (\frac{\varphi}{\varphi + \Omega_F})^2 \quad \forall i. \tag{10}$$

We assume that, in the initial equilibrium, the society we consider satisfies this condition.

3.5 The consequences of an identification shock

We now analyze the consequences of exogenous changes that induce all high-income earners to stop identifying with the society at large: at a given tax rate $\tau_{G,F}^*$, condition (10) is no longer satisfied for $i = H$. We model this identification shock as a drop in α_H from α_H^0 to α_H^{new} (with $\alpha_H^{new} < \alpha_H^0$), indicating that the values of the high-income earners become less compatible with the values prevailing in the society at large. While such a shock may originate in various forces that result in an alienation between high-income earners and the rest of society – technological change, shifting work and life styles, etc. – we are deliberately vague about the specific factors that trigger the identification shock.

Considering the government's objective function in (5), we see that the H group's drop in social identification potentially results in a loss of political support: replacing $\mathbf{1_H} = 1$ by $\mathbf{1_H} = 0$ reduces Φ – as specified by (6) – both directly, and because it lowers the marginal benefit of identification for all other groups. We assume that any attempt of the government to preserve $\mathbf{1_H} = 1$ through an adjustment of the tax rate is in vain. A sufficient condition for this to be the case is

$$\alpha_H^{new} + \gamma \sum_{j \neq H} \mathbf{1_j} \lambda_j < 0. \tag{11}$$

The shift in high-income earners' identification affects the other groups through various channels: first, it reduces their marginal benefit of identifying with the society at large by reducing $\gamma \sum_{j \neq i} \mathbf{1_j} \lambda_j$. Second, it follows from (5), combined with the definition of Ω in (7), that the tax rate chosen by the government drops, i.e. there is less redistribution. This, in turn, potentially affects the identification pattern of low-income earners.[12] We denote the government's optimal tax rate in case low-income earners still identify with society as $\tau^*_{G,L}$, and it follows from (7) that

$$\tau^*_{G,L} = \frac{\lambda_L \beta_L (\bar{y} - y_L)^2}{\varphi + \lambda_L \beta_L (\bar{y} - y_L)^2}, \tag{12}$$

which is obviously smaller than $\tau^*_{G,F}$. It follows from (9) that the *minimum* (*critical*) tax rate τ_L^{crit} that induces members of group L to still identify with the society at large is given by

$$\tau_L^{crit} = max \left[0, 1 - \left(\frac{2\tilde{\alpha}_L(\mathbf{1_M})}{\beta_L(\bar{y} - y_L)^2} \right)^{0.5} \right] \tag{13}$$

with

$$\tilde{\alpha}_L(\mathbf{1_M}) = \alpha_L + \mathbf{1_M} \gamma \lambda_M \tag{14}$$

The dependence of $\tilde{\alpha}_L$ (and thus of τ_L^{crit}) on $\mathbf{1_M}$ results from the fact that the benefit of social identification for L members depends on the identification decision of M members. Using our assumption that $\alpha_M \geq 0$, we can take the identification of middle-income earners for granted, such that $\tilde{\alpha}_L(\mathbf{1_M}) = \alpha_L + \gamma \lambda_M$. To save notation, we will write $\tilde{\alpha}_L \equiv \alpha_L + \gamma \lambda_M$.[13]

If $\tau^*_{G,L} \geq \tau_L^{crit}$, low-income earners keep identifying with the society at large despite the lower tax rate. Combining (12) and (13) and defining $x \equiv \beta_L(\bar{y} - y_L)^2$, it is easy to show that this is the case if

$$x^{0.5} \leq (2\tilde{\alpha}_L)^{0.5} + (2\tilde{\alpha}_L)^{0.5} \frac{\lambda_L}{\varphi} x. \tag{15}$$

If the condition in (15) is satisfied, the identification shock – i.e. the "loss" of high-income earners – does not take society off the rails: while the government's adjusted objective function reduces the equilibrium tax rate and thus the extent of redistribution, members of both L and M keep identifying with the society at large.[14]

Conversely, if the condition in (15) is *not* satisfied, i.e. if $\tau^*_{G,L} < \tau_L^{crit}$, low-income earners stop identifying with the society at large as a reaction to the government's choice of taxes, i.e. $\mathbf{1_L} = 0$. It follows from (7) and (8) that this drives Ω and the government's optimal tax rate down to zero. We call this situation, in which both high-income and low-income earners cease to identify with the society at large a state of social disintegration: members of both groups stop setting aside their own preferences and priorities in the

[12]Recall that, by assumption, identification choices of middle class members are independent of the tax rate, and that this group keeps identifying with the society at large, regardless of other groups' identification choices.

[13]Of course, for (13) to have a solution, we have to assume that $\tilde{\alpha}_L \geq 0$.

[14]Once more, for (15) to make sense, we have to assume that $\tilde{\alpha}_L \geq 0$.

interest of the society at large. While we do not take a stand on whether this results in a dominance of *conservative* or *progressive* positions, we conjecture that social disintegration makes it harder to reach consensus on any relevant topic, and is thus associated with a drop in welfare and political support.

Facing this potential outcome, the government has to decide whether it deviates from the optimal tax rate τ_G^* and chooses τ_L^{crit} instead. Comparing political support S as given by (5) for $\tau = \tau_L^{crit}$ with the level of S that is attained if $\tau = 0$ and $\mathbf{1_L} = 0$ reveals that the former option is weakly preferred by the government if

$$\bar{y} - \frac{\varphi}{2}\left(\tau_L^{crit}\right)^2 + \lambda_L\tilde{\alpha}_L + \lambda_M\left(\alpha_M + \gamma\lambda_L\right) - \lambda_L\frac{\left(1-\tau_L^{crit}\right)^2}{2}\beta_L(y_L - \bar{y})^2 \geq \bar{y} + \lambda_M\alpha_M. \quad (16)$$

Using the implicit definition of τ_L^{crit} by transferring the weak inequality in (9) into a strict equality for $i = L$ and the definition of $\tilde{\alpha}_L \equiv \alpha_L + \gamma\lambda_M$, condition (16) can be rewritten as

$$\frac{\varphi}{2}\left(\tau_L^{crit}\right)^2 \leq \lambda_M\gamma\lambda_L. \quad (17)$$

While the left-hand side in (17) reflects the economic costs of implementing τ_L^{crit}, the right-hand side gives the net benefits of preserving social identification. This benefit consists of the utility that M members derive from preserving L members' identification ($\gamma\lambda_L$), weighted by this group's size (λ_M).

Using the definition of τ_L^{crit} in (13), the weak inequality in (17) can be written as

$$\left[1 - \left(\frac{2\tilde{\alpha}_L}{x}\right)^{0.5}\right]^2 \leq \frac{2\gamma\lambda_M\lambda_L}{\varphi}. \quad (18)$$

Due to the boundaries imposed on τ, the left-hand side of (18) cannot be greater than one. Hence, if $2\gamma\lambda_M\lambda_L \geq \varphi$, this condition is automatically satisfied. Conversely, if $2\gamma\lambda_M\lambda_L < \varphi$, (18) holds if

$$\left(2\tilde{\alpha}_L\right)^{0.5} \geq \psi x^{0.5}, \quad (19)$$

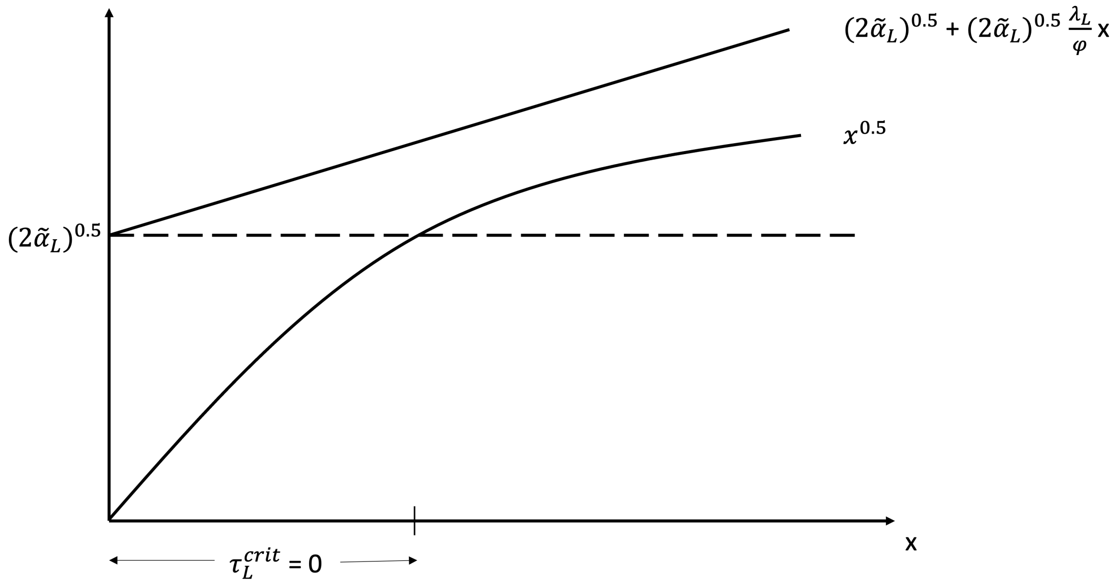
where we have defined $\psi \equiv \left[1 - \left(\frac{2\gamma\lambda_M\lambda_L}{\varphi}\right)^{0.5}\right]$, with $0 < \psi < 1$.

Conditions (15) and (19) allow characterizing the government's tax decision as well as the extent of social cohesion as a function of x. Recall that x increases both in the squared deviation of low income from average income $(\bar{y} - y_L)^2$ and in the dissonance cost associated with this deviation for low-income earners (β_L). Figures 1 and 2 depict two potential constellations.

