

Decomposing the Trust-Informality Relationship: Dimensions and Demographic Heterogeneity Across OECD Countries

Oliwia Wyciskiewicz

owyciskiewicz22@gmail.com

Universitat Autònoma de Barcelona

Friedrich Schneider

Johannes Kepler University of Linz

Research Article

Keywords: Shadow Economy, Institutional Trust, OECD, Tax Compliance, Informality, Demographic Heterogeneity

Posted Date: October 21st, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-11280169/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Additional Declarations: No competing interests reported.

Decomposing the Trust–Informality Relationship: Dimensions and Demographic Heterogeneity Across OECD Countries

Oliwia Wyciszkievicz¹ owyciszkievicz22@gmail.com (corresponding author)
Friedrich Schneider² friedrich.schneider@jku.at (ORCID: 0009-0004-9505-8754)

Abstract

This paper empirically investigates the relationship between institutional trust and the size of the shadow economy in countries of the Organisation for Economic Co-operation and Development (OECD). Using two waves of the OECD Survey on Drivers of Trust in Public Institutions (2021, 2023) merged with Multiple Indicators Multiple Causes (MIMIC) shadow economy estimates, the microdata from 107,860 respondents is collapsed to a panel of 40 country-year observations across 25 countries. Four of seven trust dimensions - responsiveness, fairness, reliability, and openness - are negatively and significantly associated with the size of the informal sector; integrity, vertical trust, and interpersonal trust are not. A heterogeneity analysis based on respondents' characteristics, disaggregated by gender, age, education, income, and national origin reveals that the estimated associations are not uniform across the population: they are largest among women, older cohorts, native-born citizens, and middle-income households, but statistically absent among the high-income. Within-country fixed effects yield no significant estimates, consistent with institutional trust operating as an accumulated stock whose returns compound over decades rather than electoral cycles. Sensitivity analysis and leave-one-out robustness checks confirm that the cross-sectional results, particularly for responsiveness, are robust to omitted variable bias.

Keywords: Shadow Economy, Institutional Trust, OECD, Tax Compliance, Informality, Demographic Heterogeneity

JEL code: E26, O17, D73, Z13

¹Department of Applied Economics, Universitat Autònoma de Barcelona, Barcelona, Spain

²Research Institute of Banking and Finance, Johannes Kepler University, Linz, Austria

1 Introduction

The shadow economy is not a marginal phenomenon. Defined as “*all economic activities hidden from official authorities for monetary, regulatory, and institutional reasons*” (Medina and Schneider, 2019, p. 4), it represents tax revenue that must be recovered elsewhere, workers deprived of formal employment protections, and national accounts that understate the resources available to governments. The literature has traditionally assigned shadow economy size to two mechanisms: how heavily a country taxes and how aggressively it enforces compliance (Allingham and Sandmo, 1972; Schneider and Enste, 2000). However, tax burden and informality are weakly correlated at best, and audit probabilities sit well below 1% in all OECD countries regardless of informality levels (OECD, 2025). If neither enforcement nor taxation can account for the cross-national variation in informality, something else must. A growing body of evidence points toward institutional trust as the missing mechanism, as it shapes civic behaviour (Durante et al., 2025), sustains voluntary compliance (Torgler and Schneider, 2007), predicts tax morale (Bilgin, 2014), and is likely to influence the size of the informal sector (Alm, 2019).

Therefore, the central research question of this paper is: which dimensions of institutional trust predict shadow economy size, and for whom? Specifically, it examines which of the seven dimensions of trust (fairness, responsiveness, reliability, integrity, openness, vertical trust, and interpersonal trust) correlate with shadow economy size across OECD countries, net of income, unemployment, and tax burden; whether that relationship holds uniformly across the population or is concentrated among particular demographic groups defined by gender, age, education, income, and origin; and whether the trust–informality relationship holds within countries over time, or only across them.

This work highlights three main empirical findings. First, four trust dimensions (responsiveness, fairness, reliability, and openness) are negatively associated with shadow economy size once macroeconomic controls are included, while integrity, vertical, and interpersonal trust are not. Responsiveness is the most robustly identified dimension, surviving every sensitivity check the data allows. Second, the relationship between trust and shadow economy is unevenly distributed across the population. It is strongest among women, older citizens, middle-income citizens, and the native-born, stable across all education groups, and effectively absent among high-income citizens. Third, while institutional trust is a good predictor of cross-country variation in shadow economy size, there is no evidence of a strong predictive power of within-country variation.

To achieve these results, this work combines two novel datasets. Two waves (2021, 2023) of the OECD Survey on Drivers of Trust in Public Institutions (107,860 individual respondents across 25 OECD countries) are merged with shadow economy estimates (Schneider, 2026) and World Development Indicators (WDI) macroeconomic controls (World Bank, 2026) and collapsed to a country-year panel of 40 observations. The

individual-level structure is preserved for the heterogeneity analysis. The empirical strategy is a pooled OLS specification estimated separately for each trust dimension, with country-clustered standard errors, progressively absorbing confounders through macroeconomic controls and fixed effects. Three identification challenges are confronted directly: omitted variable bias, addressed through time-varying country controls, fixed effects, and an Oster (2019) sensitivity analysis; measurement error in country-level trust aggregates, addressed by exploiting individual-level heterogeneity across demographic groups; and reverse causation, which a short, two-wave panel is unable to resolve and which this paper treats as an open limitation. The analysis is therefore descriptive in scope: the coefficients throughout are interpreted as conditional correlations rather than causal estimates.

This cross-country study sits at the intersection of behavioural and public economics. The first contribution is to the institutional trust and tax compliance literature, which largely treats institutional trust as a unidimensional concept (D’Hernoncourt and Méon, 2011; Williams and Yalaman, 2021). This paper shows that the trust dimensions do not behave as a single construct and that the trust–informality relationship concentrates between specific segments of the population, implying that the demographic composition itself is a structural determinant of the variation of the shadow economy across countries that aggregate analysis cannot detect.

The second contribution is to the shadow economy determinants literature. Even though this literature has identified a broad set of structural drivers of informality (Schneider and Enste, 2000; La Porta and Shleifer, 2014), it mostly relies on self-reported tax morale measures that systematically overstate the willingness to comply through social desirability bias (Andreoni, Erard, and Feinstein, 1998; Puklavec et al., 2025). Schneider (2023) himself argues that behavioural and sociological perspectives are needed to fully understand why individuals choose to operate outside the formal economy. This paper answers by constructing a micro-macro panel consisting of the OECD Trust Survey’s dimensionally rich microdata mapped to theoretically grounded compliance mechanisms (Table 1) and the shadow economy estimates (Schneider, 2026).

The third contribution is to the public policy literature on institutional reform. Governance reform programmes typically operate on electoral timescales, targeting measurable improvements in institutional quality within a political term (Alesina and Tabellini, 1990). This paper provides evidence that the conditional association between institutional trust and shadow economy size is a cross-sectional rather than a within-country phenomenon, with direct implications for how formalisation policy should be designed and evaluated.

The remainder of the paper proceeds as follows. Section 2 reviews the literature linking institutional trust to compliance and sets out the trust paradigm as the paper’s theoretical framework. Section 3 introduces the shadow economy and institutional trust data, the construction of the seven trust dimensions, and the final analytical sample. Section 4 presents the empirical strategy and its identification challenges. Section 5 presents the

cross-sectional, within-country, and heterogeneity results. Section 6 discusses what the findings imply for theory and policy, acknowledges limitations, and identifies directions for future research. Section 7 concludes the study.

2 Literature Review and Theoretical Framework

One might wonder why people comply with their fiscal obligations. According to the standard *deterrence theory*, it is because they are afraid of being caught. Allingham and Sandmo (1972) argue that tax compliance is purely a function of detection probability and penalty rates: a cold, rational gamble, playing into the idea of *homo economicus*,³ where the expected utility of evasion is weighed against the certain tax liability. When expected penalties are low relative to the tax burden, rational agents evade.

However, in the real world, the taxpayer is rarely a perfectly rational agent. Empirical data shows that most households comply, even though almost every individual would be financially better off evading taxes (Andreoni, Erard, and Feinstein, 1998). Standard deterrence model completely fails to explain actual compliance rates given the remarkably low audit probabilities observed across OECD member states (Feld and Frey, 2002). Slemrod (2007) confirms that compliance remains above what the model predicts even in sectors with no third-party reporting. This empirical failure reveals the deterrence model’s core limitation: the taxpayer is not, and has never been, the purely self-interested agent.

The persistence of high compliance under weak enforcement is the central empirical paradox of tax compliance research. Its resolution begins not in tax theory but in a broader literature on how social capital shapes behaviour toward collective institutions. Knack and Keefer (1997) provided the first systematic cross-country evidence that trust and civic norms raise economic performance by making citizens more willing to cooperate with formal rules. Higher social capital increases participation in formal financial markets and reduces reliance on informal, relationship-based transactions (Guiso, Sapienza, and Zingales, 2004).

Social capital, however, is not a single construct. Durante et al. (2025) decompose it into distinct elements, including trust in others and trust in institutions, associated with different socioeconomic outcomes. The direct link to compliance follows. Testing the *slippery slope*⁴ framework, Kogler et al. (2013) find that trust in authorities is positively associated with voluntary tax compliance and negatively associated with tax evasion across countries. Institutional trust predicts tax morale in Spain and Turkey (Bilgin, 2014), and the effect is strongest where governments are perceived as competent and responsive

³Homo economicus refers to rational individuals who maximise utility based on self-interest, with perfect information and stable preferences.

⁴According to the slippery slope framework (Kirchler, Hoelzl, and Wahl, 2008), tax compliance can be increased by either boosting trust in authorities (voluntary compliance), or by boosting the authorities’ power (enforced compliance).

(Horváth, 2013). Among the components of social capital, it is institutional trust,⁵ rather than interpersonal trust,⁶ that most consistently drives these outcomes (Durante et al., 2025). This body of evidence marks a behavioural shift away from the rational-actor model toward what Williams and Kayaoglu (2016) call the *social actor approach*: compliance is a fundamentally social behaviour, shaped by attitudes, norms, emotions, cognitive biases, and beliefs.

Central to this change is the concept of *tax morale*, defined by Frey (1997) as the intrinsic willingness to pay taxes independent of enforcement. It exhibits a robust negative correlation with shadow economy size (Torgler and Schneider, 2007) and may be directly responsible for the size of the shadow economy (Alm, 2019). Yet, despite its centrality, tax morale remains theoretically and operationally fragmented (Corona, 2024). Horodnic (2018) documents the inconsistency of the term, showing scholars referring to it as “intrinsic motivation, civic duty, moral obligation, institutional evaluations, social norms, and cultural values”.⁷ This ambiguity creates several limitations for shadow economy research. First, attitudinal tax morale measures are entirely self-reported (Torgler and Schneider, 2007), which leads respondents to overstate their compliance regardless of actual behaviour (Andreoni, Erard, and Feinstein, 1998; Saultis, 2025). Second, if tax morale simultaneously captures many complex concepts, a finding that it reduces shadow economy does not identify which institutional aspect to improve or which population group is most responsive. Third, because tax morale is measured contemporaneously with compliance attitudes through the same survey instrument, it remains unclear whether trust causes compliance or merely reflects it.

This study addresses part of this limitation by shifting the focus from a broad attitudinal context to institutional trust and behavioural outcomes. Levi (1998) provides the foundational theoretical link, arguing that citizens are *quasi-voluntary taxpayers* who comply because they perceive the state as a legitimate and trustworthy partner in a mutually beneficial social arrangement. When the state is perceived as dishonest, unresponsive, or unfair, the perceived legitimacy of the state dissolves, and the shadow economy expands. Both international comparisons and domestic surveys show that high institutional trust is associated with stronger anti-evasion attitudes (Slemrod, 2003; Torgler, 2003).

This behavioural response to declining institutional trust depends on a social context. Perceived peer evasion significantly increases individual evasion (Alm, Bloomquist, and McKee, 2017), while free-riding is mitigated when individuals believe both that the government will fulfil its promises and that their peers will not exit to the shadow economy (Gërzhani and Cichocki, 2023). Furthermore, participation in the shadow economy carries

⁵Institutional trust is defined as the belief that the state will act in accordance with shared norms and reciprocal obligations (OECD, 2022).

⁶Interpersonal trust refers to the generalised belief that other people can be trusted (OECD, 2022).

⁷Puklavac et al. (2025) identify 91 different operationalisations of tax morale across 323 empirical studies, 72 of which were used only once.

internal moral costs caused by social norms that stigmatize non-compliance, on condition that the state is perceived as legitimate (Alm and Torgler, 2012).

The cumulative weight of this evidence culminates in what Alm (2019) calls the *trust paradigm*, which serves as the primary theoretical framework for this paper. It argues that compliance is a behavioural choice shaped by interrelated trust-based beliefs: trust in government institutions, trust in the tax system, and trust in other citizens. Together, they constitute a *psychological contract* between the citizen and the state. The terms are simple: citizens comply when they believe that the state acts honestly, treats them fairly, responds to their needs, and delivers adequate value in return for their fiscal contributions.

This brings us to the most important theoretical claim of this paper: trust is not a single, homogeneous concept. Alm (2019) explicitly argues that trust decomposes into distinct mechanisms with different compliance implications. A corruption scandal will affect a different dimension than perceived inequity in enforcement, and in turn produce a different behavioural outcome. Moreover, the mechanisms through which trust affects compliance are likely to operate differently across different demographic segments (Alm, 2019). Ignoring this heterogeneity risks oversimplifying the relationship between trust and shadow economy and potentially missing the specific triggers that push specific groups into the informal sector.

Finally, governments seeking to reduce shadow economies should move beyond enforcement-centred strategies. The policy implications should focus on sustaining voluntary compliance and avoiding signals that non-compliance is acceptable (Alm, 2019). Behavioural economics is increasingly the source of practical compliance tools (Alm and Kasper, 2022), and bridging economics with other social sciences such as psychology, sociology, and anthropology remains the frontier for understanding institutional legitimacy (Gomes, 2025). Whether that frontier requires targeting trust as a whole or specific operational dimensions of it is precisely what the empirical analysis that follows is designed to determine.

2.1 Hypotheses

The discussion above yields four testable predictions. First, institutional trust should affect shadow economy size through specific dimensions rather than as a single aggregate measure (**H1**). Second, trust dimensions that require citizen participation should be more strongly related to shadow economy size than dimensions based on passive observation (**H2**). Third, this relationship should concentrate among state-dependent populations (**H3**). Fourth, shadow economy size should not respond to short-run changes in institutional trust (**H4**).

3 Data & Stylized Facts

This section presents the data and descriptive evidence underlying the empirical analysis. Section 3.1 introduces the shadow economy measurement. Section 3.2 presents the institu-

tional trust data, the OECD survey, and the construction of the seven trust dimensions. Section 3.3 describes the final analytical sample and presents the key descriptive statistics.

3.1 Shadow Economy

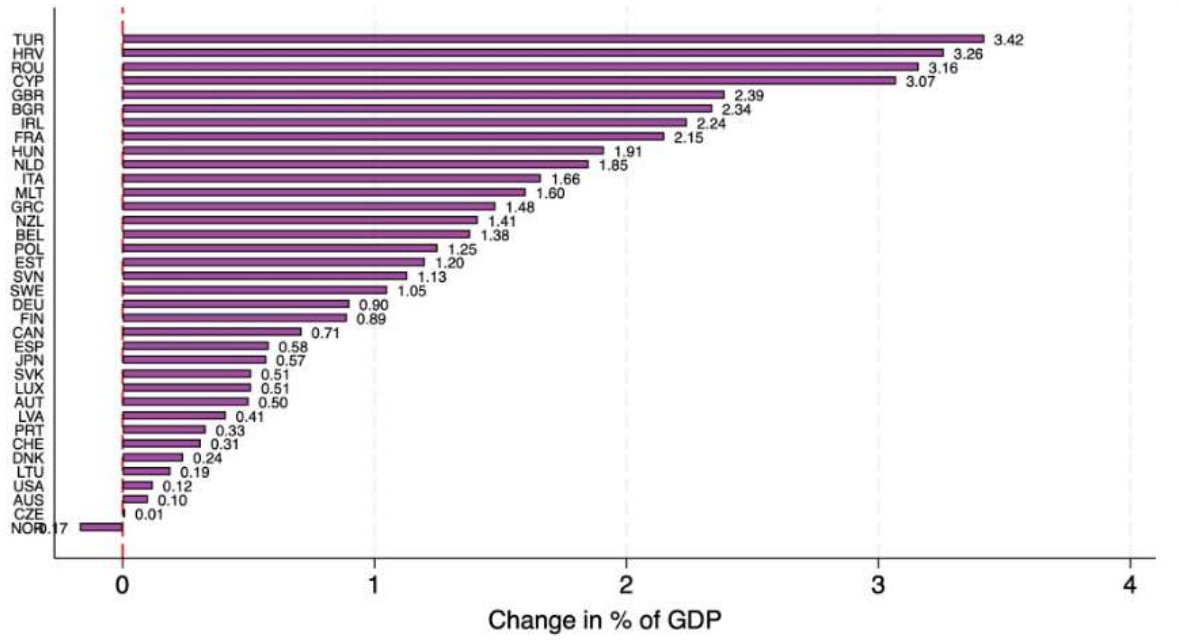
The shadow economy captures economic activity that is deliberately concealed but excludes classical criminal activity such as theft, robbery or burglary (Medina and Schneider, 2019). Throughout this paper, shadow economy participation refers to the full range of decisions to exit the formal economy: not solely tax evasion in the narrow fiscal sense, but also informal labour, unregistered firms, and income underreporting.⁸ Unlike aggregate tax compliance, which conflates enforced and voluntary compliance, the shadow economy captures what citizens do when the state cannot perfectly monitor them (De Neve et al., 2021). Yet, the shadow economy is not a pure measure of tax evasion and does overstate tax non-compliance to some degree. However, since this study is interested in the relationship between institutional trust and the decision to exit the formal economy (which encompasses all forms of regulatory avoidance), the broader measure is theoretically appropriate.⁹

Across the analytical sample, shadow economy size is positively correlated with unemployment and negatively correlated with GDP per capita, while its bivariate relationship with tax burden is weak. Figure 1 presents country-level changes in shadow economy size between 2021 and 2023. The pattern is nearly universal across the sample: 35 out of 36 countries recorded an increase, with only Norway registering a marginal decline. The magnitude of expansion varies considerably, from negligible increases in the Czech Republic and Australia to substantial growth in Turkey (3.42 pp) and Croatia (3.26 pp), with Great Britain recording one of the largest increases in Western Europe (2.39 pp). The broad nature of this expansion suggests a common post-pandemic structural driver, while the cross-national variation points to country-specific institutional and economic conditions. The rest of the informality data also shows substantial persistence and cross-country heterogeneity. The corresponding descriptive figures are reported in the Appendix.