In Figure 1, $\tau_{G,L}^* \geq \tau_L^{crit}$, i.e. condition (15) is satisfied for *all* values of x. It follows from (15) that such a constellation emerges if $\tilde{\alpha}_L \equiv \alpha_L + \gamma\lambda_M$ is high – i.e. if the intrinsic value of identification with the society as a whole for low-income earners is high, possibly because they are aware that a large middle class (λ_M) shares their identification. This constellation also emerges if the share of low-income earners in the total population (λ_L) is large, and if the economic costs of redistribution (φ) are low. We call societies that are described by Figure 1, i.e. that manage to maintain a minimum of social cohesion despite the identification shock *resilient societies*.

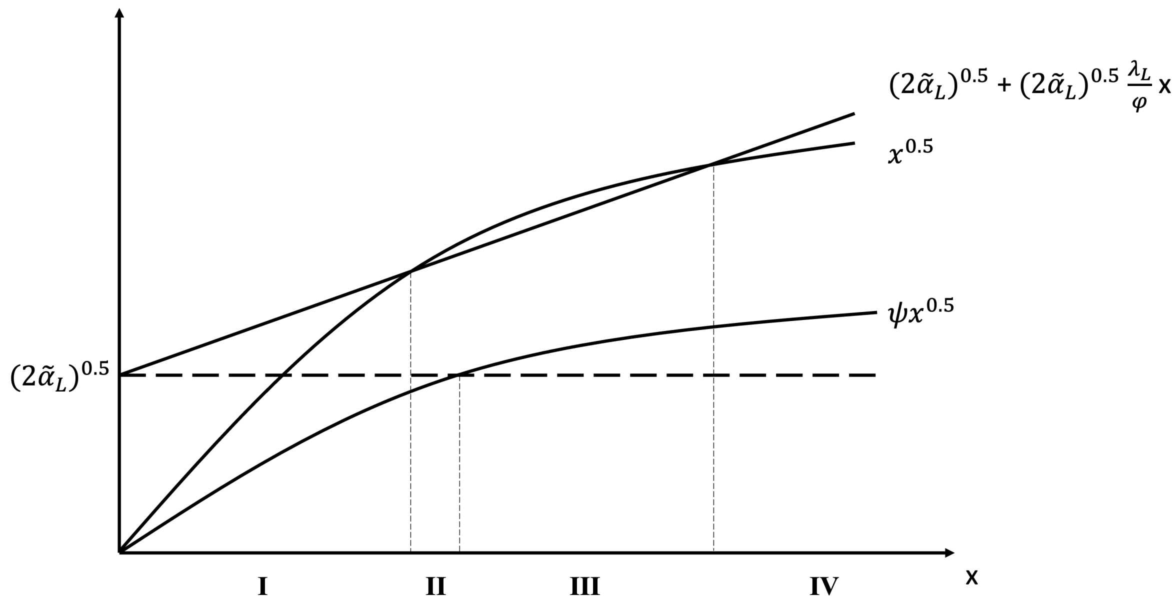
Figure 2 describes a more complex pattern, which emerges if $\tilde{\alpha}_L$, λ_L and $\gamma\lambda_M$ are low, or if φ is high: Condition (15) is satisfied for both very low and very high values of

Figure 1: The potential for social disintegration – **resilient societies**



Notes: The figure illustrates a situation in which condition (15), i.e. $\tau^*_{G,L} \geq \tau_L^{crit}$, is satisfied for all values of x, with $x \equiv \beta_L(\bar{y} - y_L)^2$. As a consequence, low-income earners keep identifying with the society at large despite the identification shock experienced by high-income earners. Note that condition (19) is irrelevant if condition (15) holds for all values of x.

Figure 2: The potential for social disintegration – **vulnerable societies**



Notes: The figure depicts conditions (15) and (19) in case (15) is not satisfied for all values of x, with $x \equiv \beta_L(\bar{y} - y_L)^2$. In intervals **I** and **IV**, condition (15) is satisfied, i.e. $\tau^*_{G,L} \geq \tau_L^{crit}$, and low-income earners keep identifying with the society at large despite the identification shock experienced by high-income earners. In interval **II**, $\tau^*_{G,L} < \tau_L^{crit}$, but the government implements τ_L^{crit} to preserve $\mathbf{1_L} = 1$ and to prevent social disintegration. In interval **III**, the tax rate chosen by the government drops to zero, and low-income earners stop identifying with the society at large.

x – as reflected by the intervals **I** and **IV** in Figure 2: if x is low, $\tau^*_{G,L} \geq \tau^{crit}_L$ because low income differences reduce τ^{crit}_L. If x is high, the dissonance costs resulting from high inequality drive up $\tau^*_{G,L}$, which alleviates after-tax inequality. In both these regions, the government chooses $\tau = \tau^*_{G,L}$ and low-income earners keep identifying with the society at large ($\mathbf{1_L} = 1$). In the interval **II**, $\tau^*_{G,L} < \tau^{crit}_L$, but condition (19) is satisfied, so the government has an incentive to sustain social identification of low-income earners by setting $\tau = \tau^{crit}_L$. By contrast, this strategy is too costly in the interval **III**, where both conditions (15) and (19) are violated. For values of x falling into this range, the government sets $\tau = 0$ and members of L no longer identify with the society at large, i.e. $\mathbf{1_L} = 0$. We call societies that potentially drop into social disintegration as a consequence of the identification shock *vulnerable societies*.

3.6 Comparative-static analysis

Figures 1 and 2 highlight the importance of the synthetic variable $\tilde{\alpha}_L \equiv \alpha + \gamma\lambda_M$, which combines three aspects of a society: first, low-income earners' (fixed) relative benefits of identifying with the society at large (α_L), which are likely to be low – if not negative – in case non-economic values and interests are very different across income groups. Second, the intensity of identification externalities (γ), which determine whether the perspective of being joined by the middle class makes identification with the society at large attractive for low-income earners. Finally, the size of the middle class (λ_M), which determines how strongly identification externalities affect identification choices – provided, of course, that $\gamma > 0$. In Figure 2, the solid straight line shifts upward and becomes steeper as $\tilde{\alpha}_L$ increases, reducing the set of x-values that fall into intervals **II** and **III** – up to a point where there is no potential for social disintegration, as described by Figure 1. Moreover, as can easily be inferred from Figure 2, the size of interval **II** relative to interval **III** increases as $\tilde{\alpha}_L$ gets bigger. We would thus expect societies that are characterized by a greater homogeneity of values, a larger middle class and stronger identification externalities to be more resilient in the face of an identification shock.

4 Taking the model to the data

4.1 Data

To test whether the mechanisms described by our theoretical model get some empirical support, we use data on individual attitudes as provided by the World Values Survey (WVS). Since our analysis focuses on society-wide phenomena – i.e. the extent of social cohesion or social disintegration as a reaction to a (country-specific) identification shock – we will use country-specific *averages* of individual responses. Of course, this severely constrains the number of observations. However, the WVS with its broad country coverage still allows for a reasonable number of data points. Based on the availability of items, 49 countries provide sufficient data to be included in the empirical analysis.[15] The time span we consider starts in the early 1990s and has 2008 as the last year to be included in our estimations. The main reason for limiting our attention to these 18 years is the observation that, in most countries, the global financial crisis of 2008/2009 led to a considerable re-assessment of societal roles and allegiances and to a massive increase in redistribution, all of which our model cannot explain.

[15] We exclude countries living under authoritarian and dictatorial regimes like China, Iran, Russia, and Venezuela.

To proxy for the negative identification shock described by our model, we use the WVS question on the acceptability of *Cheating on tax if you have the chance*, with the responses ranging from 1 (*Never justifiable*) to 10 (*Always justifiable*). Identification is an intricate concept to measure and has previously been assessed by using, for instance, items regarding national pride (Shayo 2009). However, mere national pride does not capture the essence of our model when it refers to the identification with the society at large. Especially, as emphasized by Sen (2007), an individual can adhere to society's norms and conventions and contribute to the community without necessarily having the same nationality. Therefore, we consider the acceptability of tax cheating to be a more suitable indication of how much an individual cares for the society at large, and how much it is willing to forgo its own material interests. Our key regressor of interest $\Delta TaxCheat^H$ will be how much the *average* acceptance of tax cheating among high-income earners – the "rich" – changed between the first observation after 1990 and the last observation before 2009.[16] We qualify individuals as *high-income earners* if their income falls into the income categories 9 to 11 in the WVS.[17]

To capture the identification with the society at large of *low-income earners* (the "poor") – defined as individuals whose income falls into the WVS income categories 1 to 3 – we consider responses to the following question: *Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?*[18] The WVS offers two answer options: *Most people can be trusted*, which we code as a one, and *Can't be too careful*, which we code as a zero. We define a binary variable $DropTrust^L$, which equals one if the average trust level among low-income earners *decreased* during the time interval we consider.

According to our model, there are two channels through which the identification shock (proxied by an increasing acceptance of tax cheating among the rich) may affect social identification of the poor (proxied by a drop in this group's average level of trust): first, through a direct channel, since the incentive to identify with society at large decreases if fewer people do so. Moreover, the identification shock possibly influences the redistributive tax chosen by the government – which, in turn, affects identification patterns. To measure the extent of redistribution, we use data from the Standardized World Income Inequality Database (SWIID). The SWIID offers information on *relative redistribution*, which is calculated as market-income inequality minus net-income inequality, divided by market-income inequality. However, this measure is only available for a subset of countries, and its use would considerably reduce the size of our sample. To assess the extent of redistribution, we will therefore mainly focus on the *Gini index of disposable incomes*, and control for the *Gini index of market incomes*.[19] As with the WVS tax-cheating variable, we will consider the *changes* of the disposable-income Gini between the early 1990s and the last year before the global financial crisis.

Our theoretical analysis suggests that the effect of the identification shock among high-income earners on the identification choice of low-income earners possibly depends on a range of societal parameters, summarized by the variable $\tilde{\alpha}_L \equiv \alpha_L + \gamma\lambda_M$. The parameter α_L reflects low-income earners' (non-material) net benefits from identifying with the society at large, which are higher – and possibly positive – if this group's non-economic values and priorities do not differ substantially from those endorsed by the

[16] Note that the tax-cheating question is not included in all survey waves for all countries. Hence the time spans underlying the differences we compute varies across countries.

[17] Of course, the actual income levels corresponding to these categories differ across countries.

[18] Recall that Chan et al. (2006) see trust as an appropriate proxy for social cohesion.

[19] Since the SWIID works with multiple imputations for each country and year, we use the average of these imputations.

average member of society, i.e. if values are very homogenous across income groups. We will use various proxies for α_L, which, however, all follow the same principle: we start by defining a WVS item (or a combination of items) that reflects an individual's attitude towards some non-economic issue. Let individual i be a member of group j (with $j \in \{L, M, H\}$), and v_{ij}^k be the score attached to this individual's response on issue k, which we call his or her *value score* on that issue. Let $\bar{v}_j^k$ be the average value score of members of group j on issue k, and σ_j^k the standard deviation of value scores within that group. Finally, let $\bar{v}^k$ be the average value score on issue k across all groups, and σ^k the respective standard deviation. Based on these definitions, we compute the variable $valhom_L$ (*value homogeneity*) as an empirical proxy for the variable α_L:

$$valhom_L = 1 - \frac{\left|\bar{v}_L^k - \bar{v}^k\right|}{\sigma_L^k \sigma^k} \tag{20}$$

The interpretation of this proxy is straightforward: the greater the absolute difference between the average value score among low-income earners and the average value score for the entire society on issue k, i.e. $\left|\bar{v}_L^k - \bar{v}^k\right|$, the more an individual of the low-income group has to stretch in order to bridge the gap between group-specific values when identifying with the society at large. However, the higher the standard deviations of value scores on issue k within the low-income group (σ_L^k) and the entire society (σ^k), the greater the potential overlap between the value scores of different income groups. An appropriate scaling of all variables makes sure that $valhom_L$ is between zero and one.[20] To compute values of $valhom_L$ for individual countries, we use the following information from the WVS: first, we use the WVS item that invites respondents to state whether homosexuality "can be justified", with answers ranging from 1 (*Never justifiable*) to 10 (*Always justifiable*). Second, we use the WVS item that invites respondents to assess the importance of religion for their lives, with answers ranging from 1 (*Very important*) to 4 (*Not at all important*). The third set of value scores that we use to compute country-specific numbers for $valhom_L$ is based on WVS-respondents' income category, multiplied with their educational attainment category. While this measure does not refer to any specific societal, ethical or cultural issue, we interpret it as a stand-in for the *milieu* a person was socialized in and the associated lifestyle.[21] Finally, we summarize the information contained in the different versions of $valhom_L$ by computing the first principal component.[22]

The second component of $\tilde{\alpha}_L$ is γ, which reflects the strength of the identification externality. To proxy this variable, we use Geert Hofstede's cultural dimension of *Individualism - Collectivism*. Individualism refers to "cultures in which the ties between individuals are loose: everyone is expected to look after him/herself and his/her immediate family", while Collectivism, the other end of the spectrum, describes "cultures in which people from birth onwards are integrated into strong, cohesive in-groups, often extended families (with uncles, aunts and grandparents) that continue protecting them in exchange for unquestioning loyalty, and oppose other in- groups" (Hofstede 2011, p. 11). We argue that societies that exhibit a higher degree of collectivism (as defined by Hofstede) are characterized by stronger identification externalities. To compute our measure *Collect*, we divide the Hofstede score by 100 and subtract the resulting number from

[20]The group-specific value score averages that we use to compute $valhom_L$ in (20) are averages across all available survey waves between 1990 and 2008.

[21]It follows from the definition of this variable that it ranges between 1 and 88. To make it compatible with our other measures of heterogeneity, we divide it by 100.

[22]Weightings of individual variables are based on a varimax rotation of the original data.

one.[23] Finally, to compute country-specific proxies for $\tilde{\alpha}_L$, we combine the numbers for $valhom_L$ and $Collect$ with the size of the middle class (λ_M), as reported by the WVS.[24]

4.2 Estimation and results

4.2.1 Overview and hypotheses

Figure 3 summarizes the mechanics described by our theoretical framework and helps specifying the hypotheses to be tested.

A core element of the model is the negative effect of income inequality on low-income earners' identification with the society at large. Using the proxies introduced above, we can thus formulate the first hypothesis:

Hypothesis 1: Ceteris paribus, an increase in after-tax income inequality is associated with a higher likelihood that low-income earners' identification with the society at large, as proxied by their level of trust towards other people, drops.

Given the relevance of inequality for low-income earners' trust, it is of crucial importance how after-tax inequality reacts to the identification shock, i.e. the drop in support for redistribution by high-income earners. The model suggests that this shock induces the government to lower redistributive taxation. However, the strength of this effect depends on $\tilde{\alpha}_L$, which reflects the homogeneity of values as well as the strength of identification externalities, and the size of the middle class. This can be summarized in the second hypothesis:

Hypothesis 2: Ceteris paribus, an identification shock, proxied by an increasing acceptance of tax cheating among high-income earners, reduces the extent of redistribution and thus raises the inequality of after-tax incomes for a given evolution of market-based income inequality. This effect is dampened in societies with more homogenous values, a larger extent of collectivism, and a larger middle class.

Combining Hypothesis 1 and Hypothesis 2, we arrive at the third hypothesis:

Hypothesis 3: Ceteris paribus, an identification shock, proxied by an increasing acceptance of tax cheating among high-income earners, reduces low-income earners' identification with the society at large, as proxied by a greater likelihood of a lower trust level. This effect is dampened in societies with more homogenous values, a larger extent of collectivism, and a larger middle class.

In the following sections, we will test these hypotheses using the data described in Section 4.1.

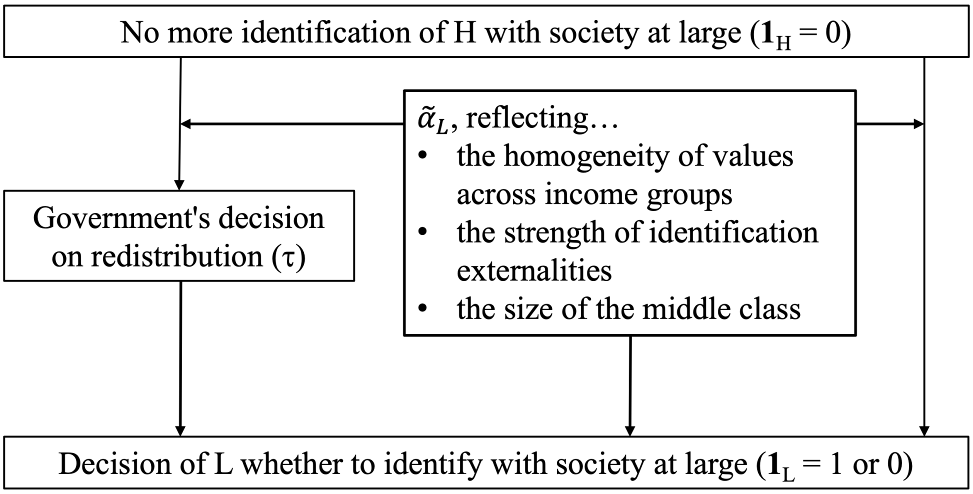
4.2.2 Redistribution and trust

To test Hypothesis 1, we estimate the parameters of the following equation:

[23] Note that the Hofstede measures are available for only one period in time. However, using a single value to reflect the extent of collectivism is reasonable, as culture is unlikely to be subject to rapid changes (Hartinger et al. 2021).

[24] Since low-income earners are those who fall into WVS income categories 1 to 3 and high-income earners those in categories 9 to 11, the middle class is represented by those assigned to income classes 4 to 8.

Figure 3: Influences of variables and parameters



Note: The figure depicts the structural relationships suggested by our theoretical model and highlights the hypotheses (1 to 3) that we are testing in the subsequent empirical analysis.

$$DropTrust^L_{c,t} = \beta_0 + \beta_1 \Delta Gini^{Disp}_{c,t} + \beta_2 \Delta Gini^{Mkt}_{c,t} + \beta_3 \Delta Trust^j_{c,t} + \beta_4 Trust^L_{c,t-1} + \epsilon_{c,t} \quad (21)$$

As explained above, $DropTrust^L_{c,t}$ in (21) denotes a binary variable which takes the value of one if the average trust level among low-income earners in country c decreased between the (country-specific) initial period $t-1$ and the (country-specific) end period t. $\Delta Gini^{Disp}_{c,t}$ is the change of the Gini index based on *disposable* incomes in the same time span, $\Delta Gini^{Mkt}_{c,t}$ is the change of the Gini index based on *market* incomes. Controlling for the evolution of the market-income Gini allows disentangling the effects of overall inequality and government interventions. We also control for the evolution of *average trust* – either in the entire sample (j = all) or among middle-income earners ($j = M$). Note that this is an extremely powerful control variable since it captures the numerous other forces which may have affected the evolution of society-wide trust in the period considered. Finally, we control for low-income earners' *initial* trust level to account for the possibility that a decrease in average trust over time is more likely if low-income earners depart from a high trust level. We estimate equation (21) by OLS (i.e. the linear probability model) using robust standard errors. Note that our theoretical model does not suggest that the relationship between redistribution and trust is affected by any other variable, hence the linear specification.

The results in columns (1) and (2) of Table 1 confirm our expectation that, *ceteris paribus*, an increase of the disposable-income Gini between 1990 and 2008 raised the likelihood of a decreasing trust level among low-income earners. This holds although we control for the change in average trust in the entire society (column 1) or among middle-income earners (column 2), with both variables obviously being negatively correlated with the (binary) regressor.