⁸The terms informality and shadow economy participation are used interchangeably; tax evasion is reserved for the specific act of underreporting taxable income.

⁹It is important to acknowledge, that shadow economy participation is not solely a compliance decision. Firms and workers also enter the shadow economy for reasons largely independent of institutional trust: market entry costs, administrative burden, limited state capacity to enforce property rights, and structural barriers to the formal sector (Schneider and Enste, 2000; La Porta and Shleifer, 2014). This paper does not claim that institutional trust is the sole driver of shadow economy size, nor that trust-based interventions can substitute for structural reforms. Rather, it argues that institutional trust constitutes a theoretically distinct and empirically underexplored margin of shadow economy variation.

Figure 1: Change in Shadow Economy Size between 2021 and 2023 in OECD Countries



Sources: Author's own calculations based on Schneider (2026).

Notes: Horizontal bars show the change in shadow economy size in percentage points of GDP between 2021 and 2023 for each OECD country in the sample, ranked from largest to smallest increase. Positive values indicate an expansion of the shadow economy. Country labels use ISO 3166-1 alpha-3 codes.

3.1.1 The MIMIC Approach

Since the shadow economy is intentionally hidden from the authorities, it is impossible to measure it directly. This study draws on shadow economy estimates from Schneider (2026),¹⁰ which extend the global database constructed in Medina and Schneider (2019), which originally spanned 157 countries over the period 1991–2017. The series maintains full longitudinal consistency by applying the MIMIC (Multiple Indicators Multiple Causes) model, which represents the frontier of shadow economy measurement (D'Hernoncourt and Méon, 2011) and provides the largest and most methodologically consistent cross-country panel available. The MIMIC model treats the shadow economy as a latent variable inferred from observable causes and indicators. The resulting index is benchmarked to obtain estimates of shadow economy size as a percentage of GDP.¹¹

3.2 Institutional Trust

To fully uncover the scope of institutional trust, this work conceptualises it as a multidimensional construct whose behavioural effects vary between trust domains and population groups. Conceptually, this measurement is rooted in the OECD's (2017) formal definition of institutional trust as “a person's belief that another person or institution will act

¹⁰The estimates of the shadow economy size were generously provided by Prof. Friedrich Schneider via personal communication in January 2026, covering OECD countries over the years 2003–2026.

¹¹Further methodological details and validation exercises are reported in the Appendix.

consistently with their expectations of positive behaviour” (p. 8).

The institutional trust data are drawn from two waves of the OECD Survey on Drivers of Trust in Public Institutions (OECD, 2021; OECD, 2023) administered in 2021 and 2023 across nationally representative samples of adult citizens in OECD member countries. The repeated cross-sectional combined microdata consists of 107,860 respondents across 30 countries. Each respondent evaluated institutional performance across 19 specific trust-related items on a 0–10 scale. Additionally, a wide set of socioeconomic and demographic characteristics is collected for each individual.

The OECD’s Drivers of Trust survey is specifically designed to measure not only the level of trust in public institutions but also the dimensions of government performance that citizens consider when forming trust judgments, recognizing that the performance of public institutions significantly influences citizens’ trust (Van de Walle and Bouckaert, 2003). It differs from other standard data sources, such as the European Social Survey, World Values Survey, Gallup World Poll, and Eurobarometer (D’Hernoncourt and Méon, 2011; Williams and Yalaman, 2021), in three ways that matter for this study.

First, the OECD’s Drivers of Trust survey measures citizens’ perceptions of government behaviour directly by targeting the complex drivers of behaviour rather than soliciting moral judgments from respondents, thereby avoiding social desirability bias.¹² This produces more honest and varied distributions and makes the OECD data a more reliable barometer. Second, it uses a 0–10 cardinal scale rather than the binary trust/distrust format of measures such as the Eurobarometer, which lose significant nuance (Williams and Yalaman, 2021). It allows granularity to measure marginal shifts in public sentiment, which is critical for the fixed-effects analysis in this study. Third, it decomposes trust into theoretically grounded dimensions that the literature identifies as compliance-relevant. Standard measures such as the WVS ask a single question measuring interpersonal trust and only one or two additional items on government confidence, producing a single aggregate number that cannot distinguish why citizens trust or distrust institutions, or which dimensions of government performance are driving their judgement.

The survey’s technical guidelines confirm high accuracy, reliability, and validity across both waves (OECD, 2022; OECD, 2024). It remains highly correlated with standard measures, validating its core trust construct but provides substantially greater resolution: items within each trust driver measure distinct and non-overlapping concepts, allowing the data to generate measurable insights into which specific institutional behaviours drive compliance (OECD, 2022; OECD, 2024).

¹²Standard tax morale measures ask citizens whether evasion is morally justifiable, which effectively asks for a confession of guilt and triggers social desirability bias. In turn, respondents systematically overstate compliance (Andreoni, Erard, and Feinstein, 1998; Iraman, Ono, and Kakinaka, 2022).

Table 1. Trust Dimensions: Cross-Framework Mapping

OECD Dimension	World Bank (2022)	Alm & Gomez (2008); Alm & Torgler (2006); Alm (2019)	Underlying Construct
Fairness	Equity	Tax fairness perception (Alm and Gomez, 2008); fairness as a compliance motivator (Alm, 2019)	Impartial and equal treatment of all citizens by public institutions regardless of personal characteristics
Responsiveness	Reciprocity	Perceived benefit from public services (Alm and Gomez, 2008); reciprocity (Alm, 2019)	Provided services and the government’s capacity to act on citizen feedback, adopt innovations, and base decisions on evidence
Reliability	Fairness	Perceived efficiency of public service delivery (Alm and Gomez, 2008)	Technical quality, competent policy design, and predictability of government
Integrity	Accountability	Perceived size of fiscal fraud (Alm and Gomez, 2008)	Absence of corruption and perception of honesty among politicians and officials
Openness	Accountability	—	Transparency and access of administrative information, clarity of policy communication
Vertical Trust	—	Trust in parliament (Alm and Torgler, 2006)	General confidence in the political system and its institutions
Interpersonal Trust	—	Social norms of compliance (Alm, 2019)	Horizontal trust in citizens’ cooperative behaviour

Sources: Author’s own compilation based on Brezzi et al. (2021); Nguyen et al. (2022); Dom et al. (2022); Alm and Gomez (2008); Alm and Torgler (2006); Alm (2019).

Notes: The table maps the seven trust dimensions used in this study across three analytical frameworks. Where no clear correspondence exists in a given source, the cell is left blank. This study follows OECD (2021; 2023) terminology throughout.

3.2.1 Trust Dimensions

The central methodological contribution of this work is the decomposition of institutional trust into five specific behavioural dimensions (responsiveness, reliability, fairness, integrity and openness), along with interpersonal (horizontal) and governmental (vertical) trust (OECD, 2022). This study follows the OECD (2021; 2023) terminology throughout. Table 1 describes each dimension, its underlying construct, and its theoretical link to compliance behaviour.

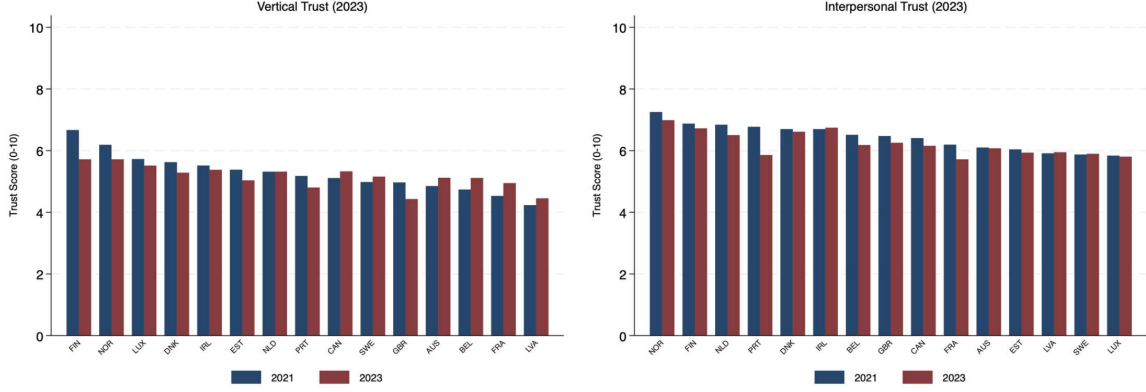
The first dimension, *fairness*, captures citizens’ perceptions of whether public insti-

tutions treat all people equally and impartially, regardless of economic status, personal characteristics, or political connections. According to *voluntary compliance theory* (Levi, 1998), citizens comply when they believe others are also required to comply without favouritism. Perceived unfairness is one of the most powerful drivers of tax evasion (Kirchler, 2007). Closely related is *responsiveness*, which is the perceived reciprocity of the citizen-state relationship. Compliance is sustained as long as citizens believe they are getting adequate value in return: taxes are paid for public services, and the quality of those services determines whether the citizen-state contract feels worth honouring. A government that ignores complaints and feedback breaks the implicit fiscal exchange even if it technically provides the service (Feld and Frey, 2002). The third dimension, *reliability*, captures government competence, predictability, and technical capacity. A government perceived as incompetent erodes the credibility of the entire fiscal contract, even when its intentions are honest (Kirchler, 2007). *Integrity* operates through a different channel entirely, measuring a perception of honesty and the absence of corruption in public institutions. Citizens who perceive that officials abuse public office for private gain feel morally released from their own compliance obligations (Torgler, 2007). The fifth dimension, *openness*, captures the government’s transparency about its decisions and the accessibility of administrative information. Citizens who perceive the government as opaque face greater uncertainty about how tax revenues are actually allocated. When the gap between what the government claims to do and what citizens believe it does is large, the motivation to comply weakens.

Beyond the five operational dimensions, the analysis also includes two broader trust constructs. *Vertical trust* measures the overall level of trust in the national political system and its institutions, such as the national government, political parties, civil service or news media. Levi (1998) argues that voluntary compliance depends on citizens having baseline confidence in the aggregate state as a legitimate authority. *Interpersonal trust* measures horizontal social trust: the belief that other citizens are honest, cooperative, and likely to comply with shared social norms. Alm and Torgler (2012) find that interpersonal trust is significantly negatively correlated with tax evasion across countries. It is the only non-institutional trust dimension in the analysis.

The comparison of country-level changes in vertical and interpersonal trust scores in 2021 and 2023 in Figure 2 visually supports the divergence between different trust dimensions. Vertical trust declined in several countries, with the largest reductions observed in Finland and the United Kingdom, while Belgium and France experienced small increases. Interpersonal trust remained comparatively stable, with only minor changes across countries, consistently exceeding vertical trust levels in nearly every country, indicating that citizens generally place greater trust in one another than in public institutions. Overall, the findings suggest that vertical trust is more responsive to changes in the political and institutional environment, whereas interpersonal trust constitutes a more stable dimension

Figure 2: Vertical and Interpersonal Trust Scores in 2021 and 2023



Sources: Author's own calculations based on OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: Grouped bar charts display mean country-level scores for vertical trust (left) and interpersonal trust (right) in 2021 (navy) and 2023 (burgundy), on a 0–10 scale. Sample restricted to the balanced panel of 15 countries observed in both waves. Country labels use ISO 3166-1 alpha-3 codes.

of social capital. This pattern further motivates the decomposition of institutional trust as the central focus of this study.

3.3 Sample of Analysis

The construction of the final analytical sample followed a multi-stage refinement process designed to bridge the gap between individual, microeconomic perceptions of trust and macroeconomic informality outcomes. The data-cleaning process began with the full OECD Trust Survey microdata, covering two waves (2021 and 2023) across 25 OECD member states, with an initial pool of 107,860 individual respondents. These observations were subsequently merged with Schneider's shadow economy estimates and macroeconomic controls from the World Development Indicators: unemployment rate, tax revenue as a share of GDP, and GDP per capita. Respondents whose country lacked a corresponding shadow economy estimate or complete macroeconomic data were excluded, yielding a refined microdata sample of 84,319 observations.

For the regression analysis, the microdata was collapsed to country-year means, yielding a country-year panel of 40 observations,¹³ namely 25 countries observed across up to 2 waves. This panel is unbalanced by design. Ten countries appear in only one wave, either because the survey had not been administered in the earlier round or because fiscal data was unavailable.¹⁴ The descriptive statistics for the country-level sample in Table 2 reveal meaningful variation across all key variables. The size of shadow economy averages 13.3%

¹³Figures A4, A5, 1, and A6 draw on the full Schneider (2026) dataset covering up to 36 OECD countries for descriptive purposes only and are not part of the analytical sample.

¹⁴Specifically, Austria and Japan appear in 2021 only, while Czech Republic, Germany, Greece, Italy, Slovak Republic, Slovenia, Spain, and Switzerland appear in 2023 only. The remaining 15 countries — Australia, Belgium, Canada, Denmark, Estonia, Finland, France, Ireland, Latvia, Luxembourg, Netherlands, Portugal, Sweden, United Kingdom, and Norway — appear in both waves and constitute the balanced subsample of 30 observations.

Table 2. Country-Level Sample Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Trust Dimensions (0–10 scale)</i>					
Vertical Trust	40	5.055	0.559	4.201	6.666
Fairness Trust	40	5.479	0.554	4.430	6.615
Integrity Trust	40	4.661	0.427	3.888	5.523
Responsiveness Trust	40	4.745	0.429	3.813	5.726
Reliability Trust	39	5.532	0.539	4.516	6.617
Openness Trust	40	5.213	0.384	4.477	5.988
Interpersonal Trust	40	6.176	0.472	5.247	7.251
<i>Macroeconomic Controls</i>					
Shadow Economy (% GDP)	40	13.347	4.984	6.130	24.260
Log GDP per Capita	40	11.073	0.337	10.516	11.922
Unemployment Rate (%)	40	5.873	2.068	2.579	12.179
Tax Burden (% GDP)	40	22.070	5.608	9.004	35.157

Sources: Author’s own calculations based on OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves), Schneider (2026), and World Development Indicators (World Bank, 2026).