For columns (3) and (4) of Table 1, we replace the Gini indices in equation (21) by the SWIID's "Relative Redistribution" measure. The estimated coefficient of this variable has the expected positive sign and is highly significant. However, the number of observations drops by 20 percent – which is considerable, given the small sample we are working with. In what follows, we will therefore use a combination of $\Delta Gini^{Disp}$ and $\Delta Gini^{Mkt}$ as a measure of how government redistribution evolved over time.

Table 1: The link between changes in redistribution and the likelihood of a decreasing trust level among low-income earners.

	(1)	(2)	(3)	(4)
$\Delta Gini_t^{Disp}$	0.0549*	0.0568**		
	(0.0554)	(0.0464)		
$\Delta Gini_t^{Mkt}$	-0.0454	-0.0464		
	(0.1354)	(0.1274)		
Δ in relative redistribution			-0.0441**	-0.0469**
			(0.0385)	(0.0269)
$\Delta Trust_t^{all}$	-4.3145***		-3.9533***	
	(0.0000)		(0.0000)	
$\Delta Trust_t^{M}$		-3.8657***		-3.4866***
		(0.0000)		(0.0000)
$Trust_{t-1}^{L}$	0.4102	0.5057	0.5774	0.6436
	(0.2365)	(0.2046)	(0.1039)	(0.1254)
Constant	0.2188	0.1433	0.1151	0.0661
	(0.4216)	(0.6392)	(0.6507)	(0.8283)
Observations	46	46	37	37
Adjusted R^2	0.5873	0.5461	0.6035	0.5616

Robust p values in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.2.3 Acceptance of tax avoidance among the rich and redistribution

To test Hypothesis 2, we explore whether a changing acceptance of tax cheating among high-income earners – interpreted as a negative identification shock of the rich – affected the extent of redistribution chosen by governments. To answer this question, we start by estimating the parameters of the following equation:

$$\Delta Gini_{c,t}^{Disp} = \delta_0 + \delta_1 \Delta TaxCheat_{c,t}^{H} + \delta_2 \Delta Gini_{c,t}^{Mkt} + \delta_3 Gini_{c,t-1}^{Disp} + \nu_{c,t} \qquad (22)$$

In (22), $\Delta TaxCheat_{c,t}^{H}$ denotes the change in the average acceptance of tax cheating among high-income earners in country c between the earliest observation in the 1990s ($t-1$) and the latest observation before the global financial crisis (t), $\Delta Gini_{c,t}^{Mkt}$ denotes the change of the "market income Gini" over the same time span, while $Gini_{c,t-1}^{Disp}$ denotes the initial level of the "disposable-income Gini".[25] Not surprisingly, the estimate of δ_2 in Table 2 documents the positive relationship between changes of the market-income Gini and changes of the disposable-income Gini. More importantly, the significantly positive sign of the estimate of δ_1 confirms the first part of Hypothesis 2, which claims that countries in which tax cheating became more acceptable among high-income earners saw an increasingly unequal distribution of disposable incomes, which – given the evolution of the the market-income Gini – indicates a lower extent of public redistribution.[26]

[25]Recall that, since not all countries are included in all WVS waves and for all WVS items, the dates $t-1$ and t are country-specific.

[26]Note that we are treating our key regressor $\Delta TaxCheat^{H}$ as an exogenous variable. This assumption may, of course, be questioned, by invoking the argument that individuals' tax morale is determined by various forces, most importantly the government's redistribution decision. To explore this possibility, we

Table 2: The relationship between changes in the acceptance of tax-cheating among high-income earners ($\Delta TaxCheat_t^H$) and changes of the disposable-income Gini ($\Delta Gini_t^{Disp}$)

	(1)	(2) $\tilde{\alpha}_L$: homosexuality	(3) $\tilde{\alpha}_L$: religion	(4) $\tilde{\alpha}_L$: milieu	(5) $\tilde{\alpha}_L$: first PC
$\Delta Gini_t^{Mkt}$	0.6931***	0.5859***	0.6135***	0.6042***	0.5891***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$\Delta TaxCheat_t^H$	0.4916*	7.7264***	4.3236**	5.2237**	5.8247***
	(0.0729)	(0.0016)	(0.0167)	(0.0203)	(0.0003)
$\tilde{\alpha}_L$		2.6317	1.7830	1.5879	1.0830
		(0.2003)	(0.2649)	(0.4187)	(0.5335)
$\Delta TaxCheat_t^H \# \tilde{\alpha}_L$		-5.9118***	-3.3221**	-4.1395**	-4.8934***
		(0.0034)	(0.0300)	(0.0381)	(0.0011)
$Gini_{t-1}^{Disp}$	-0.0264	-0.0768*	-0.0688	-0.0672	-0.0606
	(0.4779)	(0.0881)	(0.1292)	(0.1500)	(0.1370)
Constant	0.7626	-0.2869	0.5742	0.7447	1.1647
	(0.5938)	(0.8730)	(0.6855)	(0.6532)	(0.4212)
Observations	45	41	41	41	41
Adjusted R^2	0.6646	0.7166	0.6865	0.6810	0.7220

Robust p values in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Notes: The table shows the results of estimating equation (22), with the change in the acceptability of tax cheating among the rich ($\Delta TaxCheat_t^H$) entering both in a linear way (column 1) and interacted with proxies for $\tilde{\alpha}_L$ (columns 2-5). These proxies use a measure of value homogeneity based on WVS information on attitudes towards homosexuality (column 2), the importance of religion (column 3), a combination of income level and educational attainment (column 4), and the first principal component of the preceding three measures (column 5).

While the result in column (1) of Table 2 generally supports the link between the acceptance of tax cheating among high-income earners and the extent of redistribution, our model implies that the marginal effect of the identification shock depends on $\tilde{\alpha}_L$. To implement this idea empirically and to thus test the second part of Hypothesis 2, we interact $\Delta TaxCheat^H$ with our proxies for $\tilde{\alpha}_L$, which we introduced in Section 4.1. We expect the sign of these interaction terms to be negative, documenting that the positive influence of the identification shock on after-tax inequality is cushioned in societies with more homogeneous values, stronger identification externalities, and a larger middle class. Columns (2) to (5) document that the second part of Hypothesis 2 is supported by the data for all proxies of $\tilde{\alpha}_L$ and – not surprisingly – the first principal component. [27]

4.2.4 Acceptance of tax avoidance among the rich and trust among the poor

The preceding sections have offered some evidence that a decrease in redistribution (as reflected by an increase in the disposable-income Gini, controlling for the market-income Gini) raised the likelihood of a decrease in average trust among the poor (Hypothesis 1), and that an increasing acceptance of tax cheating among the rich was associated with higher disposable-income inequality – with the effect being dampened by various proxies for $\tilde{\alpha}_L$. In this section, we test Hypothesis 3 and consider the direct relationship between the identification shock among the rich and the identification with the society at large among the poor. We start by estimating the parameters of the following equation:

$$DropTrust^L_{c,t} = \psi_0 + \psi_1 \Delta TaxCheat^H_{c,t} + \psi_2 \Delta Trust^{all}_{c,t} + \psi_3 Trust^L_{c,t-1} + \xi_{c,t}, \qquad (23)$$

with all variables being defined in the preceding sections. As above, we include $\Delta Trust^{all}$, to control for the numerous factors that may have an effect on the evolution of trust in a society, and $Trust^L_{c,t-1}$ to account for the possibility that a decrease in trust is more likely if the initial trust level is high.

The result displayed in column (1) of Table 3 supports the first part of Hypothesis 3, which claims that an increase in the average acceptance of tax cheating among high-income earners is associated with a greater likelihood that the average trust level of low-income earners dropped in the same time span. To test the second part of Hypothesis 3, we interact $\Delta TaxCheat^H$ with our proxies of $\tilde{\alpha}_L$. For our model, the results are somewhat more sobering than those presented in the preceding sections: while the coefficients for all interaction terms in columns (2) to (5) have the expected negative sign, the interaction is only significant if we compute $valhom_L$ based on WVS respondents' attitudes towards religion.[28]

The rather weak results in columns (2), (4) and (5) may have the following reasons: first, the identification shock of the rich affects identification choices of the poor both directly, by lowering the left-hand side in equation (10), and indirectly, by affecting the

regressed $\Delta TaxCheat^H$ on various potential determinants, including the level and change in redistribution, the level and change of trust, as well as the level and change of inequality. Interestingly, the only variable that turned out to have a significant effect on $\Delta TaxCheat^H$ was the change in the *KOF index of financial globalization* (Gygli et al. 2019). We conclude from this exercise that there are no alarming signals of reverse causality.

[27] Appendix 3 offers margins plots that illustrate how our proxies for $\tilde{\alpha}_L$ influence the marginal effect of $\Delta TaxCheat^H$ on $\Delta Gini^{Disp}$.

[28] These findings are illustrated by the margins plots displayed in Appendix 3. Note that all margins plots indicate that the effect of $\Delta TaxCheat^H$ on $DropTrust^L$ is *significantly positive* for low values of $\tilde{\alpha}_L$ but not for high values of that synthetic variable.

Table 3: The relationship between changes in the acceptance of tax-cheating among high-income earners ($\Delta TaxCheat_t^H$) and the likelihood of decreasing trust among low-income earners ($DropTrust_t^L$)

	(1)	(2) $\tilde{\alpha}_L$: homosexuality	(3) $\tilde{\alpha}_L$: religion	(4) $\tilde{\alpha}_L$: milieu	(5) $\tilde{\alpha}_L$: first PC
$\Delta TaxCheat_t^H$	0.0724*	0.5430	0.6665***	0.3844	0.2320
	(0.0721)	(0.1463)	(0.0028)	(0.3118)	(0.3180)
$\tilde{\alpha}_L$		0.4817*	0.5194***	0.4059	0.4096
		(0.0836)	(0.0090)	(0.1824)	(0.1172)
$\Delta TaxCheat_t^H \# \tilde{\alpha}_L$		-0.3907	-0.5372***	-0.2796	-0.1466
		(0.2244)	(0.0067)	(0.4341)	(0.5308)
$\Delta Trust_t^{all}$	-4.2412***	-4.4729***	-4.4538***	-4.5023***	-4.3485***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$Trust_{t-1}^L$	0.4577	0.2303	0.2246	0.2539	0.2922
	(0.1717)	(0.5384)	(0.4960)	(0.4975)	(0.4107)
Constant	0.1696	-0.2342	-0.2143	-0.1201	-0.1386
	(0.4986)	(0.5067)	(0.4805)	(0.7330)	(0.6668)
Observations	47	42	42	42	42
Adjusted R^2	0.5894	0.6099	0.6468	0.6017	0.6074

Robust p values in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes: The table shows the results of estimating equation (23), with the change in the acceptability of tax cheating among the rich ($\Delta TaxCheat_t^H$) entering both in a linear way (column 1) and interacted with proxies for $\tilde{\alpha}_L$ (columns 2-5). These proxies use a measure of value heterogeneity based on WVS information on attitudes towards homosexuality (column 2), the importance of religion (column 3), a combination of income level and educational attainment (column 4), and the first principal component of the preceding three measures (column 5).

government's tax decision. While the latter effect is influenced by $\tilde{\alpha}_L$, the former is not. Hence, the impact of the interaction terms may be blurred by the direct effect, and this may give rise to the large standard errors. The second interpretation of the results in Table 3 is that cleavages along religious lines may be more relevant for individuals' identification with society at large than attitudes towards homosexuality or the milieu people live in. Finally, our data may just be too noisy to capture the direct and indirect effects at work, and this may be especially relevant for the small sample that we are working with and the strict controls we are imposing. Considering the coefficients displayed in columns (2), (4) and (5) of Table 3, we thus conclude that there is at least tentative evidence that the mechanisms sketched by our theoretical model have some empirical plausibility.

5 Summary and conclusions

This paper makes two contributions: first, it develops a theoretical model that interprets the breakdown of social cohesion – i.e. the emergence of a situation where large parts of a population cease to identify with the society at large – as an interplay of non-economic and economic forces. More specifically, it describes how an exogenous *identification shock* among high-income earners changes low-income earners' willingness to sustain the societal fabric – both directly, and by changing the extent of redistributive taxation chosen by the government. Second, we identify parameters that determine the likelihood that an identification shock results in *social disintegration*, and we can thus distinguish *resilient* from *vulnerable* societies. Our comparative-static analysis suggests that societies are more resilient if they are not too heterogenous with respect to non-economic values, if they have a large middle class, and if *identification externalities* are strong – i.e. if the marginal value of identifying with the society at large strongly increases in the number of citizens who share this identification Taking the model to the data yields some empirical support for our key hypotheses, despite the severe data constraints we are facing when using empirical counterparts to our model parameters.

Conceptually, our paper differs from the existing literature in two ways: first, it assumes that individuals' economic interests are perfectly aligned with their non-economic interests. Unlike, e.g., Bonomi et al. (2021), we are thus unable to explain why individuals' political choices are driven by "value-based" instead of "class-based" considerations. While our theoretical framework is closer to the models of Shayo (2009) and Grossman and Helpman (2021) who juxtapose individuals' economic interests and their identification with the "nation as a whole", we differ from these approaches, since we do not assume that the latter identification choice makes individuals prefer more efficient economic tax (Shayo) or trade (Grossman and Helpman) policies. Instead, we take the centrifugal forces that societies are exposed to as given and analyze whether and how a combination of policy and identification choices can sustain social cohesion despite an identification shock. The second – and possibly more important – difference to the existing literature is that we do not interpret the threats to social cohesion as a result of lower-income individuals' exposure to economic grievances. Instead, we consider the identification shock among *high*-income earners as a potential trigger of individual and governmental decisions that may ultimately move vulnerable societies into a state of disintegration.

While the empirical evidence we have provided indicates that we are not completely barking up the wrong tree, we are aware that our results are indicative, at most. To decide whether – or to what extent – the chain of events we describe helps to understand the erosion of societies, we certainly need additional empirical analyses. Moreover, it is highly desirable to understand the forces that may have triggered the identification shock among high-income earners, which is at the core of our analysis. We believe that this provides ample scope for future research.

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Appendix

Appendix 1: data description

Table A1: Overview of variables, including data sources as well as descriptions.

Variables	Source	Description/Item	Response Category
Income groups			
Income	WVS	"Here is a list/scale of incomes and we would like to know in what group your household is, counting all wages, salaries, pensions and other incomes that come in. Just give the letter of the group your household falls into, after taxes and other deductions."	1 Lowest step - 11 Highest step
Income groups	WVS and own computations	The 11-step ladder provided by the WVS was regrouped into three groups: Low income group (income steps 1, 2, and 3); middle income group (income steps 4, 5, 6, 7, and 8); high income group (income steps 9, 10, and 11).	
Taxes			
Justifiable: Cheating on taxes	WVS	"Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: Cheating on tax if you have the chance."	1 Never justifiable - 10 Always justifiable
$\Delta TaxCheat^H_t$	WVS and own computations	Change in average response to WVS item *Justifiable: Cheating on Taxes* among high-income individuals between first available year after 1990 and last available year before 2008. High-income individuals: Individuals, for which variable *Income* takes values between 9 and 11. For first and last available year, see Tables A7 and A8.	

Notes: World Values Survey (WVS): Inglehart et al. (2020).

Table A2: Overview of variables, including data sources as well as descriptions (continued).

Variable	Source	Description/Item	Response Category
Trust			
Trust	WVS	"Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?"	1 Most people can be trusted - 2 Can´t be too careful
$Trust^L_{t-1}$	WVS and own computations	Average response to WVS item *Trust* among low-income earners in first available year after 1990. Low-income individuals: Individuals, for which variable *Income* takes values between 1 and 3. For first available year, see Tables A7 and A8.	
$\Delta Trust^{all}_t$	WVS and own computations	Change of average response to WVS item *Trust* among all respondents between first available year after 1990 and last available year before 2008. For first and last available year, see Tables A7 and A8.	
$\Delta Trust^M_t$	WVS and own computations	Change of average response to WVS item *Trust* among middle-income earners between first available year after 1990 and last available year before 2008. Middle-income individuals: Individuals, for which variable *Income* takes values between 4 and 8. For first and last available year, see Tables A7 and A8.	
$DropTrust^L_t$	WVS and own computations	Binary variable, taking value of 1 if average response to WVS item *Trust* among low-income individuals decreased between first available year after 1990 and last available year before 2008. Low-income individuals: Individuals, for which variable *Income* takes values between 1 and 3. For first and last available year, see Tables A7 and A8.	

Notes: World Values Survey (WVS): Inglehart et al. (2020).

Table A3: Overview of variables, including data sources as well as descriptions (continued).

Variable	Source	Description/Item	Response Category
Redistribution			
Gini index (Disposable Income)	SWIID	Inequality in disposable (post-tax, post-transfer) income	0 - 100
Gini index (Market Income)	SWIID	Inequality in market (pre-tax, pre-transfer) income	0 - 100
Δ in relative redistribution	SWIID and own computations	Change in SWIID measure of relative redistribution between first available year after 1990 and last available year before 2008 (in percentage points). For first and last available year, see Tables A7 and A8. $Relative\ redistribution = \frac{Gini^{Mkt} - Gini^{Disp}}{Gini^{Mkt}}$.	
$Gini^{Disp}_{t-1}$	SWIID and own computations	Gini index (Disposable Income) in first available year after 1990. For first available year, see Tables A7 and A8.	
$\Delta Gini^{Disp}_{t}$	SWIID and own computations	Change in Gini index (Disposable Income) between first available year after 1990 and last available year before 2008 (in percentage points). For first and last available year, see Tables A7 and A8.	
$\Delta Gini^{Mkt}_{t}$	SWIID and own computations	Change in Gini index (Market Income) between first available year after 1990 and last available year before 2008 (in percentage points). For first and last available year, see Tables A7 and A8.	

Notes: Standardized World Income Inequality Database (SWIID): Solt (2020).

Table A4: Overview of variables, including data sources as well as descriptions (continued).

Variable	Source	Description/Item	Response Category
Parameter proxies			
Collect	Hofstede (2011) and own computations	Collectivism constitutes the inverse of the cultural dimension of *Individualism*. Individualism "is the extent to which people feel independent, as opposed to being interdependent as members of larger wholes". To compute *Collect*, a country's Individualism score is subtracted from 100. Afterwards the value is divided by 100 for it to have a similar scale as the other parameter proxies. For *Collect*, the single value published by Hofstede is used.	0 - 100
λ_M	WVS and own computations	The 11-step ladder provided by the WVS is regrouped into three groups: Low income group (income steps 1, 2, and 3); middle income group (income steps 4, 5, 6, 7, and 8); high income group (income steps 9, 10, and 11). Afterwards, the share of high low, middle, and high income group is calculated, respectively. Averages by country across all waves are used.	
$\tilde{\alpha}_L : homosexuality$	WVS, Hofstede (2011), and own computations	$1 + valhom_L \cdot Collect \cdot \lambda_M$, with $valhom_L$ computed as described in the main text, using the WVS item *Justifiable: Homosexuality*. For $valhom_L$ averages across all waves are used.	
Justifiable: Homosexuality	WVS	"Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: Homosexuality"	1: Never justifiable - 10: Always justifiable

Notes: Hofstede (2011); World Values Survey (WVS): Inglehart et al. (2020).

Table A5: Overview of variables, including data sources as well as descriptions (continued).