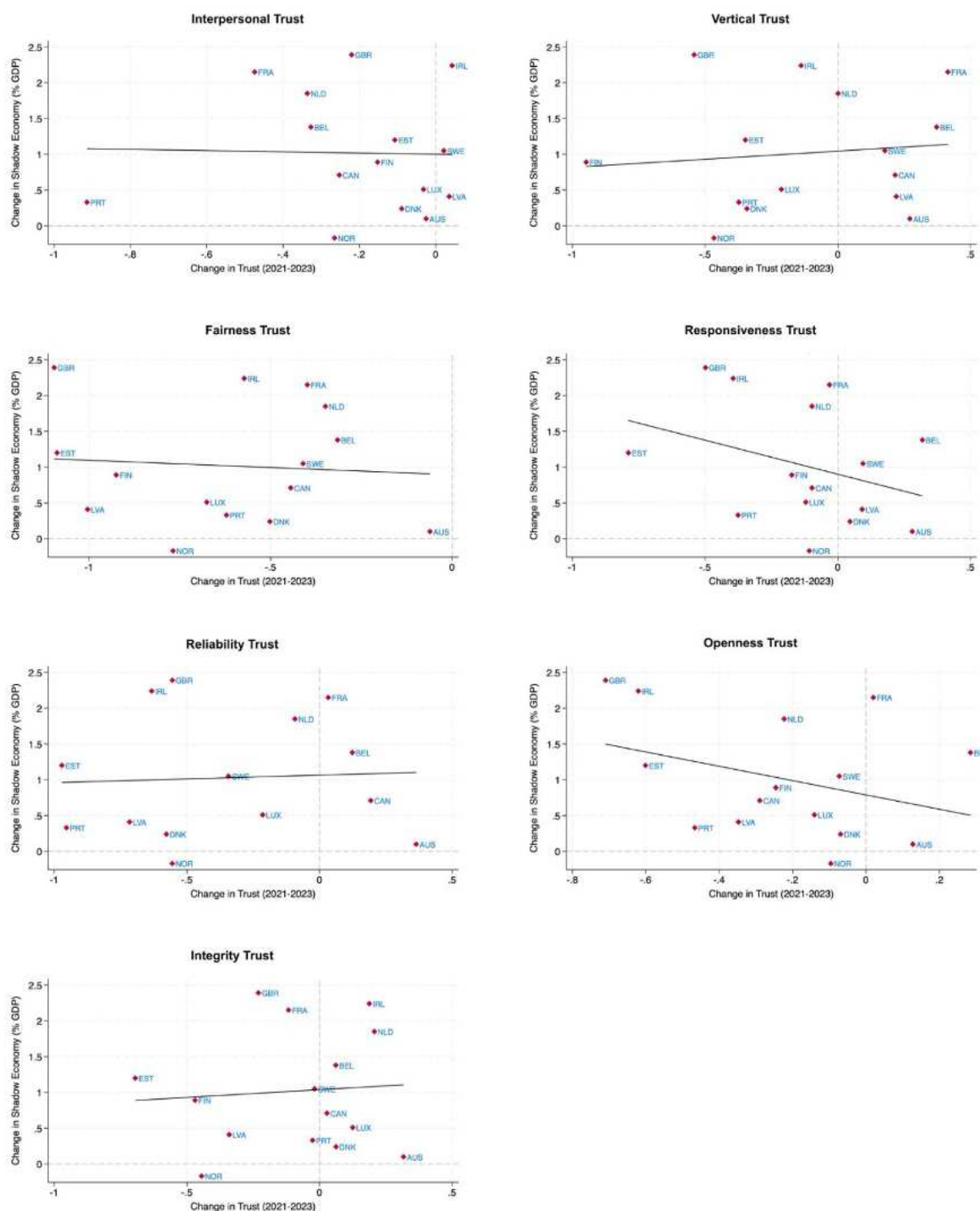
Notes: Country-year panel of 40 observations across 25 OECD countries, unbalanced across two waves (2021 and 2023). Reliability has $N = 39$ due to one missing country-year observation in the raw OECD survey data.

of GDP, ranging from 6.1% to 24.3%, indicating substantial cross-national heterogeneity. The six institutional trust indices fall within a narrow band between 4.7 and 5.5 on the 0–10 scale, while interpersonal trust is marginally higher at 6.2.

Figure 3 plots country-level changes in each of the seven trust dimensions against changes in shadow economy size between 2021 and 2023, with fitted regression lines indicating the direction of the raw association. These scatter plots serve a descriptive purpose, but the variation across panels is suggestive. The United Kingdom, Ireland, and France consistently appear in the upper range of shadow economy expansion regardless of the trust dimension, pointing to a common institutional deterioration rather than dimension-specific shocks.

Perceived responsiveness and openness display the most pronounced negative slopes, suggesting that countries where these dimensions declined most sharply also experienced the largest shadow economy expansions. The fairness and interpersonal trust dimensions show flatter or weakly negative slopes, while vertical trust, reliability, and integrity display near-zero or slightly positive fitted lines. The direction of the fitted lines varies across dimensions, providing preliminary visual evidence that different dimensions relate differently to shadow economy changes.

Figure 3: Scatter Plots for All Seven Dimensions of Trust vs. Shadow Economy



Sources: Author's own calculations based on Schneider (2026) and OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: Each panel plots the change in mean country-level trust on a given dimension (x-axis, 2021–2023) against the change in shadow economy size (y-axis, % of GDP, 2021–2023), with an OLS fitted line. Sample restricted to countries observed in both waves ($N = 15$). Country labels use ISO 3166-1 alpha-3 codes.

4 Empirical Strategy

This section sets out the empirical strategy used to estimate the partial correlation between institutional trust and shadow economy size. Section 4.1 presents the baseline pooled OLS specification while Section 4.2 addresses three identification challenges.

4.1 Pooled OLS

The descriptive evidence motivates a formal empirical specification. The baseline model relates shadow economy size to seven dimensions of trust, exploiting the full cross-sectional variation in trust levels across 25 OECD countries using a pooled OLS estimator of the following form:

$$Y_{ct} = \alpha + \beta \text{Trust}_{ct} + \Gamma \mathbf{X}_{ct} + \theta_t + \varepsilon_{ct} \quad (1)$$

where Y_{ct} denotes the shadow economy as a percentage of GDP in country c at time t . Trust_{ct} is one of the seven country-year trust indices constructed in the previous section. The vector $\mathbf{X}_{ct}$ includes macroeconomic controls (log GDP per capita, tax burden as a share of GDP and the unemployment rate). Lastly, θ_t is a year dummy included to absorb the common-time trend in shadow economies between the two survey waves. The year 2023 coefficient is statistically significant across all seven dimension-specific models ($\hat{\beta} = 3.159$, $p = 0.010$), confirming that this temporal shock is common to all countries. By absorbing it, the coefficient β captures the partial correlation between institutional trust and informal economic activity net of any aggregate global trend, reflecting genuine cross-country differences in institutional trust.

4.2 Empirical Challenges

Interpreting β causally requires confronting three identification challenges: omitted variable bias, measurement error, and reverse causation, which are acknowledged progressively. Although this study is able to address the first two, tackling reverse causation is impossible given the limited panel dimension.

First, confounding factors correlated with both institutional trust and shadow economy size may bias the estimated partial correlation. The empirical strategy addresses this in two steps: the macroeconomic control vector X_{ct} absorbs time-varying confounders at the country level, while the progressive inclusion of country fixed effects (θ_c) and year fixed effects (θ_t) absorbs time-invariant heterogeneity and common temporal shocks:

$$Y_{ct} = \alpha + \beta \text{Trust}_{ct} + \Gamma X_{ct} + \theta_c + \theta_t + \varepsilon_{ct} \quad (2)$$

Nevertheless, fixed effects absorb a disproportionately large share of the identifying variation given the short panel dimension. The variance decomposition reveals that

approximately 98% of total shadow economy variation is between-country rather than within-country. All time-invariant country characteristics (institutional history, geography, culture, social norms) that are correlated with both trust levels and shadow economy size are absorbed. In addition, the year fixed effect absorbs any time-varying common shock to all countries between 2021 and 2023. The variance decomposition and residual diagnostics confirm this in Figure A4.

Second, the trust dimensions are constructed as country-level aggregates of individual survey responses, introducing possible measurement error. In this case, OLS estimates would be biased toward zero, suggesting the reported associations may understate the true trust–shadow economy relationship. This concern is partially mitigated by exploiting individual-level heterogeneity across demographic groups (Table A4). If attenuation bias was severe, one would expect demographic patterns to be weak and inconsistent. Yet, the mechanisms documented in Table A9 suggest that trust measures retain meaningful signal beyond aggregate noise. A related estimation concern is multicollinearity. The seven trust dimensions are mutually correlated (pairwise correlations averaging approximately $r=0.55$), inflating standard errors in the joint specification, which motivates the separate dimension models estimated throughout.¹⁵

Third, there is a potential issue of reverse causation. Expanding informal sectors may erode public trust in institutions as much as institutional distrust might drive informality (Buehn and Schneider, 2012). While this study acknowledges the simultaneity concern, it also highlights the descriptive and cross-country comparative nature of the analysis, given the limited panel dimension. The coefficients are therefore interpreted as conditional correlations: the association between institutional trust perceptions and shadow economy size, conditional on macroeconomic fundamentals and a common time trend.

5 Results

This section presents the empirical results in three layers. Section 5.1 estimates the conditional association between each trust dimension and shadow economy size across countries. Section 5.2 tests whether that association varies across demographic groups. Section 5.3 examines whether it holds within countries over time.

5.1 Cross-Country Analysis

The country-level analysis uses an unbalanced panel of 25 OECD countries observed in 2021 and 2023, yielding 40 country-year observations. The dependent variable is the shadow economy as a percentage of GDP. All specifications include log GDP per capita,

¹⁵To assess the robustness of the cross-sectional estimates, an Oster, 2019 sensitivity check is applied to evaluate sensitivity to omitted variable bias (Table A11). To address the potential role of outliers, Figure A11 reports leave-one-out estimates for all seven dimensions

Table 3. Shadow Economy on Each Trust Dimension Separately

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fairness	−3.937** (1.561)						
Responsiveness		−3.253*** (0.888)					
Reliability			−2.933* (1.433)				
Integrity				−2.615 (1.774)			
Openness					−3.688* (1.917)		
Vertical Trust						−1.021 (1.710)	
Interpersonal Trust							−0.483 (1.473)
<i>Macroeconomic Controls</i>							
Log GDP pc	−4.718* (2.505)	−7.464*** (1.992)	−5.193* (2.729)	−6.557*** (2.148)	−5.954** (2.730)	−7.007** (3.246)	−7.823*** (2.302)
Tax Burden	0.010 (0.092)	0.038 (0.078)	0.085 (0.096)	0.077 (0.098)	0.003 (0.093)	0.037 (0.108)	0.043 (0.121)
Unemployment	0.644** (0.262)	0.745*** (0.258)	0.636** (0.274)	0.621** (0.258)	0.681** (0.281)	0.572* (0.277)	0.559* (0.286)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	40	40	39	40	40	40	40
<i>R</i> ²	0.552	0.556	0.533	0.520	0.541	0.492	0.486

Sources: Author's own calculations based on Schneider (2026), OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves), and World Development Indicators (World Bank, 2026).

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Each column is a separate OLS regression. Controls: log GDP per capita, tax burden, unemployment, year FE. Standard errors clustered by country (25 clusters). $N = 39$ for reliability.

tax burden, and unemployment as macroeconomic controls. Standard errors are clustered at the country level throughout. Uncontrolled bivariate estimates are reported in Table A8.

Table 3 presents the main results: seven separate regressions each including one trust dimension alongside the full control vector and year fixed effects. The full panel contains 40 country-year observations, with the reliability model dropping to $N = 39$ due to one missing observation. Four dimensions emerge as statistically significant, with all point estimates being negative, indicating that higher institutional trust is associated with smaller shadow economies. The magnitudes are economically meaningful.¹⁶

Responsiveness is negative and significant at 1% ($\hat{\beta} = -3.253$, $p = 0.001$, $R^2 = 0.556$). A one-unit increase in citizens' belief that the government adapts to their preferences and complaints is associated with a 3.25 percentage point reduction in shadow economy

¹⁶A one-standard-deviation increase in responsiveness ($\sigma = 0.429$) corresponds to a 1.4 percentage point reduction in shadow economy size, roughly 56% of the effect of a one-standard-deviation increase in log GDP per capita ($\sigma = 0.337$, corresponding to 2.5 pp). For fairness, a one-standard-deviation increase ($\sigma = 0.554$) corresponds to 2.2 percentage points, exceeding the standardised income effect in that specification (1.6 pp).

size. To compare, a 1% increase in GDP per capita is associated with a reduction of 0.075 percentage points in the same specification. Its robustness is confirmed by the Oster, 2019 sensitivity test reported in Table A11: adding controls actually strengthens the coefficient rather than attenuating it. As Oster (2019) notes, δ takes very large values when controls are largely orthogonal to the regressor of interest: the near-zero correlation between responsiveness and log GDP per capita ($r = 0.04$, $p = 0.83$) confirms that the macroeconomic controls share little variation with the trust measure.

Fairness is significant at 5% ($\hat{\beta} = -3.937$, $p = 0.019$, $R^2 = 0.552$), and *reliability* is significant at 10% ($\hat{\beta} = -2.933$, $p = 0.052$, $R^2 = 0.533$). Both are consistent with the theoretical mechanism: perceived equal treatment and government competence plausibly reduce informality (Levi, 1998; Kirchler, 2007). *Openness* is also significant at 10% ($\hat{\beta} = -3.688$, $p = 0.066$, $R^2 = 0.541$). A one-unit increase in perceived government transparency and participatory governance is associated with a 3.69 percentage point reduction in shadow economy size. However, all three have Oster δ values well below 1 (openness: $\delta = 0.769$; fairness: $\delta = 0.416$; reliability: $\delta = 0.400$), indicating susceptibility to omitted variable bias.

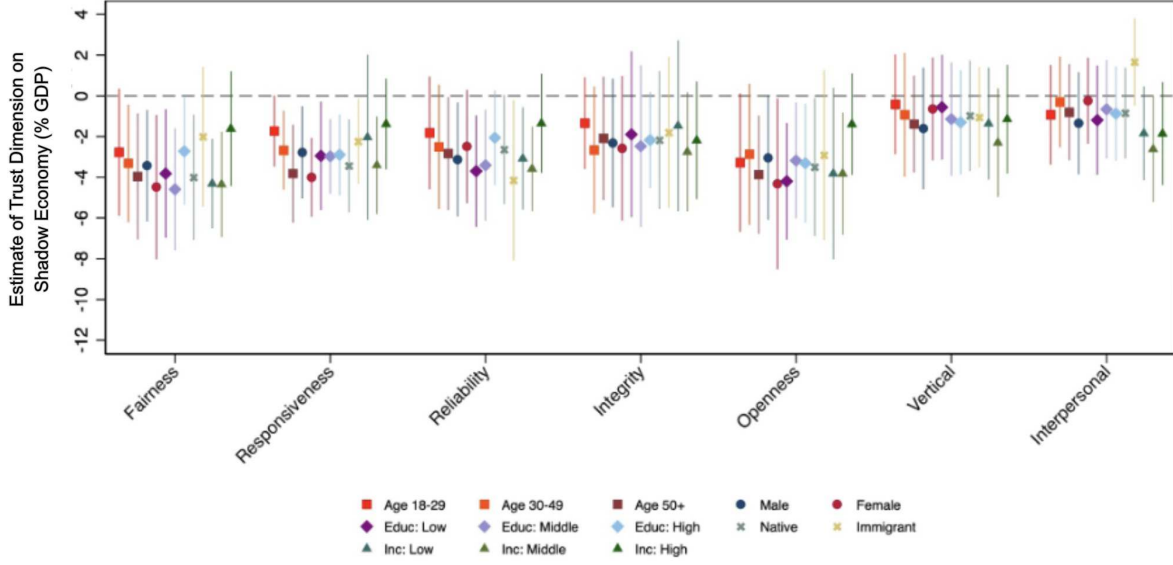
Integrity, *vertical trust*, and *interpersonal trust* show no significant association with shadow economy size. The near-zero vertical trust result is theoretically informative: aggregate confidence in government as a functioning entity does not predict informal sector participation once income and unemployment are controlled for. What matters is not whether citizens broadly trust the state, but whether they perceive it as operationally responsive, transparent, competent, and fair in its treatment of citizens.

As a further robustness check, Figure A11 reports leave-one-out estimates for all seven dimensions, dropping one country at a time. Responsiveness shows the most stable estimates across all 25 subsamples, consistent with the Oster (2019) robustness check. The fairness and openness coefficients also remain stable across all 25 leave-one-out samples, confirming that no single country drives the results. Reliability shows slightly more variation but remains negative throughout. The null results for integrity, vertical trust, and interpersonal trust are confirmed as their coefficients scatter around zero regardless of which country is excluded.

5.2 Heterogeneity Analysis

This section tests whether all seven trust dimensions operate with equal intensity across demographic groups, or whether the presented correlations are concentrated among specific population segments. As documented in Table A4, women and older citizens report significantly lower trust, while immigrants, high-income and high-education citizens generally report higher trust on every institutional dimension. If these groups also respond differently to institutional performance, demographic composition becomes a structural determinant of cross-country shadow economy variation.

Figure 4: Trust–Shadow Economy Relationship by Demographic Group



Sources: Author's own calculations based on Schneider (2026), OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves), and World Development Indicators (World Bank, 2026).

Notes: Coefficient plot displaying OLS point estimates and 95% confidence intervals of the effect of each trust dimension on shadow economy size (% of GDP) for thirteen demographic subgroups. Each estimate comes from a separate regression including log GDP per capita, tax burden, unemployment rate, and year fixed effects. Trust means are collapsed to country-year-group level.

Table A9 estimates the trust–shadow economy relationship separately for each subgroup, collapsing individual-level trust means to country-year-group observations and merging country-level macroeconomic controls, while Figure 4 provides a visual overview. Taken together, these estimates lack direct precedent in the shadow economy literature, which has so far relied on aggregate trust measures (D'Hernoncourt and Méon, 2011; Torgler and Schneider, 2007). Given the small sample size per regression ($N = 39\text{--}40$)¹⁷, these results should be interpreted with caution. Nevertheless, the consistency of patterns across panels lends them credibility.

Gender. Women show stronger effects than men in every dimension that reaches significance. For responsiveness, the female coefficient ($\hat{\beta} = -4.001^{***}$) is approximately 44% larger in magnitude than the male coefficient ($\hat{\beta} = -2.782^{**}$), and for openness the female coefficient ($\hat{\beta} = -4.322^*$) is 42% larger. Since Table A4 shows women already report lower baseline trust on the significant dimensions, the combination of lower trust levels with higher behavioural sensitivity produces the largest structural exposure to informal sector participation among any demographic group.

Age. Point estimates are consistently negative across all age groups and tend to increase in magnitude with age, consistent with trust operating as an accumulated stock rather than a recent impression. Responsiveness rises from $\hat{\beta} = -1.726^*$ among 18–29-year-olds to $\hat{\beta} = -2.675^{**}$ for the 30–49 group and $\hat{\beta} = -3.826^{***}$ for the 50+ group,

¹⁷Wald tests of coefficient equality across subgroups do not reject equality at conventional levels (all $p > 0.10$).

and fairness follows the same trajectory. Reliability is significant only for the 50+ group ($\hat{\beta} = -2.834^*$), consistent with the interpretation that government competence perceptions matter less before citizens have accumulated substantial institutional experience.

Education. All four significant dimensions operate across all education groups, but with varying intensity. Responsiveness is essentially flat across education levels ($\hat{\beta} = -2.949^{**}, -2.972^{***}, -2.895^{***}$ for low, middle, and high education respectively), suggesting the fiscal exchange mechanism does not depend on formal education. Reliability weakens at higher education levels: significant for low ($\hat{\beta} = -3.699^{**}$) and middle ($\hat{\beta} = -3.409^{**}$) but only marginally for high ($\hat{\beta} = -2.058^*$), consistent with the interpretation that more educated citizens form competence judgments independently of general trust. Notably, integrity reaches marginal significance for the high education group ($\hat{\beta} = -2.173^*$), suggesting that more educated citizens are more attuned to corruption perceptions.

Income. Middle-income citizens are the only group for whom the full trust complex matters: all four core dimensions are significant, joined by integrity ($\hat{\beta} = -2.753^*$), vertical ($\hat{\beta} = -2.301^*$) and interpersonal trust ($\hat{\beta} = -2.618^*$). High-income citizens show no significant effects on any dimension, plausibly because they can navigate formal institutions regardless of trust levels, or because high-income compliance is sustained by enforcement and financial infrastructure. Low-income citizens respond mostly to fairness ($\hat{\beta} = -4.311^{***}$), reliability ($\hat{\beta} = -3.076^{**}$), and openness ($\hat{\beta} = -3.814^*$) but not responsiveness, perhaps because they benefit less from public services and weigh the fiscal exchange differently.

Origin. Native-born citizens show significant effects across all four core dimensions. Immigrants respond only to responsiveness ($\hat{\beta} = -2.237^{**}$) and reliability ($\hat{\beta} = -4.144^{**}$), consistent with a positive selection story in which immigrants already viewed the host country's institutions favourably before arriving. The interpersonal trust coefficient flips sign for immigrants ($\hat{\beta} = 1.663, p = 0.134$), though it is not statistically significant.

5.3 Within-Country Analysis

The within-country analysis uses the balanced panel of 15 OECD countries observed in both waves. The estimator is the within fixed effects model, which with two time periods is mathematically equivalent to first differences. Every coefficient estimates whether a country that experienced an increase in a trust dimension between 2021 and 2023 also experienced a corresponding shadow economy change. Standard errors are clustered at the country level.

None of the seven trust dimensions reaches significance. Responsiveness and openness remain directionally consistent with the cross-sectional results ($\hat{\beta} = -1.156$ and $\hat{\beta} = -0.979$), but are too imprecisely estimated for inference.¹⁹ The within R^2 is high across all

¹⁸ $N = 29$ due to one missing observation on reliability (Finland, 2021).

¹⁹The United Kingdom illustrates this pattern: shadow economy size rose 2.4 percentage points between 2021

Table 4. Within-Country Analysis: Balanced Panel Fixed Effects

	(1) Fair.	(2) Resp.	(3) Rel.	(4) Integ.	(5) Open.	(6) Vert.	(7) Interp.
Fairness	−0.348 (1.145)						
Responsiveness		−1.156 (0.712)					
Reliability			0.059 (0.627)				
Integrity				0.262 (1.366)			
Openness					−0.979 (0.842)		
Vertical Trust						0.298 (1.057)	
Interpersonal Trust							−1.205 (1.158)
<i>Macroeconomic Controls</i>							
Log GDP pc	−1.681 (4.505)	−0.762 (4.177)	−3.355 (3.987)	−3.187 (5.340)	−1.508 (3.920)	−3.200 (4.223)	−6.993 (5.412)
Tax Burden	−0.027 (0.114)	−0.052 (0.088)	0.052 (0.242)	0.010 (0.113)	−0.037 (0.093)	0.041 (0.155)	0.002 (0.094)
Unemployment	−0.260 (0.375)	−0.338 (0.274)	−0.136 (0.411)	−0.166 (0.320)	−0.189 (0.244)	−0.109 (0.465)	−0.321 (0.377)
N	30	30	29	30	30	30	30
Within R^2	0.641	0.691	0.628	0.638	0.677	0.641	0.661
ρ	0.974	0.980	0.969	0.972	0.976	0.973	0.964

Sources: Author's own calculations based on Schneider (2026), OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves), and World Development Indicators (World Bank, 2026).

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors clustered at the country level. Each column is a separate within-FE regression of shadow economy size (% of GDP) on one trust dimension, controlling for log GDP per capita, tax burden, unemployment rate, and a year fixed effect. Sample restricted to the balanced panel of 15 countries observed in both waves ($N = 29-30$).¹⁸

models (0.63–0.69), but this reflects the dominance of country fixed effects, as the between R^2 is essentially zero in every specification. The absence of significant within-country effects is not only a data limitation but is also theoretically informative. While generalised trust accumulates slowly (Knack and Keefer, 1997) and is determined by deep structural conditions rather than recent policy changes (Rothstein and Uslander, 2005; Algan and Cahuc, 2013), existing studies in the shadow economy literature rely on cross-sectional designs and do not exploit within-country variation to test this directly. The variance decomposition here provides that evidence. The shadow economy has a between-country

and 2023 alongside the steepest average trust decline in the balanced panel (−0.56 points), yet even this extreme case produces no statistically detectable within-country effect.

standard deviation of 4.35 percentage points but a within-country standard deviation of only 0.62, with approximately 98% of total variance attributable to permanent country differences ($\rho = 0.980$ for the responsiveness model on the balanced panel). The within estimator discards the variation that identifies the cross-sectional relationship and is left with a residual window of just 0.62 percentage points to work with.

6 Discussion

The results answer the questions raised by the introduction. What predicts informal sector size is not how much citizens trust the state in the abstract, but whether they perceive it as responsive, fair, reliable, and open. This decomposition gives empirical support to the *trust paradigm* argument (Alm, 2019), which has been barely tested empirically, and confirms H1: institutional trust operates through specific dimensions rather than as a single aggregate measure.

Unlike the other trust dimensions, which are unilateral,²⁰ responsiveness reflects an interaction between the citizen and the state. Citizens are not passive taxpayers, but active participants who provide feedback, and their compliance adjusts based on whether that feedback is heard and acted upon. It goes beyond the “tax-for-goods” reciprocity argument (Feld and Frey, 2002; Alm and Gomez, 2008) and speaks directly to the psychological contract (Alm, 2019), uncovering a behavioural dynamic that drives voluntary compliance and confirms H2. Responsiveness also captures a specific quality of the citizen-state relationship that varies independently of income and employment.²¹

Integrity, the dimension most directly targeted by anti-corruption campaigns, is insignificant across every controlled specification. This suggests that a government that becomes less corrupt but remains unresponsive, opaque, and arbitrary in its treatment of citizens has little reason to expect that its shadow economy will shrink. That finding contradicts the position of the public policy literature that frequently recommends anti-corruption campaigns as institutional levers for formalisation (Schneider and Enste, 2000; Torgler and Schneider, 2007).

The heterogeneity analysis adds a second layer to this picture. As anticipated by H3, trust seems to matter more for those who depend on the state. Low-income citizens respond significantly to fairness, reliability, and openness, but not responsiveness. This pattern suggests that the perceived fiscal exchange of taxes for public services (Feld and Frey, 2002; Alm and Gomez, 2008) is less salient for lower-income groups, who may perceive themselves as less active contributors to the fiscal contract whose informal sector participation may partly reflect structural exclusion rather than a deliberate compliance decision (Schneider and Enste, 2000; La Porta and Shleifer, 2014). Middle-income citizens

²⁰Integrity, fairness, reliability, and openness all reflect a one-way mechanism: the citizen observes what the state does and judges it. Responsiveness is different because it requires the state to act on that judgement.

²¹Pairwise correlation matrix on trust dimensions and macroeconomic controls reported in Table A5.

are the only group for whom all seven dimensions are significant. In contrast, high-income citizens show no significant effects on any dimension. This is consistent with the finding that compliance among higher-income populations is primarily driven by enforcement infrastructure rather than intrinsic motivation (Slemrod, 2007; Kleven et al., 2011). The trust channel is therefore concentrated in the lower and middle segments of the income distribution, providing direct implications for policy interventions.

Immigrants report higher trust than native-born citizens on every institutional dimension yet respond significantly only to responsiveness and reliability. Röder and Mühlau (2012) offer the most plausible explanation: immigrants self-selected into the host country on the basis of a favourable prior institutional assessment, made before arrival. Natives never made that explicit choice, so their compliance remains sensitive to institutional performance. Finally, the directionally positive interpersonal trust coefficient for immigrants, though imprecise, hints at possible informal community networks may partially substitute for it rather than reinforce it.

The within-country null is theoretically as informative as any significant result and clearly confirms H4. With approximately 98% of shadow economy variance between countries rather than within them, it is consistent with something the literature has asserted theoretically but rarely tested empirically: that institutional trust operates as a stock variable, not a flow. It implies that the compliance dividend from trust accumulates over decades of consistent institutional behaviour, which is why high-trust Nordic countries maintain persistently small shadow economies while low-trust Southern and Eastern European economies remain informal despite short-run institutional improvements (Torgler and Schneider, 2007). This places institutional trust among other long-horizon public investments whose returns are invisible within an electoral cycle but decisive across generations. The political economy literature has formalised this misalignment in the context of fiscal policy, showing that elected governments systematically underprovide investments whose returns fall beyond the electoral horizon (Alesina and Tabellini, 1990). That is perhaps the most uncomfortable policy implication of the stock variable finding. It does not mean that trust cannot be built, but that the political incentive to build it is structurally misaligned with the timescale on which it pays off.

Limitations

Limitations bound the interpretation of these results. The most fundamental is the absence of causal identification. With $T = 2$ and 25 countries, formal instrumentation is not feasible; there is no valid instrument that shifts institutional trust without directly affecting shadow economy size, and the panel is too short for dynamic identification strategies. The coefficients throughout are conditional correlations, not causal estimates. Reverse causality (expanding shadow economies eroding institutional trust) cannot be ruled out.

In addition, individual trust responses are aggregated to country-year means and

linked to a country-level measure of informality. Therefore, the analysis cannot establish that individuals with lower trust are themselves more likely to participate in the shadow economy, and the subgroup results should not be interpreted as individual-level effects.

Another limitation concerns the shadow economy measure itself. It captures all informal economic activity rather than any single compliance margin, and cannot identify which is most responsive to each trust dimension. Moreover, the MIMIC approach infers shadow economy size from observable causes and indicators rather than measuring informal activity directly, introducing an additional source of measurement uncertainty. This is largely a feature of the design rather than a flaw: if institutional trust affects the citizen-state contract broadly, its effects should appear across all margins simultaneously, and a narrower measure would understate them. What the results cannot speak to is which specific margin policy should target.

Finally, the sample is restricted to OECD member states, among the world’s wealthiest and most institutionally developed economies. The mechanisms identified here may operate differently where enforcement infrastructure is weaker. Whether the same dimensions matter in lower-trust, higher-informality settings remains an open question.

Future Research

Several directions follow naturally from these findings. Future research should extend the panel as additional OECD Trust Survey waves become available and test whether the cross-country associations emerge within countries over longer horizons. A second priority is to link individual-level trust measures to individual participation in informal activity, particularly to better identify the mechanisms underlying differences by income and origin.

Replicating the analysis beyond the OECD would test whether the same trust dimensions matter in settings with weaker institutional capacity and more pervasive informality. Finally, future studies could exploit institutional reforms or other plausibly exogenous shocks to specific trust dimensions to move closer to causal identification.

7 Conclusion

This paper examined which dimensions of institutional trust are associated with shadow economy size across OECD countries, whether the relationship varies across demographic groups, and whether it holds within countries over time. Three findings emerge, each adding a distinct layer to the overall picture.

The first is about which dimensions matter. Four dimensions of institutional quality: responsiveness, fairness, reliability, and openness, predict shadow economy size, while general confidence in institutions, perceptions of corruption, and interpersonal trust do not. Citizens are not responding to the state as an abstract entity but to the concrete quality of their interactions with it. The second is about who responds. The relationship

is not uniform across the population. It is strongest among women, older citizens, and native-born populations, which are the groups most sceptical of the relevant dimensions and most behaviourally sensitive to them. This compounding suggests demographic composition may be a previously overlooked correlate of cross-country shadow economy variation. The third is about timing. The absence of statistically significant within-country results is consistent with a more structural than cyclical relationship, although the short two-wave panel and limited statistical power prevent a definitive conclusion. The pattern is consistent with compliance reflecting accumulated institutional experience rather than only recent policy shocks.

The limitations are acknowledged. Causal identification is not feasible due to a limited panel, therefore, the coefficients are presented as robust conditional correlations. The sample is restricted to OECD economies, so the associations documented here may not generalise to settings where enforcement infrastructure is weaker and informal sector participation is more structurally determined. These results should be read as establishing a research agenda rather than closing one, and extending the panel to include the next waves of the OECD Trust Survey is the natural next step.

The evidence points to a consistent conclusion. Aggregate confidence in national institutions, perceptions of corruption, and interpersonal trust among citizens do not predict shadow economy size once income and unemployment are controlled for. What matters is the perceived quality of the relationship between citizen and state: the government's responsiveness to feedback, equal treatment, reliable service delivery, and transparent communication. These trust dimensions are measurable, targetable, and more consequential for some citizens than others. Where they are consistently met over time, voluntary compliance follows.

References

- Alesina, Alberto and Guido Tabellini (1990). “A positive theory of fiscal deficits and government debt”. In: *Review of Economic Studies* 57.3, pp. 403–414. DOI: [10.2307/2298021](https://doi.org/10.2307/2298021).
- Algan, Yann and Pierre Cahuc (2013). “Trust and growth”. In: *Annual Review of Economics* 5.1, pp. 521–549. DOI: [10.1146/annurev-economics-081412-102108](https://doi.org/10.1146/annurev-economics-081412-102108).
- Allingham, Michael G. and Agnar Sandmo (1972). “Income tax evasion: A theoretical analysis”. In: *Journal of Public Economics* 1.3–4, pp. 323–338. DOI: [10.1016/0047-2727\(72\)90010-2](https://doi.org/10.1016/0047-2727(72)90010-2).
- Alm, James (2019). “What motivates tax compliance?” In: *Journal of Economic Surveys* 33.2, pp. 353–388. DOI: [10.1111/joes.12272](https://doi.org/10.1111/joes.12272).
- Alm, James, Kim M. Bloomquist, and Michael McKee (2017). “When you know your neighbour pays taxes: Information, peer effects and tax compliance”. In: *Fiscal Studies* 38.4, pp. 587–613. DOI: [10.1111/1475-5890.12111](https://doi.org/10.1111/1475-5890.12111).
- Alm, James and Juan Luis Gomez (2008). “Social capital and tax morale in Spain”. In: *Economic Analysis and Policy* 38.1, pp. 73–87. DOI: [10.1016/S0313-5926\(08\)50007-5](https://doi.org/10.1016/S0313-5926(08)50007-5).
- Alm, James and Matthias Kasper (2022). “Audits, audit effectiveness, and post-audit tax compliance”. In: *Journal of Economic Behavior & Organization* 195, pp. 87–102. DOI: [10.1016/j.jebo.2022.01.003](https://doi.org/10.1016/j.jebo.2022.01.003).
- Alm, James and Benno Torgler (2006). “Culture differences and tax morale in the United States and in Europe”. In: *Journal of Economic Psychology* 27.2, pp. 224–246. DOI: [10.1016/j.joep.2005.09.002](https://doi.org/10.1016/j.joep.2005.09.002).
- (2012). “Do ethics matter? Tax compliance and morality”. In: *Journal of Business Ethics* 101.4, pp. 635–651. DOI: [10.1007/s10551-011-0761-9](https://doi.org/10.1007/s10551-011-0761-9).
- Andreoni, James, Brian Erard, and Jonathan Feinstein (1998). “Tax compliance”. In: *Journal of Economic Literature* 36.2, pp. 818–860.
- Bilgin, Cevat (2014). “Determinants of tax morale in Spain and Turkey: An empirical analysis”. In: *European Journal of Government and Economics* 3.1, pp. 60–74. DOI: [10.17979/ejge.2014.3.1.4297](https://doi.org/10.17979/ejge.2014.3.1.4297).
- Breusch, Trevor S. and Adrian R. Pagan (1979). “A simple test for heteroscedasticity and random coefficient variation”. In: *Econometrica* 47.5, pp. 1287–1294. DOI: [10.2307/1911963](https://doi.org/10.2307/1911963).
- Buehn, Andreas and Friedrich Schneider (2012). “Shadow economies around the world: Novel insights, accepted knowledge and new estimates”. In: *International Tax and Public Finance* 19, pp. 139–171. DOI: [10.1007/s10797-011-9187-7](https://doi.org/10.1007/s10797-011-9187-7).
- Cameron, A. Colin and Douglas L. Miller (2015). “A practitioner’s guide to cluster-robust inference”. In: *Journal of Human Resources* 50.2, pp. 317–372. DOI: [10.3368/jhr.50.2.317](https://doi.org/10.3368/jhr.50.2.317).