Variable	Source	Description/Item	Response Category
Parameter proxies			
$\tilde{\alpha}_L : religion$	WVS, Hofstede (2011), and own computations	$1+valhom_L \cdot Collect \cdot \lambda_M$, with $valhom_L$ computed as described in the main text, using the WVS item *Importance of Religion*. For $valhom_L$ averages across all waves are used.	
Importance of Religion	WVS	"Please say, for each of the following, how important it is in your life."	1: Very important - 4: Not at all important
$\tilde{\alpha}_L : Milieu$	WVS, Hofstede (2011), and own computations	$1 + valhom_L \cdot Collect \cdot \lambda_M$, with $valhom_L$ computed as described in the main text, using a combination of the WVS items *Education* and *Income*, which we define as a proxy for the milieu a respondent is used to. For $valhom_L$ averages across all waves are used.	
Education	WVS	"What is the highest level you have reached in your education?"	1: Inadequately completed elementary education - 8: University with degree/higher education - upper-level tertiary
$\tilde{\alpha}_L : FirstPC$	WVS, Hofstede (2011), and own computations	$1 + valhom_L \cdot Collect \cdot \lambda_M$, with $valhom_L$ computed as described in the main text, using the first principal component of the variabels *Importance of Religion*, *Justifiable: Homosexuality*, and *Milieu*. For $valhom_L$ averages across all waves are used.	

Notes: Hofstede (2011); World Values Survey (WVS): Inglehart et al. (2020).

Appendix 2: summary statistics

Table A6: Number of observations, means, standard deviations, minima and maxima

	Count	Mean	SD	Min	Max
Key Variables					
$\Delta TaxCheat_t^H$	47	-0.3557	1.1119	-2.7988	3.1151
$Trust_{t-1}^L$	48	0.7210	0.1287	0.4567	0.9562
$\Delta Trust_t^M$	48	0.0093	0.0984	-0.2242	0.2250
$\Delta Trust_t^{all}$	48	0.0098	0.0910	-0.2042	0.1996
$DropTrust_t^L$	48	0.4375	0.5013	0.0000	1.0000
$\Delta Gini_t^{Disp}$	46	1.8550	2.9413	-4.4376	9.0341
$\Delta Gini_t^{Mkt}$	46	3.0251	3.1288	-3.5497	10.1476
Δ in Rel. Redistribution	37	0.9621	2.6884	-3.4586	8.6347
Parameter Proxies					
$\tilde{\alpha} : Milieu$	42	1.0916	0.1306	0.8743	1.4983
$\tilde{\alpha} : Religion$	42	1.0926	0.1606	0.8023	1.7055
$\tilde{\alpha} : Homosexuality$	42	1.1919	0.1308	0.9632	1.6415
$\tilde{\alpha} : firstPC(rotated)$	42	1.0528	0.1540	0.6872	1.4881
λ_M	47	0.5428	0.1031	0.3001	0.8884
$Collect$	43	0.4674	0.2163	0.0900	0.8700

Table A7: Country-specific values

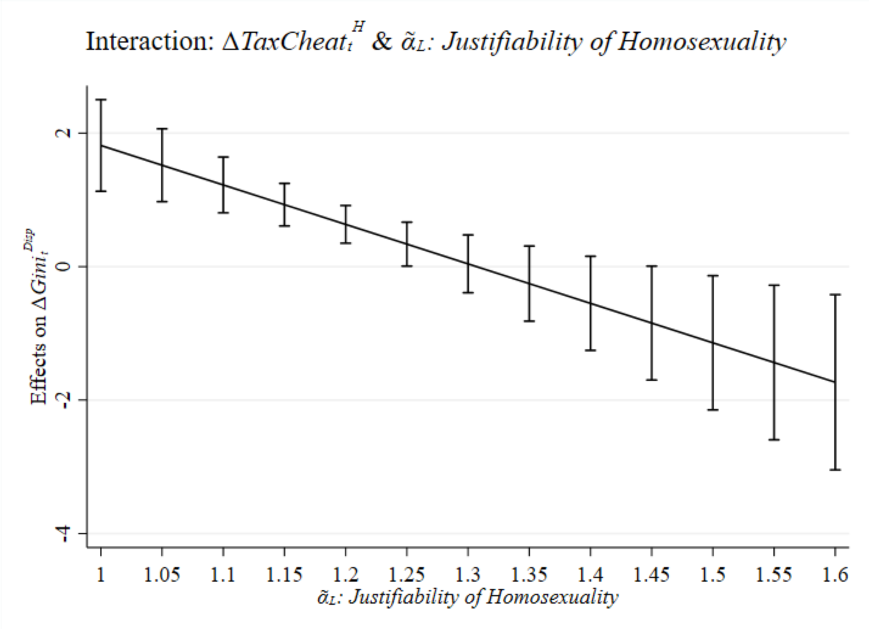
Country	First year	Last year	$\Delta TaxCheat_t^H$	$DropTrust_t^L$	$\Delta Trust_t^{all}$	$\Delta Trust_t^M$	$\Delta Gini_t^{Disp}$	$\Delta Gini_t^{Mkt}$	Δ in Rel. Redistribution	$Collect$	λ_M	$\tilde{\alpha}: Religion$	$\tilde{\alpha}: Homosexuality$	$\tilde{\alpha}: Milieu$
United States	1990	2006	0.41	0	0.11	0.12	3.96	3.58	-2.60	0.09	0.65	0.90	1.00	0.88
Canada	1990	2006	-0.72	0	0.11	0.10	3.27	4.51	-0.53	0.20	0.52	0.91	1.05	0.93
Mexico	1990	2005	-2.80	0	0.18	0.18	-1.13	-0.24	1.91	0.70	0.50	1.27	1.30	1.20
Colombia	1997	2005	0.41	1	-0.04	-0.04	1.17	-0.72	-3.46	0.87	0.46	1.20	1.35	1.26
Peru	1996	2001	-0.17	1	-0.05	-0.07	-1.05	-0.45	1.15	0.84	0.37	1.25	1.28	1.21
Brazil	1991	2006	1.05	1	-0.03	-0.02	-4.44	-3.55	2.31	0.62	0.34	1.15	1.20	1.11
Chile	1990	2006	0.62	0	0.11	0.09	-2.59	-2.42	0.70	0.77	0.54	1.31	1.38	1.25
Argentina	1991	1999	-0.14	0	0.09	0.18	3.32	3.04	-0.98	0.54	0.49	1.08	1.20	1.07
Uruguay	1996	2006	-0.76	1	-0.08	-0.11	4.27	5.76	0.80	0.64	0.61	1.35	1.38	1.21
Ireland	1990	2008	-0.85	0	0.08	0.07	-2.28	3.61	8.63	0.30	0.63	0.80	1.01	1.00
Netherlands	1990	2008	-1.07	1	-0.09	-0.14	0.57	0.39	-0.74	0.20	0.61	0.99	1.05	0.92
Belgium	1990	1999	-0.73	0	0.04	0.04	2.25	3.37	-0.98	0.25	0.59	1.02	1.08	0.98
Luxembourg	1999	2008	-0.88	1	-0.07	-0.01	2.34	3.95	0.15	0.40	0.62	1.12	1.18	1.06
France	1990	2008	-0.86	1	-0.05	-0.05	0.72	1.82	0.86	0.29	0.49	1.05	1.10	1.00
Switzerland	1996	2008	-0.53	1	-0.18	-0.19	0.74	1.52	0.97	0.32	0.70	1.10	1.18	1.01
Spain	1990	2008	-0.66	0	0.00	-0.01	1.07	4.19	4.09	0.49	0.62	1.12	1.24	1.16
Portugal	1990	2008	-1.78	0	0.02	0.02	-0.35	-0.87	-0.32	0.73	0.40	1.04	1.24	1.16
Germany	1990	2008	-0.58	0	-0.05	-0.05	2.63	7.71	3.80	0.33	0.60	1.08	1.17	1.05
Poland	1990	2008	-0.37	0	0.00	0.00	5.45	9.63		0.40	0.62	1.07	1.17	1.11
Austria	1990	2008	0.09	1	-0.05	-0.06	0.10	5.38	6.83	0.45	0.65	1.09	1.24	1.08
Hungary	1991	2008	-1.49	0	0.04	0.05	0.52	3.76		0.20	0.58	0.90	1.06	0.96
Czech Republic	1991	2008	-0.24	1	-0.03	-0.03	4.33	5.99		0.42	0.64	1.03	1.20	1.12
Slovakia	1991	2008	-1.62	0	0.08	0.10	6.73	3.83		0.48	0.61	1.10	1.25	1.12
Italy	1990	2005	-0.67	0	0.04	0.04	0.70	4.36	4.97	0.24	0.46	0.97	1.05	0.96

Table A8: Country-specific values (continued)