- Corona, Francisco Javier Fonseca (2024). “Tax morale: A global scoping review from the cultural approach to economics”. In: *International Review of Economics* 71, pp. 343–365. DOI: [10.1007/s12232-024-00446-x](https://doi.org/10.1007/s12232-024-00446-x).
- D’Hernoncourt, Johanna and Pierre-Guillaume Méon (2011). “The not so dark side of trust: Does trust increase the size of the shadow economy?” In: *Journal of Economic Behavior & Organization* 81.1, pp. 97–121. DOI: [10.1016/j.jebo.2011.09.010](https://doi.org/10.1016/j.jebo.2011.09.010).
- De Neve, Jan-Emmanuel et al. (2021). “How to improve tax compliance? Evidence from population-wide experiments in Belgium”. In: *Journal of Political Economy* 129.5, pp. 1425–1463. DOI: [10.1086/713096](https://doi.org/10.1086/713096).
- Durante, Ruben et al. (2025). “Unpacking social capital”. In: *The Economic Journal* 135.667, pp. 773–807. DOI: [10.1093/ej/ueae074](https://doi.org/10.1093/ej/ueae074).
- Feld, Lars P. and Bruno S. Frey (2002). “Trust breeds trust: How taxpayers are treated”. In: *Economics of Governance* 3.2, pp. 87–99. DOI: [10.1007/s101010100032](https://doi.org/10.1007/s101010100032).
- Frey, Bruno S. (1997). *Not Just for the Money: An Economic Theory of Personal Motivation*. Edward Elgar.
- Gërxxhani, Klarita and Stanisław Cichocki (2023). “Formal and informal institutions: Understanding the shadow economy in transition countries”. In: *Journal of Institutional Economics* 19.5, pp. 656–672.
- Gomes, Orlando (2025). “Economics research in the twenty-first century — 25 years of scientific breakthroughs”. In: *Qeios*. DOI: [10.32388/KA9FG2.3](https://doi.org/10.32388/KA9FG2.3).
- Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2004). “The role of social capital in financial development”. In: *American Economic Review* 94.3, pp. 526–556. DOI: [10.1257/0002828041464498](https://doi.org/10.1257/0002828041464498).
- Horodnic, Ioana Alexandra (2018). “Tax morale and institutional theory: A systematic review”. In: *International Journal of Sociology and Social Policy* 38.9–10, pp. 868–886. DOI: [10.1108/IJSSP-03-2018-0039](https://doi.org/10.1108/IJSSP-03-2018-0039).
- Horváth, Roman (2013). “Does trust promote growth?” In: *Journal of Comparative Economics* 41.3, pp. 777–788. DOI: [10.1016/j.jce.2012.10.006](https://doi.org/10.1016/j.jce.2012.10.006).
- Iraman, Erick, Yukako Ono, and Makoto Kakinaka (2022). “Tax compliance and social desirability bias of taxpayers: Experimental evidence from Indonesia”. In: *Journal of Public Policy* 42.1, pp. 92–109. DOI: [10.1017/S0143814X21000040](https://doi.org/10.1017/S0143814X21000040).
- Kirchler, Erich (2007). *The Economic Psychology of Tax Behaviour*. Cambridge University Press.
- Kirchler, Erich, Erik Hoelzl, and Ingrid Wahl (2008). “Enforced versus voluntary tax compliance: The “slippery slope” framework”. In: *Journal of Economic Psychology* 29.2, pp. 210–225. DOI: [10.1016/j.joep.2007.05.004](https://doi.org/10.1016/j.joep.2007.05.004).
- Kleven, Henrik J. et al. (2011). “Unwilling or unable to cheat? Evidence from a tax audit experiment in Denmark”. In: *Econometrica* 79.3, pp. 651–692. DOI: [10.3982/ECTA9113](https://doi.org/10.3982/ECTA9113).

- Knack, Stephen and Philip Keefer (1997). “Does social capital have an economic payoff? A cross-country investigation”. In: *The Quarterly Journal of Economics* 112.4, pp. 1251–1288. DOI: [10.1162/003355300555475](https://doi.org/10.1162/003355300555475).
- Kogler, Christoph et al. (2013). “Trust and power as determinants of tax compliance: Testing the slippery slope framework in Austria, Hungary, Romania and Russia”. In: *Journal of Socio-Economics* 44, pp. 169–176. DOI: [10.1016/j.joep.2012.09.010](https://doi.org/10.1016/j.joep.2012.09.010).
- La Porta, Rafael and Andrei Shleifer (2014). “Informality and development”. In: *Journal of Economic Perspectives* 28.3, pp. 109–126. DOI: [10.1257/jep.28.3.109](https://doi.org/10.1257/jep.28.3.109).
- Levi, Margaret (1998). “A state of trust”. In: *Trust and Governance*. Ed. by Valerie Braithwaite and Margaret Levi. Russell Sage Foundation, pp. 77–101.
- Medina, Leandro and Friedrich Schneider (2019). *Shedding light on the shadow economy: A global database and the interaction with the official one*. Working Paper 7981. CESifo. DOI: [10.2139/ssrn.3502028](https://doi.org/10.2139/ssrn.3502028).
- OECD (2017). *OECD Guidelines on Measuring Trust*. OECD Publishing.
- (2021). *OECD Survey on Drivers of Trust in Public Institutions — 2021 Results*. OECD Publishing.
 - (2022). *Building Trust to Reinforce Democracy: Main Findings from the 2021 OECD Survey on Drivers of Trust in Public Institutions*. OECD Publishing.
 - (2023). *OECD Survey on Drivers of Trust in Public Institutions — 2023 Results*. OECD Publishing.
 - (2024). *OECD Survey on Drivers of Trust in Public Institutions — 2024 Results: Building Trust in a Complex Policy Environment*. OECD Publishing.
 - (2025). *Tax Administration 2025: Comparative Information on OECD and Other Advanced and Emerging Economies*. OECD Publishing.
- Oster, Emily (2019). “Unobservable selection and coefficient stability: Theory and evidence”. In: *Journal of Business & Economic Statistics* 37.2, pp. 187–204. DOI: [10.1080/07350015.2016.1227711](https://doi.org/10.1080/07350015.2016.1227711).
- Puklavec, Žiga et al. (2025). “Unobscuring the concept of tax morale: A systematic review of the literature”. In: *Journal of Business Ethics*. DOI: [10.1007/s10551-025-06218-z](https://doi.org/10.1007/s10551-025-06218-z).
- Putnam, Robert D. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton University Press.
- Röder, Antje and Peter Mühlau (2012). “Low expectations or different evaluations: What explains immigrants’ high levels of trust in host-country institutions?” In: *Journal of Ethnic and Migration Studies* 38.5, pp. 777–792. DOI: [10.1080/1369183X.2012.667986](https://doi.org/10.1080/1369183X.2012.667986).
- Rothstein, Bo and Eric M. Uslaner (2005). “All for all: Equality, corruption, and social trust”. In: *World Politics* 58.1, pp. 41–72. DOI: [10.1353/wp.2006.0022](https://doi.org/10.1353/wp.2006.0022).
- Saultis, Andrejs (2025). *Estimating tax evasion in Europe: Direct vs. indirect survey methods*. Brief. Free Policy Network.

- Schneider, Friedrich (2023). “Do different estimation methods lead to implausible differences in the size of the non-observed or shadow economies? A preliminary answer”. In: *Journal of Resource Economics*.
- (2026). *Development of the shadow economy of 36 OECD countries up to 2026*.
- Schneider, Friedrich and Dominik H. Enste (2000). “Shadow economies: Size, causes, and consequences”. In: *Journal of Economic Literature* 38.1, pp. 77–114. DOI: [10.1257/jel.38.1.77](https://doi.org/10.1257/jel.38.1.77).
- Slemrod, Joel (2003). “Trust in public finance”. In: *Public Finance and Public Policy in the New Century*. Ed. by Sijbren Cnossen and Hans-Werner Sinn. MIT Press, pp. 49–88.
- (2007). “Cheating ourselves: The economics of tax evasion”. In: *Journal of Economic Perspectives* 21.1, pp. 25–48. DOI: [10.1257/jep.21.1.25](https://doi.org/10.1257/jep.21.1.25).
- Torgler, Benno (2003). “Tax morale, rule-governed behaviour and trust”. In: *Constitutional Political Economy* 14.2, pp. 119–140. DOI: [10.1023/A:1023643622283](https://doi.org/10.1023/A:1023643622283).
- (2007). *Tax Compliance and Tax Morale: A Theoretical and Empirical Analysis*. Edward Elgar.
- Torgler, Benno and Friedrich Schneider (2007). *Shadow economy, tax morale, governance and institutional quality: A panel analysis*. Discussion Paper 2563. IZA.
- Van de Walle, Steven and Geert Bouckaert (2003). “Public service performance and trust in government: The problem of causality”. In: *International Journal of Public Administration* 26.8–9, pp. 891–913. DOI: [10.1081/PAD-120019352](https://doi.org/10.1081/PAD-120019352).
- White, Halbert (1980). “A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity”. In: *Econometrica*, pp. 817–838. DOI: [10.2307/1912934](https://doi.org/10.2307/1912934).
- Williams, Colin C. and Aysegul Kayaoglu (2016). “Tackling the informal economy in the European Union: A social actor approach”. In: *UTMS Journal of Economics* 7.2, pp. 133–147.
- Williams, Colin C. and Güneri Özdemir Yalaman (2021). “Explaining the informal economy in Western Europe: Beyond a rational economic actor perspective”. In: *Journal of Economic Studies* 48.5, pp. 1084–1096. DOI: [10.1108/JES-05-2020-0233](https://doi.org/10.1108/JES-05-2020-0233).
- World Bank (2026). *World Development Indicators*.

Appendix

A Shadow Economy Measurement and Stylized Facts

A.1 The MIMIC Model

The MIMIC model is a structural equation approach that treats the shadow economy as a latent variable (η) driven by observable determinants and producing indicator variables. Causes (such as tax burden, unemployment, and institutional quality) exert pressure on the shadow economy, while indicators (GDP growth, labour force participation, and currency in circulation) reflect its macroeconomic consequences. The two equations are estimated simultaneously:

$$\begin{cases} \eta = \gamma_1 x_1 + \gamma_2 x_2 + \cdots + \gamma_k x_k + \zeta & (1) \\ y_i = \lambda_i \eta + \varepsilon_i & (2) \end{cases}$$

where equation (1) is the structural equation linking observable causes x to the latent shadow economy η , and equation (2) is the measurement equation linking η to its observable macroeconomic indicators y_i .

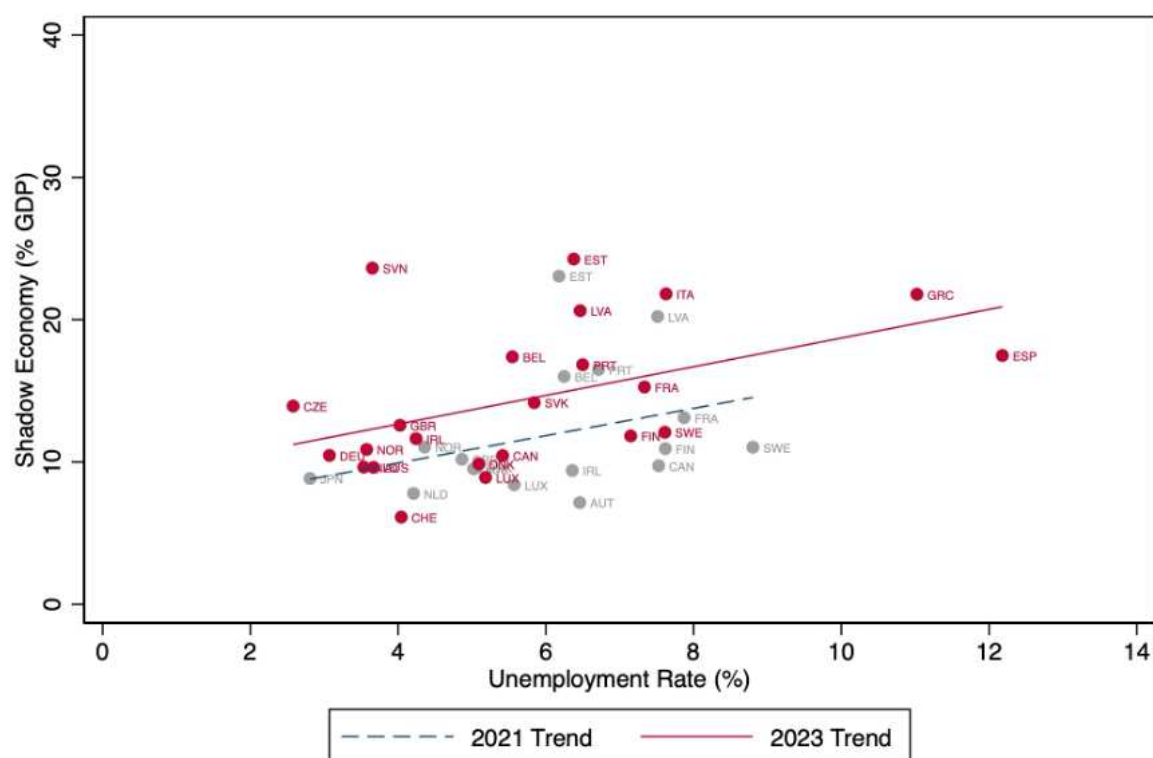
By fitting both equations simultaneously, a single index (η) can be estimated via Full Information Maximum Likelihood (FIML), which jointly maximises the likelihood of observing both the causal and indicator variables given the latent structure. The FIML estimator finds the values of η that best reproduce the observed covariance structure between causes and indicators simultaneously. The shadow economy size is then recovered by anchoring the latent index to a benchmark (typically a single reference year where an alternative estimate is available), which converts the dimensionless index into percentage points of GDP.

A.2 Stylized Facts

Figure A1 plots the unemployment rate against shadow economy size for OECD countries in 2021 and 2023. The positive relationship is visible and consistent across both waves. A correlation coefficient of $r = 0.390$ confirms a moderate positive association. This is consistent with the labour market exclusion hypothesis: workers deprived of formal employment seek opportunities in the informal sector (Schneider and Enste, 2000; Medina and Schneider, 2019).

The log of GDP per capita plotted in Figure A2 exhibits the strongest correlation with the size of the informal sector ($r = -0.569$). The negative relationship between them is steep and clearly visible: as the log of GDP per capita rises from lower-middle income countries to the wealthiest members, shadow economy size falls sharply from above 30% to below 10% of GDP.

Figure A1: Unemployment and Shadow Economy

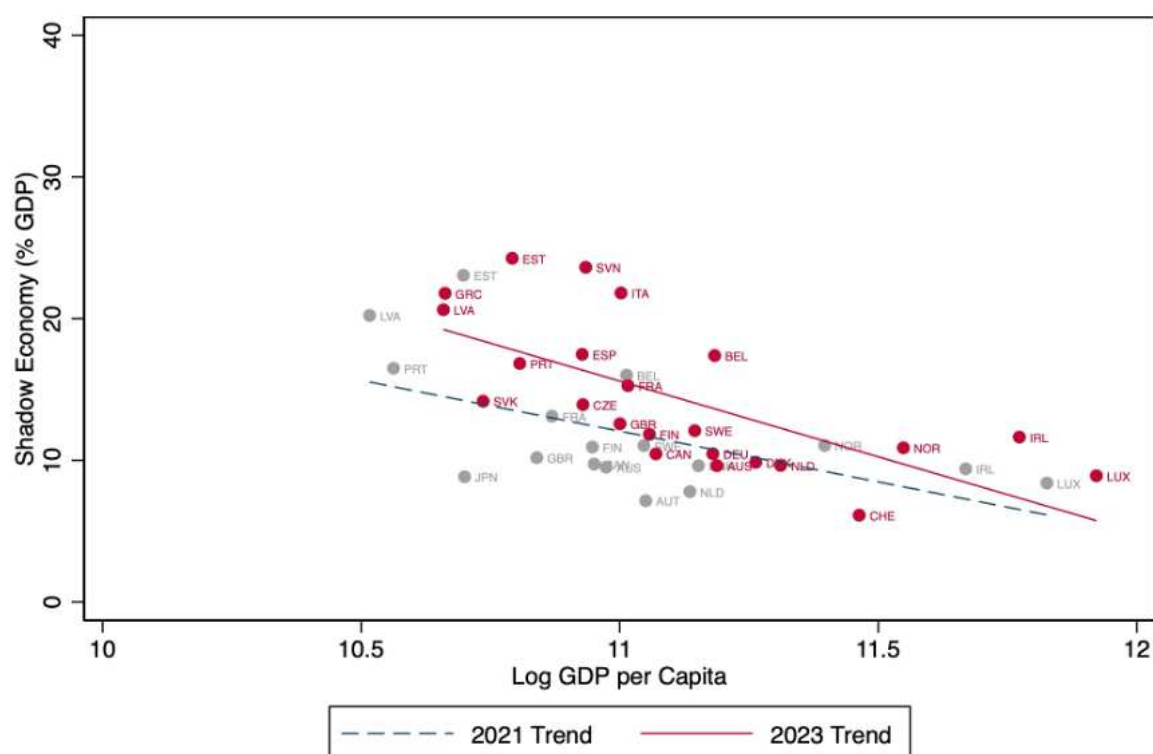


Sources: Author's own calculations based on Schneider (2026) and World Development Indicators (World Bank, 2026).

Notes: Each dot represents one OECD country in either 2021 (grey) or 2023 (red). The x-axis plots the unemployment rate and the y-axis plots shadow economy size as a percentage of GDP. Separate OLS trend lines are fitted for each wave. The correlation coefficient is $r = 0.390$.

²²Log GDP per capita is used to account for the right-skewed distribution of income across countries and to allow for a proportional interpretation of the income-informality relationship, consistent with standard practice in the shadow economy literature.

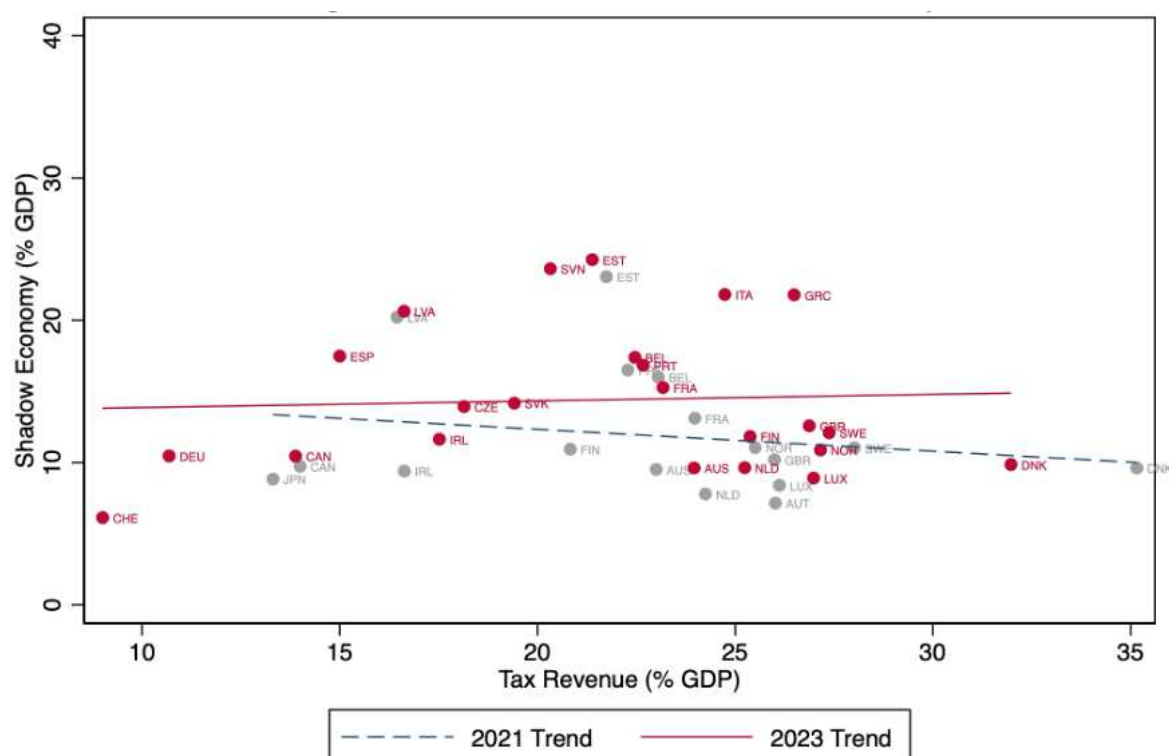
Figure A2: GDP per Capita and Shadow Economy



Sources: Author's own calculations based on Schneider (2026) and World Development Indicators (World Bank, 2026).

Notes: Each dot represents one OECD country in either 2021 (grey) or 2023 (red). The x-axis plots log GDP²² per capita and the y-axis plots shadow economy size as a percentage of GDP. Separate OLS trend lines are fitted for each wave. The correlation coefficient is $r = -0.569$.

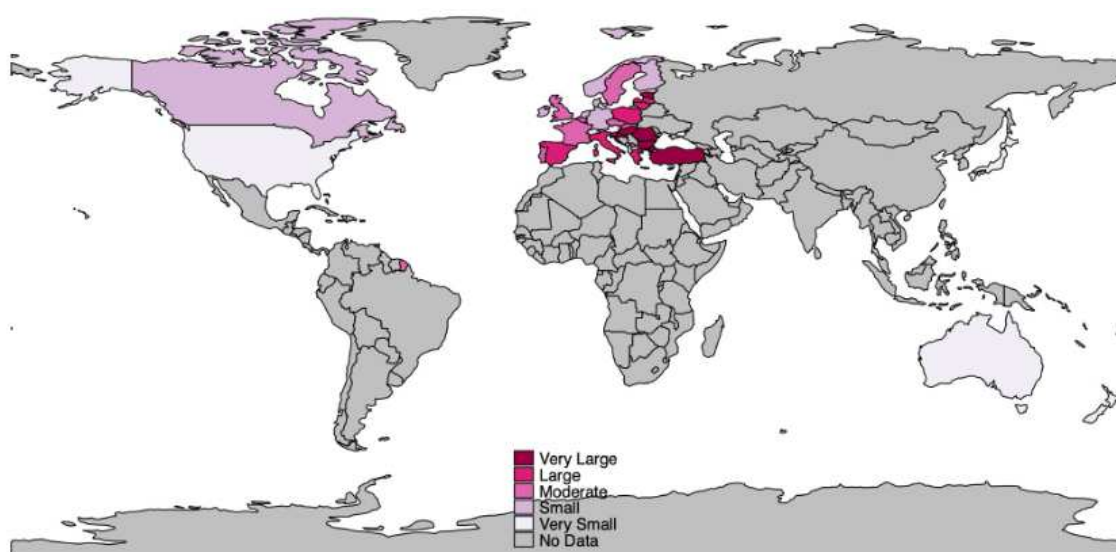
Figure A3: Tax Burden and Shadow Economy



Sources: Author's own calculations based on Schneider (2026) and World Development Indicators (World Bank, 2026).

Notes: Each dot represents one OECD country in either 2021 (grey) or 2023 (red). The x-axis plots tax revenue as a share of GDP and the y-axis plots shadow economy size. Separate OLS trend lines are fitted for each wave. The correlation coefficient is $r = -0.061$.

Figure A4: Shadow Economy Size in 2023 in OECD Countries



Sources: Author's own calculations based on Schneider (2026).

Notes: Map displaying shadow economy size as a percentage of GDP in 2023 across OECD sample countries. Countries are grouped into five categories: Very Small (6–10% of GDP), Small (10–12%), Moderate (12–19%), Large (19–24%), and Very Large (24–35%). Countries with no available data are shown in grey.

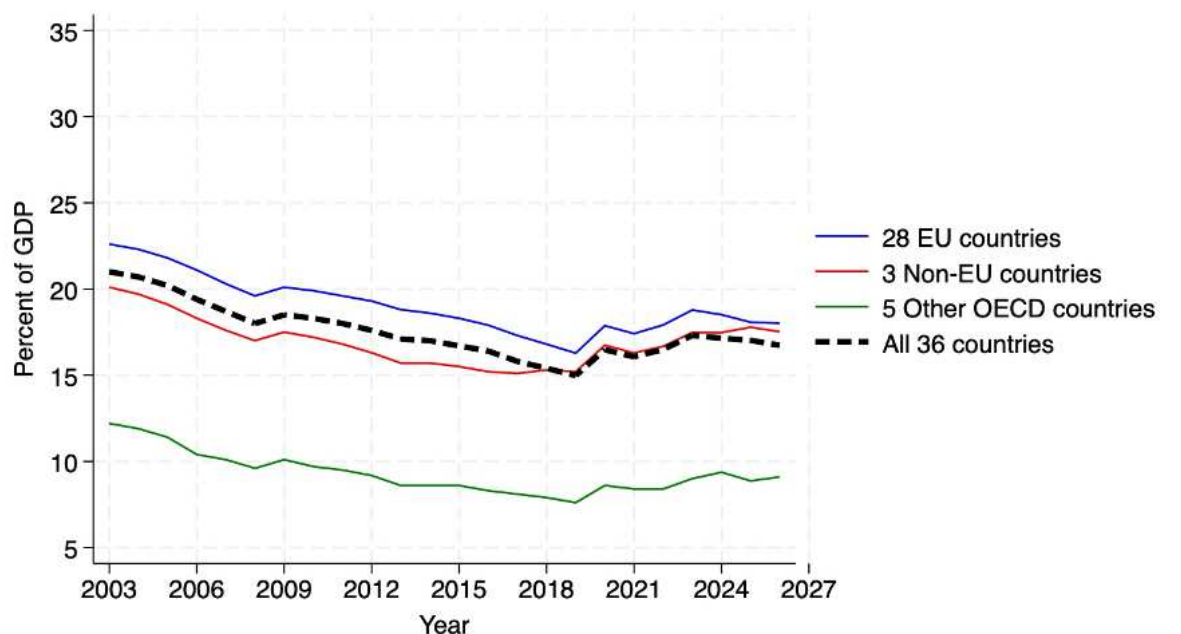
Finally, the near-horizontal trend lines in Figure A3 confirm that tax burden poorly explains a country's shadow economy size. The small negative coefficient ($r = -0.061$) suggests that high-tax countries are also high-compliance countries. This directly undermines the deterrence narrative (Allingham and Sandmo, 1972): if high taxes were the primary driver of evasion, high-tax countries should have substantially larger shadow economies. Instead, these countries have small shadow economies, while lower-tax countries have large ones, likely for reasons unrelated to the tax level.

The pattern across the geographic distribution of shadow economy size in 2023 in Figure A4 reflects well-established cross-national variation. This geographic distribution provides a useful descriptive baseline for the cross-country analysis.

On the other hand, the longitudinal analysis of the shadow economy from 2003 to 2026 (Figure A5) illustrates that the shadow economy is highly sensitive to global instability.²³ The 2008 financial crisis produced a visible spike across all groups. The COVID-19 pandemic generated a second, sharper discontinuity. In this study however, the most critical period is the ongoing Phase 5 (2021–2026). Unlike previous recoveries, the data shows it has now stabilised at elevated levels. This suggests the current expansion is not a standard cyclical fluctuation, or a temporary pandemic response. Instead, the persistence of these higher levels indicates that external variables are driving the shadow economy, consistent with the hypothesis that declining institutional trust and a fractured citizen-state contract are driving the persistence.

²³Phase 1 (2003–2008): steady pre-crisis formalisation across all groups. Phase 2 (2008–2009): financial crisis spike, consistent with the labour market exclusion effect. Phase 3 (2010–2019): recovery and return to the downward trend. Phase 4 (2019–2020): COVID-19 produced a sharp, synchronised spike across all groups.

Figure A5: Evolution of the Shadow Economy between 2003 and 2026 in OECD Countries



Sources: Author's own calculations based on Schneider (2026).

Notes: Each line plots the unweighted mean shadow economy size (% of GDP) for a country group over time. Groups are: 28 EU member states, 3 Non-EU countries (Norway, Switzerland, Turkey), 5 other OECD countries (Australia, Canada, Japan, New Zealand, USA), and the aggregate average across all 36 countries.

Table A1. Correlation Matrix of Macroeconomic Controls

Variable	(1)	(2)	(3)	(4)
(1) Shadow Economy (% GDP)	1.000			
(2) Log GDP per Capita	−0.569***	1.000		
(3) Tax Burden (% GDP)	−0.061	0.148	1.000	
(4) Unemployment Rate (%)	0.390**	−0.336*	0.074	1.000

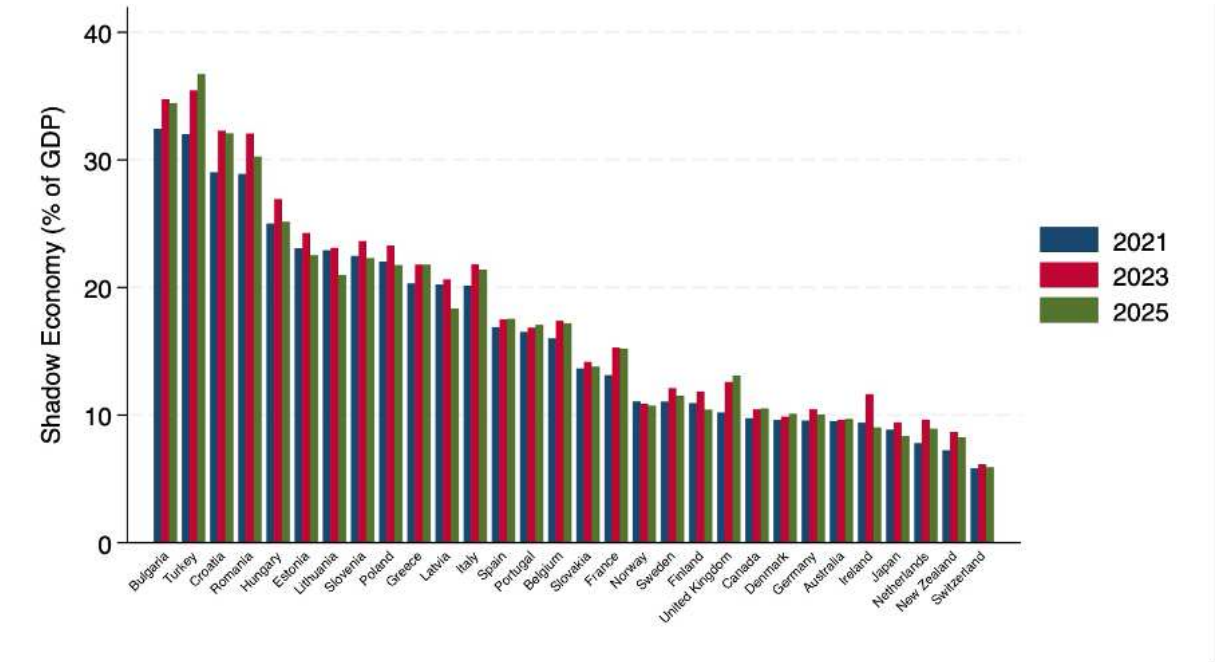
Sources: Author's own calculations based on Schneider (2026) and World Development Indicators (World Bank, 2026).

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Pairwise Pearson correlations ($N = 40$).

Sources: Author's own calculations based on Schneider (2026).

Notes: Choropleth map displaying shadow economy size as a percentage of GDP in 2021 across OECD sample countries. Countries are grouped into five categories: Very Small (6–10% of GDP), Small (10–12%), Moderate (12–19%), Large (19–24%), and Very Large (24–35%). Countries with no available data are shown in grey.

Figure A6: Evolution of Shadow Economy Size in 2021, 2023, and 2025 in OECD Countries



Sources: Author's own calculations based on Schneider (2026).