Country	First year	Last year	$\Delta TaxCheat_t^H$	$DropTrust_t^L$	$\Delta Trust_t^{all}$	$\Delta Trust_t^M$	$\Delta Gini_{t-1}^{Disp}$	$\Delta Gini_{t-1}^{Mkt}$	Δ in Rel. Redistribution	Collectivism (scaled)	Average of λ_M	$\tilde{\alpha}: Religion$	$\tilde{\alpha}: Homosexuality$	$\tilde{\alpha}: Milieu$
Croatia	1996	2008	-1.56	0	0.05	0.04	-0.48	1.48	3.35	0.67	0.58	1.18	1.27	1.24
Serbia	1996	2008	-0.60	0	0.18	0.19				0.75	0.55	1.30	1.35	1.25
Slovenia	1992	2008	0.24	1	-0.08	-0.06	0.46	1.90		0.73	0.65	1.23	1.40	1.29
Greece	1999	2008	-0.82	0	0.03	0.03	-1.58	1.95	6.03	0.65				
Bulgaria	1991	2008	-0.55	0	0.13	0.11	4.61	4.26		0.70	0.55	1.23	1.30	1.23
Romania	1993	2008	1.04	1	-0.01	-0.02	8.41	10.15	-2.24	0.70	0.41	1.16	1.23	1.14
Estonia	1990	2008	1.78	1	-0.05	-0.08	3.87	4.19		0.40	0.52	1.08	1.16	1.09
Latvia	1990	2008	2.77	1	-0.06	-0.06	9.03	6.97		0.30	0.48	0.98	1.07	0.98
Lithuania	1990	2008	-0.67	0	0.02	0.01	6.69	7.25		0.40	0.66	0.88	1.17	1.07
Armenia	1997	2008	-0.89	0	0.03	0.00	-3.27	-2.89	2.18		0.50			
Georgia	1996	2008	-2.34	1	-0.03	-0.06	3.54	2.81	-2.54		0.30			
Finland	1990	2005	-1.11	0	0.05	0.00	4.22	7.48	-0.70	0.37	0.47	1.00	1.14	1.04
Sweden	1996	2006	-0.36	1	-0.09	-0.07	1.11	0.72	-1.57	0.29	0.58	1.08	1.13	1.00
Norway	1990	2008	-1.36	1	-0.08	-0.05	2.22	5.66	2.47	0.31	0.50	1.03	1.11	1.01
Denmark	1990	2008	-1.36	1	-0.20	-0.22	1.96	2.71	-1.15	0.26	0.58	0.97	1.09	0.98
Iceland	1990	1999	-0.75	0	0.05	0.05					0.53			
South Africa	1990	2001		0	0.17	0.21	1.99	2.20	-0.05		0.46			
Turkey	1990	2007	0.16	0	0.05	0.05	-0.81	-0.14	1.71	0.63	0.45	0.98	1.19	1.17
Egypt	2001	2008	0.36	0	0.20	0.22	-0.52	-0.41	0.34		0.60			
Japan	1990	2005	-0.04	1	0.04	0.03	3.92	5.84	0.10	0.54	0.48	1.16	1.24	1.12
India	1990	2006	3.12	0	0.11	0.13	5.62	5.71	-0.31	0.52	0.49	1.17	1.22	1.14
Vietnam	2001	2006	0.62	1	-0.10	-0.10	1.14	0.53	-1.52	0.80	0.89	1.71	1.64	1.50
Australia	1995	2005	-0.08	1	-0.08	-0.08	1.22	1.98	0.19	0.10	0.45	0.88	0.96	0.87
New Zealand	1998	2004	0.02	0	-0.04	-0.04	-0.34	0.67	1.72	0.21	0.52	0.97	1.03	0.89

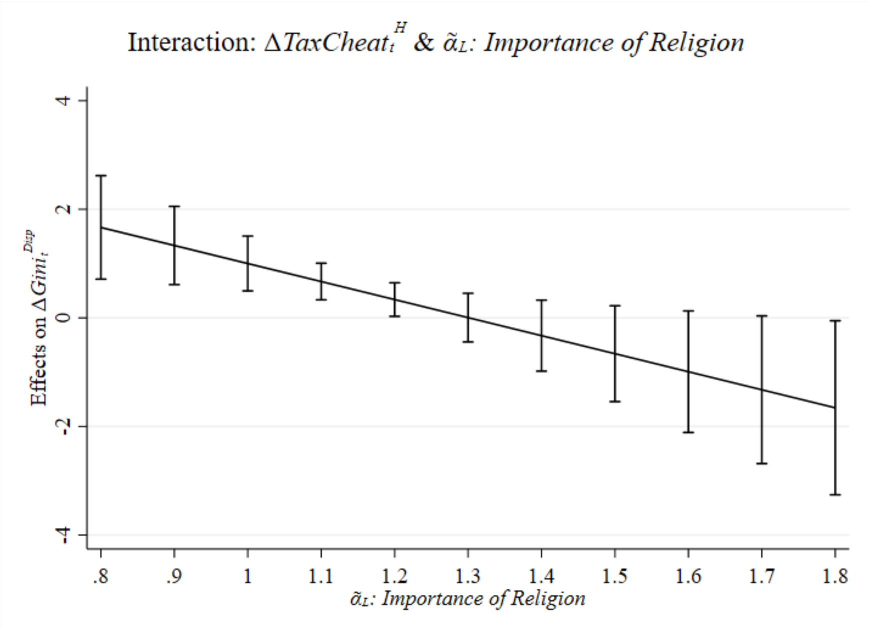
Appendix 3: margins plots

Figure A1: The marginal effect of an increasing acceptance of tax cheating among high-income earners on the disposable-income Gini: The role of augmented value homogeneity (homosexuality)



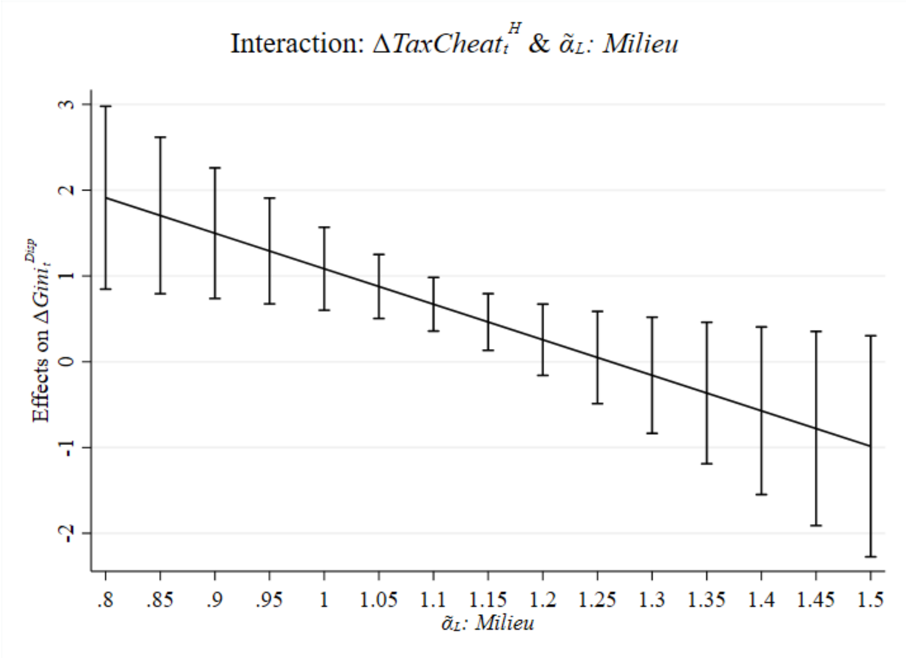
Notes: The figure depicts the marginal effect of $\Delta TaxCheat^{H}_{c,t}$ on $\Delta Gini^{Disp}_{c,t}$, depending on our measure of $\tilde{\alpha}_L$, where value homogeneity is based on the respondents' view on homosexuality.

Figure A2: The marginal effect of an increasing acceptance of tax cheating among high-income earners on the disposable-income Gini: The role of augmented value homogeneity (religion)



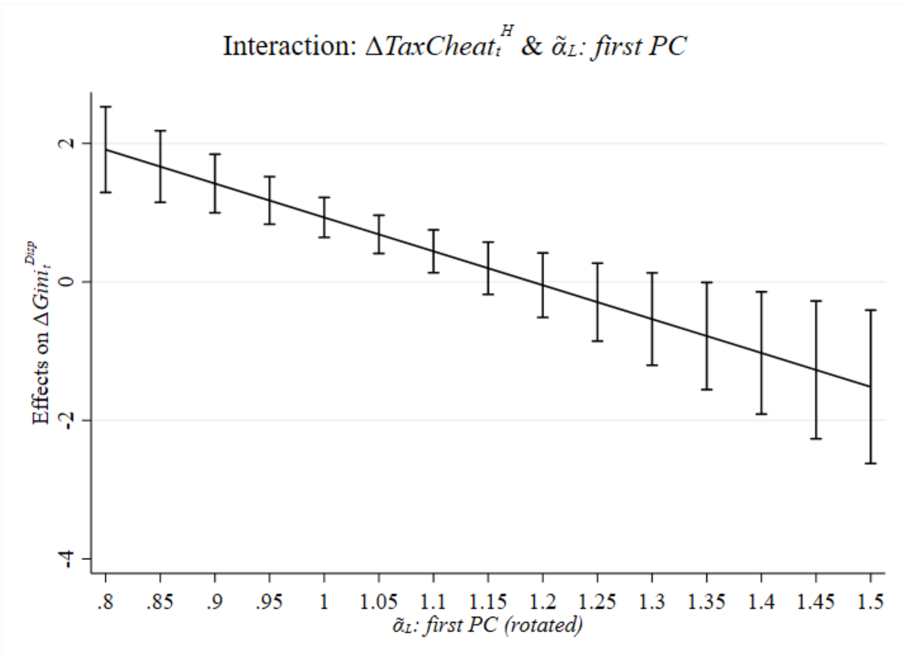
Notes: The figure depicts the marginal effect of $\Delta TaxCheat^{H}_{c,t}$ on $\Delta Gini^{Disp}_{c,t}$, depending on our measure of $\tilde{\alpha}_L$, where value homogeneity is based on the importance respondents assign to religion.