Notes: Grouped bar chart displaying shadow economy size (% of GDP) for each OECD country in the sample in 2021 (blue), 2023 (red), and 2025 (green), ranked by 2021 size. Country labels use ISO 3166-1 alpha-3 codes.

B Institutional Trust Measurement and Stylized Facts

B.1 Index Construction and Validation

Trust indices are constructed using a flexible row-averaging approach: for each respondent, the trust score for a given dimension is computed as the unweighted mean of all non-missing responses within that dimension's item set.²⁴ This preserves the 0–10 cardinal scale of the original survey instrument, making the coefficients directly interpretable and retaining respondents who skipped individual items without introducing attrition bias.

To validate this choice, Table A2 compares mean scores against Principal Component Analysis (PCA) factor scores across all institutional dimensions.²⁵ The near-perfect convergence ($r > 0.98$, $p < 0.001$ throughout) confirms that the items within each

²⁴OECD (2022) items: Fairness: Q20 (Equal treatment of all people), Q21 (Fairness in benefit applications), Q22 (Fairness in balancing societal needs). Responsiveness: Q8 (Improvement of poorly functioning services), Q9 (Adoption of innovative ideas), Q10 (Feedback on national policy). Reliability: Q11 (Emergency preparedness), Q12 (Data stewardship), Q13 (Stable business conditions). Integrity: Q4 (Judicial independence), Q5 (Likelihood of refusing bribes), Q6 (Parliamentary oversight), Q7 (Corporate lobbying). Openness: Q15 (Voice in local decisions), Q16 (Access to administrative information), Q17 (Explanation of reforms), Q18 (Participation in consultations), Q19 (Trust in statistics). Vertical trust: Q2_1 through Q2_11 (Trust in Government, Parliament, Civil Service, Courts, Police, etc.). Interpersonal trust: Q1 (Trust in other people).

²⁵Because interpersonal trust is measured by a single item, no Cronbach's alpha is available and no correction for measurement error is possible. This is a standard limitation in the trust literature (OECD, 2017) and is shared by every prior study using WVS interpersonal trust items.

Table A2. PCA vs. Mean Index

Trust Dimension	Correlation (r) between Mean and PCA
Integrity	0.9997*
Fairness	0.9995*
Responsiveness	0.9984*
Reliability	0.9980*
Openness	0.9966*
Vertical Trust	0.9866*

Sources: Author's own calculations based on OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: Pairwise Pearson correlations between simple mean-score trust indices and PCA-derived factor scores, computed on the full individual-level microdata sample ($N = 107,860$). All correlations significant at $p < 0.001$.

Table A3. Individual-Level Sample Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Trust Dimensions (0–10 scale)</i>					
Vertical Trust	83,925	5.164	2.070	0	10
Fairness Trust	82,294	5.527	2.221	0	10
Integrity Trust	81,533	4.756	2.121	0	10
Responsiveness Trust	82,612	4.724	2.118	0	10
Reliability Trust	79,775	5.605	2.397	0	10
Openness Trust	82,881	5.165	1.999	0	10
Interpersonal Trust	82,880	6.319	2.102	0	10

Sources: Author's own calculations based on OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: Individual-level microdata sample after merging with country-level macroeconomic controls, covering 25 OECD countries and two survey waves. Variation in N across dimensions reflects item-level non-response.

dimension capture a single latent construct with approximately equal reliability, rendering complex variance-based weighting unnecessary. The choice also follows the OECD's own recommended aggregation approach (OECD, 2022). Finally, the correlations between the seven trust dimensions average around $r = 0.55$.²⁶

At the individual level (Table A3), standard deviations of approximately 2.0–2.4 reveal substantial within-country variance that is masked by country-level aggregation, providing further motivation for the heterogeneity analysis. Moreover, Table A4 documents systematic differences in trust perceptions across demographic groups. It presents seven OLS regressions with gender, age group, education, income group, and origin as regressors alongside country and year fixed effects, weighted by standardised survey weights.

Women report significantly lower trust than men on six of seven dimensions, with the largest gaps on fairness ($\hat{\beta} = -0.147^{***}$) and interpersonal trust ($\hat{\beta} = -0.147^{***}$). The

²⁶The PCA reveals a single dominant component per dimension explaining between 55% and 67% of total within-block variance, with scoring coefficients across items remarkably uniform. For example, fairness loadings for Q20, Q21, and Q22 were 0.58, 0.56, and 0.57 respectively.

Table A4. Trust Perceptions by Demographic Group

	Fairness	Resp.	Reliab.	Integr.	Openness	Vertical	Interpers.
Female	−0.147*** (0.037)	−0.093** (0.044)	−0.098** (0.039)	0.018 (0.028)	−0.095** (0.035)	−0.083** (0.039)	−0.147*** (0.035)
Age 30–49	−0.081 (0.048)	−0.223*** (0.054)	−0.150*** (0.032)	−0.126*** (0.031)	−0.162*** (0.036)	−0.121*** (0.042)	0.134*** (0.038)
Age 50+	−0.124* (0.071)	−0.331*** (0.096)	−0.025 (0.066)	−0.180** (0.085)	−0.176*** (0.047)	0.146*** (0.049)	0.483*** (0.054)
Educ.: Middle	0.090 (0.052)	−0.028 (0.048)	0.041 (0.055)	−0.066 (0.050)	0.066 (0.041)	0.182*** (0.038)	0.138*** (0.042)
Educ.: High	0.443*** (0.080)	0.199** (0.080)	0.406*** (0.073)	0.141* (0.073)	0.382*** (0.062)	0.584*** (0.058)	0.493*** (0.054)
Income: Middle	0.326*** (0.044)	0.192*** (0.043)	0.355*** (0.044)	0.138** (0.057)	0.261*** (0.038)	0.372*** (0.036)	0.397*** (0.041)
Income: High	0.557*** (0.077)	0.313*** (0.051)	0.603*** (0.071)	0.249*** (0.070)	0.435*** (0.049)	0.587*** (0.056)	0.579*** (0.049)
Immigrant	0.206*** (0.042)	0.505*** (0.058)	0.237*** (0.047)	0.323*** (0.040)	0.361*** (0.045)	0.251*** (0.056)	0.008 (0.047)
<i>N</i>	60,021	60,133	58,370	59,590	60,303	60,815	60,336
<i>R</i> ²	0.078	0.048	0.063	0.050	0.054	0.085	0.073

Sources: Author's own calculations based on OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors clustered at the country level. Dependent variable: trust dimension score (0–10). All models include country and year fixed effects, weighted by country-year standardised survey weights. Reference categories: male, age 18–29, low education, low income, native-born.

sole exception is integrity, where the gender gap is near zero, suggesting that women are consistently more sceptical of institutional quality but do not differ from men in perceptions of corruption and anti-bribery norms. The age gradient is dimension-specific. Older citizens are significantly less trusting on responsiveness and openness: the 50+ group scores 0.33 points lower on responsiveness ($p = 0.002$) and 0.176 points lower on openness ($p = 0.001$) relative to the 18–29 reference group. The pattern reverses for vertical and interpersonal trust, where the 50+ group scores higher than the 18–29 reference group, consistent with social capital accumulation over the life course (Putnam, 1993). Education and income are strong and consistent positive predictors of trust across all dimensions, consistent with the theories of institutional engagement: citizens with greater economic and human capital have more to gain from formal institutions and more capacity to evaluate their performance. The most striking finding is that immigrants report significantly higher trust than native-born citizens on every institutional dimension, with the largest gaps on responsiveness ($\hat{\beta} = 0.505^{***}$) and openness ($\hat{\beta} = 0.361^{***}$). The only insignificant dimension is interpersonal trust, indicating that immigrants trust institutions more than natives but do not differ in their trust in other people. This finding is consistent with a positive selection narrative: immigrants who settled in a host country may have done so precisely because they perceived its institutions as superior to those of their origin country (Röder and Mühlau, 2012).

Table A5. Pairwise Correlation Matrix: Trust Dimensions and Macroeconomic Controls

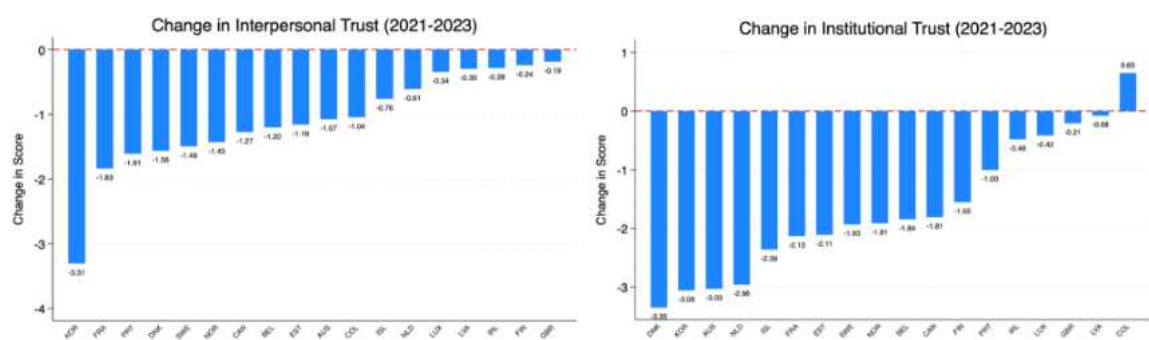
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Fairness	1.000									
(2) Responsiveness	0.403**	1.000								
(3) Reliability	0.796***	0.443***	1.000							
(4) Integrity	0.587***	0.503***	0.728***	1.000						
(5) Openness	0.786***	0.625***	0.712***	0.458***	1.000					
(6) Vertical Trust	0.688***	0.375**	0.831***	0.708***	0.535***	1.000				
(7) Interpers.	0.607***	0.146	0.661***	0.488***	0.391**	0.661***	1.000			
(8) Log GDP pc	0.381**	0.035	0.567***	0.416***	0.367**	0.562***	0.310*	1.000		
(9) Tax Burden	0.095	0.071	0.338**	0.311*	0.004	0.157	0.325**	0.148	1.000	
(10) Unemployment	-0.040	0.234	-0.100	-0.009	0.030	-0.143	-0.088	-0.336**	0.074	1.000

Sources: Author's own calculations based on Schneider (2026), OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves), and World Development Indicators (World Bank, 2026).

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. $N = 40$ for all pairs except those involving Reliability ($N = 39$).

B.2 Stylized Facts

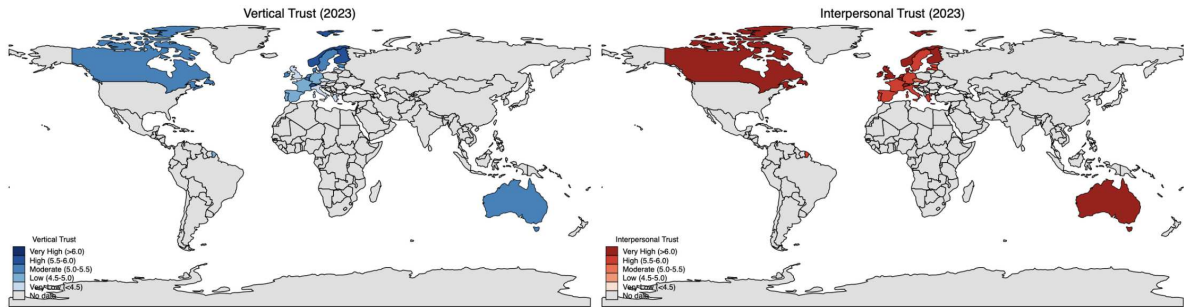
Figure A7: Changes in Interpersonal and Institutional Trust between 2021 and 2023 in OECD Countries



Sources: Author's own calculations based on OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: Bar charts display the change in mean country-level scores for interpersonal trust (left) and institutional trust in national government (right) between the 2021 and 2023 survey waves. Negative values indicate a decline in trust. Country labels use ISO 3166-1 alpha-3 codes.

Figure A8: Distribution of Institutional and Interpersonal Trust in 2023 in OECD Countries



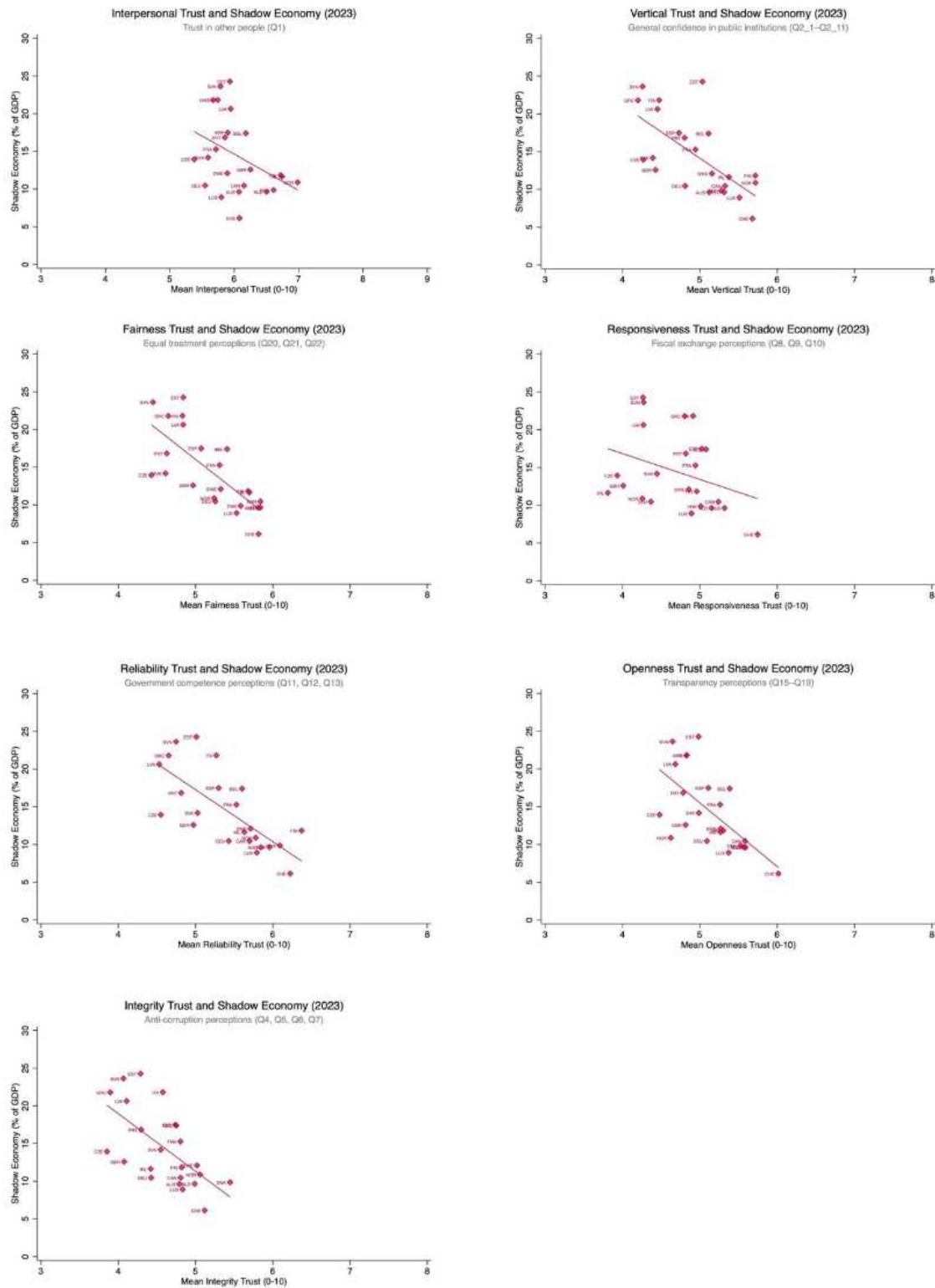
Sources: Author's own calculations based on OECD Survey on Drivers of Trust in Public Institutions (2023 wave).

Notes: Two maps displaying mean country-level scores for vertical trust (left) and interpersonal trust (right) in 2023. Countries are grouped into five categories: Very High (>6.0), High (5.5–6.0), Moderate (5.0–5.5), Low (4.5–5.0), and Very Low (<4.5). Countries with no available data are shown in grey. Country labels use ISO 3166-1 alpha-3 codes.

C Additional Empirical Analyses and Robustness Checks

C.1 Descriptive Statistics

Figure A9: Cross-Sectional Scatter Plots: Trust Dimensions vs. Shadow Economy



Sources: Author's own calculations based on Schneider (2026) and OECD Survey on Drivers of Trust in Public Institutions (2023 wave).

Notes: Seven panels, one for each trust dimension, each plotting mean country-level trust on the given dimension (x-axis, 0–10 scale) against shadow economy size (y-axis, % of GDP) for the 2023 cross-section.