Figure A3: The marginal effect of an increasing acceptance of tax cheating among high-income earners on the disposable-income Gini: The role of augmented value homogeneity (milieu)



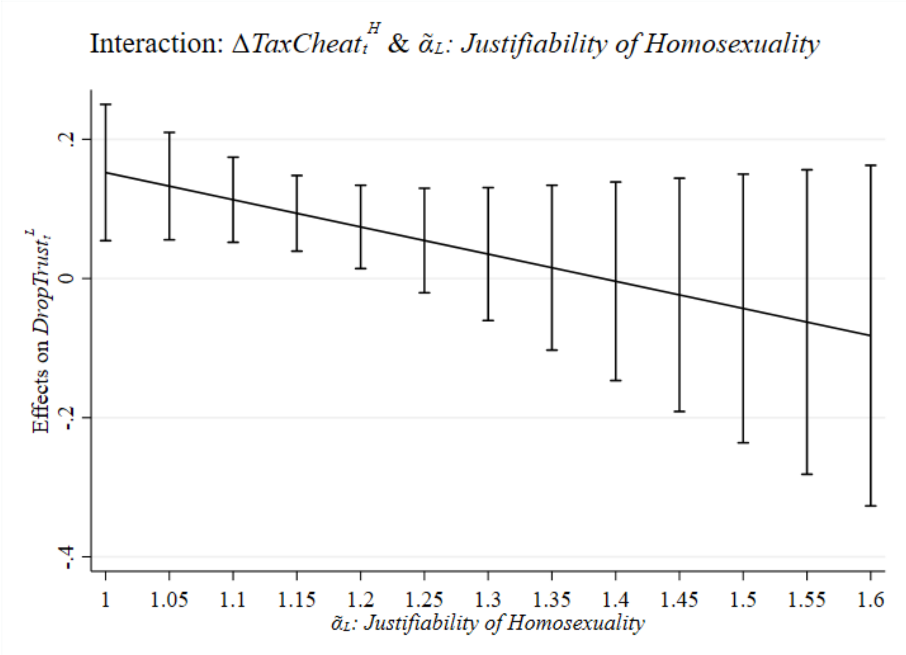
Notes: The figure depicts the marginal effect of $\Delta TaxCheat^{H}_{c,t}$ on $\Delta Gini^{Disp}_{c,t}$, depending on our measure of $\tilde{\alpha}_L$, where value homogeneity is based on a combination of income and education levels (*milieu*).

Figure A4: The marginal effect of an increasing acceptance of tax cheating among high-income earners on the disposable-income Gini: The role of augmented value homogeneity (first PC)



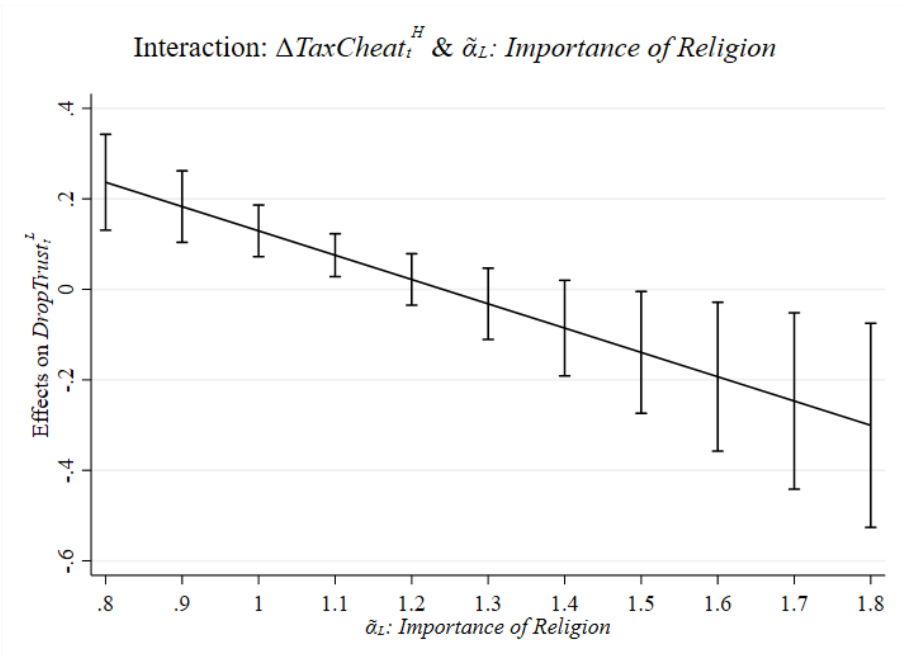
Notes: The figure depicts the marginal effect of $\Delta TaxCheat^{H}_{c,t}$ on $\Delta Gini^{Disp}_{c,t}$, depending on our measure of $\tilde{\alpha}_L$, where value homogeneity is the first principal component of the importance of religion, the view on homosexuality as well as the *milieu* (combination of income and education levels).

Figure A5: The marginal effect of an increasing acceptance of tax cheating among high-income earners on the likelihood of a decrease in trust among the poor: The role of augmented value homogeneity (homosexuality)



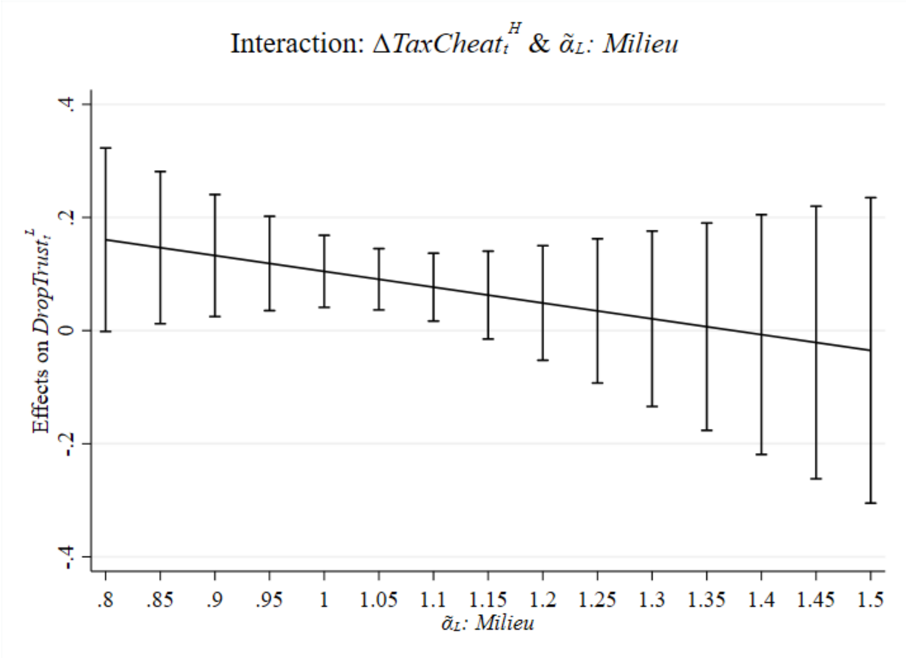
Notes: The figure depicts the marginal effect of $\Delta TaxCheat^{H}_{c,t}$ on $DropTrust^{L}_{c,t}$, depending on our measure of $\tilde{\alpha}_L$, where value homogeneity is based on the respondents' view on homosexuality.

Figure A6: The marginal effect of an increasing acceptance of tax cheating among high-income earners on the likelihood of a decrease in trust among the poor: The role of augmented value homogeneity (religion)



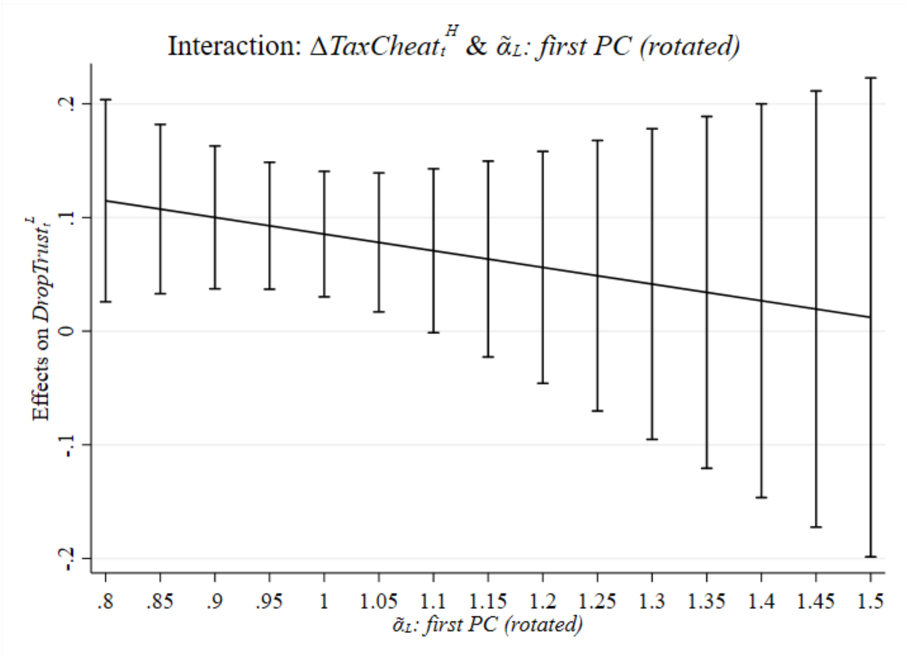
Notes: The figure depicts the marginal effect of $\Delta TaxCheat^{H}_{c,t}$ on $DropTrust^{L}_{c,t}$, depending on our measure of $\tilde{\alpha}_L$, where value homogeneity is based on the importance respondents assign to religion.

Figure A7: The marginal effect of an increasing acceptance of tax cheating among high-income earners on the likelihood of a decrease in trust among the poor: The role of augmented value homogeneity (milieu)



Notes: The figure depicts the marginal effect of $\Delta TaxCheat^{H}_{c,t}$ on $DropTrust^{L}_{c,t}$, depending on our measure of $\tilde{\alpha}_L$, where value homogeneity is based on a combination of income and education levels (*milieu*).

Figure A8: The marginal effect of an increasing acceptance of tax cheating among high-income earners on the likelihood of a decrease in trust among the poor: The role of augmented value homogeneity (first PC)



Notes: The figure depicts the marginal effect of $\Delta TaxCheat^{H}_{c,t}$ on $DropTrust^{L}_{c,t}$, depending on our measure of $\tilde{\alpha}_L$, where value homogeneity is the first principal component of the importance of religion, the view on homosexuality as well as the *milieu* (combination of income and education levels).