Table A6. Country-Level Change in Shadow Economy and Trust Dimensions, 2021–2023

Country	Δ Shad.	Δ Fair	Δ Resp	Δ Rel	Δ Int	Δ Open	Δ Vert	Δ Interp	Score
United Kingdom	+2.39	−1.10	−0.50	−0.55	−0.27	−0.71	−0.54	−0.22	+2.95
Ireland	+2.24	−0.57	−0.39	−0.63	+0.08	−0.62	−0.14	+0.04	+2.56
France	+2.15	−0.40	−0.03	+0.03	−0.15	+0.02	+0.41	−0.47	+2.23
Netherlands	+1.85	−0.35	−0.10	−0.09	+0.13	−0.22	+0.00	−0.34	+1.99
Estonia	+1.20	−1.09	−0.79	−0.97	−0.48	−0.60	−0.35	−0.11	+1.83
Belgium	+1.38	−0.32	+0.32	+0.12	−0.02	+0.28	+0.37	−0.33	+1.32
Sweden	+1.05	−0.41	+0.10	−0.34	+0.02	−0.07	+0.18	+0.02	+1.12
Portugal	+0.33	−0.62	−0.38	−0.95	+0.14	−0.47	−0.37	−0.91	+0.84
Canada	+0.71	−0.45	−0.10	+0.19	−0.15	−0.29	+0.22	−0.25	+0.83
Latvia	+0.41	−1.00	+0.09	−0.72	−0.31	−0.35	+0.22	+0.04	+0.70
Luxembourg	+0.51	−0.68	−0.12	−0.21	+0.09	−0.14	−0.21	−0.03	+0.70
Denmark	+0.24	−0.50	+0.05	−0.58	−0.09	−0.07	−0.34	−0.09	+0.47
Norway	−0.17	−0.77	−0.11	−0.56	−0.42	−0.10	−0.47	−0.27	+0.21
Australia	+0.10	−0.06	+0.28	+0.36	+0.20	+0.13	+0.27	−0.03	−0.07
Finland	+0.89	−0.93	−0.17	n/a	−0.44	−0.25	−0.95	−0.15	n/a

Sources: Author's own calculations based on Schneider (2026) and OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: Sample restricted to the 15 OECD countries observed in both survey waves, ordered by Score in descending order. Score = Δ Shadow Economy − average Δ trust across all seven dimensions. Finland's reliability change and Score are not reported due to a missing observation in one wave.

Table A7. Individual-Level Sample Descriptive Statistics (Balanced Panel)

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Trust Dimensions (0–10 scale)</i>					
Vertical Trust Index	64,452	5.338	2.038	0	10
Fairness Trust Index	63,203	5.695	2.205	0	10
Integrity Trust Index	62,556	4.878	2.173	0	10
Responsiveness Trust Index	63,522	4.747	2.097	0	10
Reliability Trust Index	60,737	5.746	2.404	0	10
Openness Trust Index	63,711	5.225	1.996	0	10
Interpersonal Trust (Q1)	63,719	6.494	2.062	0	10
<i>Macroeconomic Indicators</i>					
Shadow Economy (% of GDP)	64,781	12.665	4.046	7.790	24.260
Log GDP per Capita	64,781	10.953	0.461	9.916	11.813
Unemployment Rate (%)	64,781	5.573	1.431	3.535	8.803
Tax Burden (% of GDP)	62,761	23.847	4.754	13.885	35.157

Sources: Author's own calculations based on OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: Balanced country sample covering 15 OECD countries and two survey waves. Variation in N reflects item-level non-response.

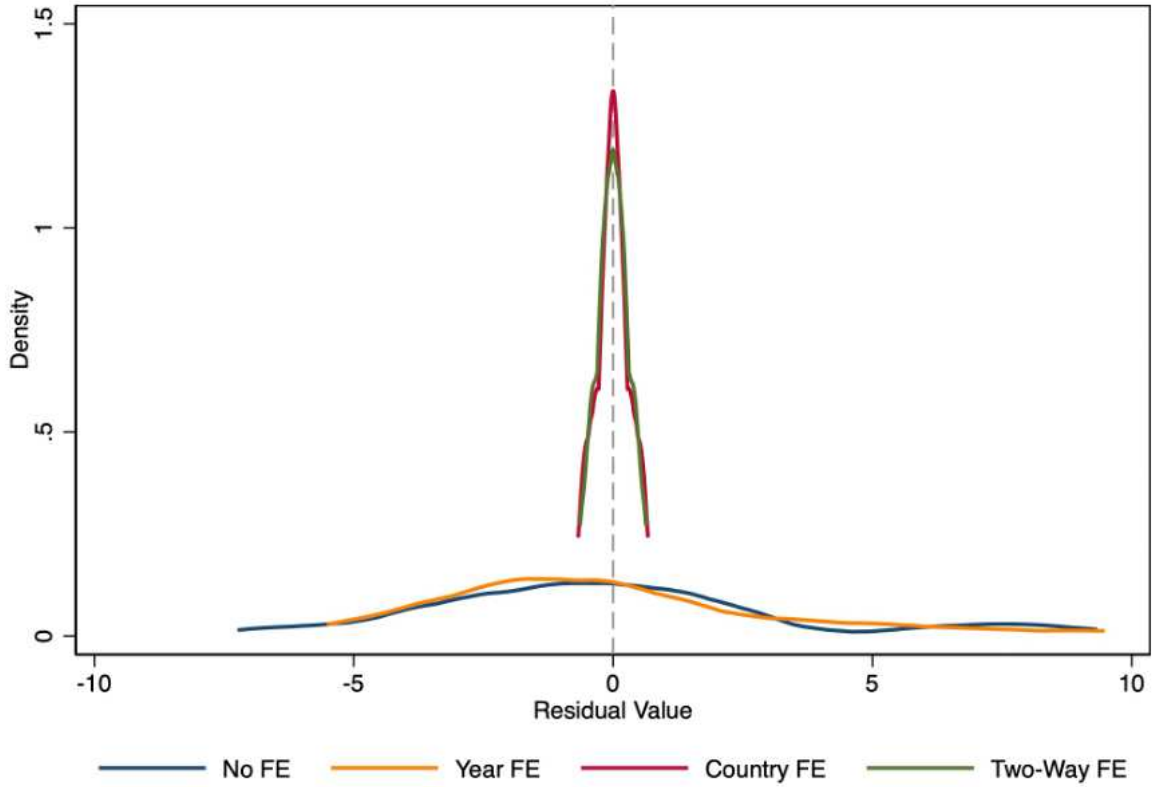
C.2 Standard Errors

Standard errors are clustered at the country level throughout (Cameron and Miller, 2015). Both the Breusch-Pagan test (Breusch and Pagan, 1979) and the White test (White, 1980) fail to reject homoskedasticity (BP: $\chi^2(1) = 1.53$, $p = 0.216$; White: $\chi^2(14) = 9.11$, $p = 0.824$), indicating no evidence of heteroskedastic error variance in the baseline specification. Clustering is nonetheless preferred over robust or non-clustered standard errors, motivated by the two-wave panel structure. This is the most conservative of the three feasible approaches, inflating trust dimension standard errors by approximately 5–15% relative to heteroskedasticity-robust standard errors and 5–20% relative to non-clustered OLS errors.²⁷

To quantify how much identifying variation the progressive inclusion of fixed effects absorbs, Figure A10 plots the kernel density of OLS residuals under four progressive specifications for the responsiveness model: no fixed effects, year fixed effect, country fixed effects, and two-way fixed effects. Without fixed effects, the residual distribution is wide and flat, spanning approximately -5 to $+9$ percentage points of GDP, with a root MSE

²⁷Given a low number of clusters, wild cluster bootstrap standard errors were computed for all separate regressions as a robustness check. Fairness and responsiveness remain significant at the 5% level under bootstrap inference; openness and reliability at the 10% level. The direction and magnitude of all estimates are unchanged. Full results are reported in Table A12.

Figure A10: Residual Distribution under Progressive Fixed Effects: Responsiveness



Sources: Author's own calculations based on Schneider (2026) and OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: Kernel density plots of OLS residuals from four specifications of the responsiveness model: no fixed effects (blue), year fixed effects (orange), country fixed effects (red), and two-way fixed effects (green).

of 3.56. This reflects the substantial cross-sectional heterogeneity in shadow economy size that remains unexplained by trust and macroeconomic controls alone. Adding only a year dummy leaves the residual distribution almost unchanged (the orange and navy curves are nearly indistinguishable), confirming that while the year dummy captures a statistically significant common upward trend ($\hat{\beta} = 3.159$, $p = 0.010$), this shift is small relative to the dominant between-country variation and absorbs negligible cross-sectional variance. Once country fixed effects are introduced, the distribution collapses into a sharp spike concentrated at zero, with root MSE falling to 0.62, an 83% reduction. The two-way fixed effects curve sits nearly on top of the country fixed effects curve, confirming that the year dummy adds little beyond what country dummies already absorb. Country fixed effects therefore dominate the identifying variation, leaving a residual standard deviation of just 0.62 percentage points for the within estimator. The absence of significant within-country effects is therefore an expected consequence of the variance structure, not evidence against the cross-sectional relationship.

C.3 Empirical Analysis

Table A8 presents seven separate regressions with no controls. Concerning the point estimates, the results show a rather consistent negative relationship between institutional trust and shadow economy. Six of seven dimensions are statistically significant at conventional level in bivariate models. The sole exception is responsiveness ($\hat{\beta} = -2.990$, $p = 0.132$), which is insignificant without controls but becomes the most robustly identified result once macroeconomic confounders are included. Jointly including all seven trust dimensions (Table A10) alongside controls confounds the estimates since the dimensions share substantial common variance.²⁸

Table A8. Bivariate Baseline: Shadow Economy on Each Trust Dimension

	(1) Fair.	(2) Resp.	(3) Reliab.	(4) Integr.	(5) Open.	(6) Vert.	(7) Interp.
Fairness	-5.316*** (0.960)						
Responsiveness		-2.990 (1.917)					
Reliability			-5.380*** (1.156)				
Integrity				-5.058*** (1.675)			
Openness					-6.465*** (2.074)		
Vertical Trust						-4.199*** (1.316)	
Interpersonal Trust							-3.390** (1.538)
<i>N</i>	40	40	39	40	40	40	40
<i>R</i> ²	0.349	0.066	0.332	0.187	0.249	0.222	0.103

Sources: Author's own calculations based on Schneider (2026) and OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors clustered at the country level. Each column is a separate bivariate OLS regression of shadow economy size (% of GDP) on one trust dimension with no macroeconomic controls. Reliability has $N = 39$ due to one missing country-year observation.

²⁸Joint model results are reported in Table A10. Fairness reaches borderline significance ($p = 0.099$) in the uncontrolled pooled OLS joint specification. Once a year dummy or country fixed effects are included, all dimensions lose significance, confirming that multicollinearity drives the fixed effects models (pairwise correlations averaging $r = 0.55$). The Country FE and Two-Way FE specifications achieve near-perfect fit ($R^2 \approx 0.997$) but are severely over-parametrised with only two observations per country and 25 country dummies. Sign reversals are identification artefacts, not substantive findings.

Table A9. Trust–Shadow Economy Relationship by Demographic Subgroup

	Fairness	Resp.	Reliab.	Integr.	Openness	Vertical	Interpers.
Panel A: Gender							
Male	−3.427** (1.383)	−2.782** (1.145)	−3.128** (1.419)	−2.317 (1.601)	−3.046* (1.545)	−1.602 (1.514)	−1.346 (1.267)
Female	−4.478** (1.797)	−4.001*** (0.977)	−2.485* (1.410)	−2.580 (1.804)	−4.322* (2.127)	−0.642 (1.282)	−0.239 (1.067)
Panel B: Age							
18–29	−2.769* (1.583)	−1.726* (0.881)	−1.822 (1.400)	−1.343 (1.139)	−3.283* (1.721)	−0.419 (1.239)	−0.931 (1.238)
30–49	−3.318** (1.462)	−2.675** (0.979)	−2.500 (1.545)	−2.662 (1.579)	−2.870 (1.756)	−0.931 (1.537)	−0.302 (1.125)
50+	−3.957** (1.568)	−3.826*** (1.217)	−2.834* (1.407)	−2.094 (1.537)	−3.872** (1.471)	−1.386 (1.205)	−0.806 (1.195)
Panel C: Education							
Low	−3.820** (1.602)	−2.949** (1.347)	−3.699** (1.387)	−1.895 (2.067)	−4.196*** (1.452)	−0.559 (1.303)	−1.193 (1.358)
Middle	−4.591*** (1.519)	−2.972*** (0.924)	−3.409** (1.384)	−2.474 (2.019)	−3.179** (1.443)	−1.141 (1.407)	−0.661 (1.225)
High	−2.723** (1.331)	−2.895*** (1.001)	−2.058* (1.177)	−2.173* (1.195)	−3.310** (1.482)	−1.303 (1.294)	−0.873 (1.172)
Panel D: Income (net)							
Low	−4.311*** (1.111)	−2.038 (2.059)	−3.076** (1.271)	−1.468 (2.129)	−3.814* (2.136)	−1.362 (1.395)	−1.841 (1.163)
Middle	−4.351*** (1.310)	−3.412*** (1.211)	−3.584*** (1.047)	−2.753* (1.479)	−3.818** (1.522)	−2.301* (1.349)	−2.618* (1.309)
High	−1.616 (1.428)	−1.387 (1.126)	−1.353 (1.231)	−2.188 (1.464)	−1.392 (1.260)	−1.147 (1.352)	−1.856 (1.278)
Panel E: Origin							
Native	−4.002** (1.561)	−3.436*** (1.152)	−2.637* (1.355)	−2.172 (1.719)	−3.499** (1.717)	−0.975 (1.375)	−0.842 (1.127)
Immigrant	−2.006 (1.738)	−2.237** (1.048)	−4.144** (1.997)	−1.802 (1.886)	−2.911 (2.117)	−1.053 (1.250)	1.663 (1.083)

Sources: Author’s own calculations based on Schneider (2026), OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves), and World Development Indicators (World Bank, 2026).

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors are robust. Each cell reports the OLS coefficient on the trust dimension from a separate regression of shadow economy size (% of GDP) controlling for log GDP per capita, tax burden, unemployment rate, and a year fixed effect. Trust means are collapsed to country-year-group level. $N = 40$ for most regressions ($N = 39$ for reliability).²⁹

²⁹ $N = 39$ due to one missing observation on reliability (Finland, 2021).

Table A10. Joint Models: Fixed Effects

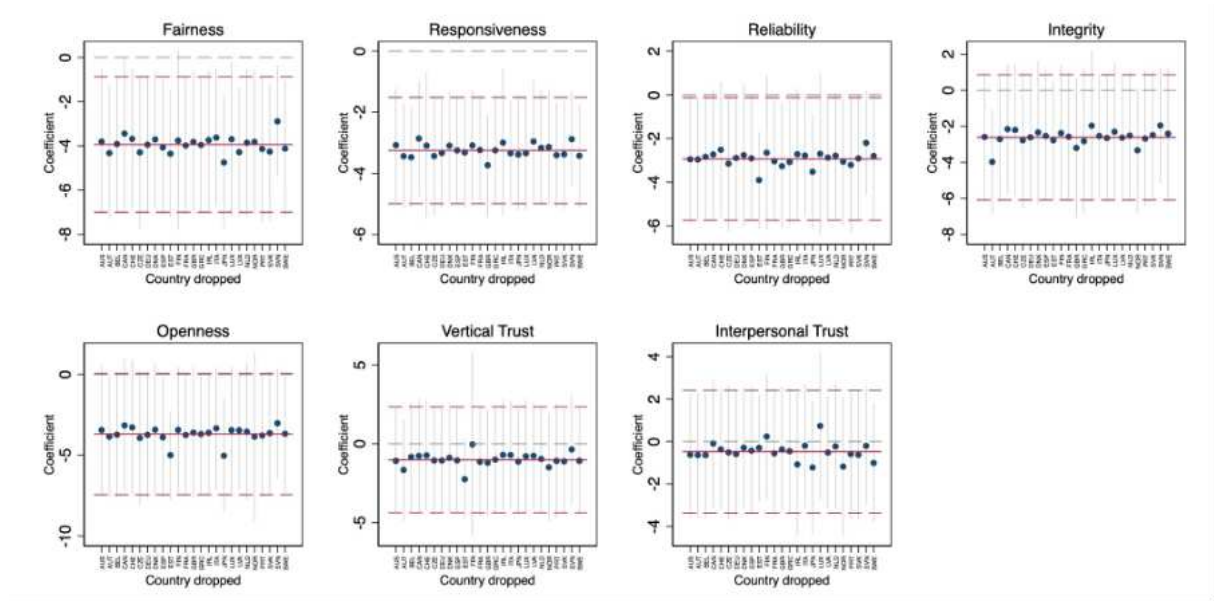
	(1) Pooled OLS	(2) Year FE	(3) Country FE	(4) Two-Way FE
Fairness	−4.451* (2.596)	−3.740 (4.125)	−1.759 (4.115)	−0.193 (9.852)
Responsiveness	−2.824 (2.757)	−2.816 (2.790)	−2.440 (4.380)	−0.937 (8.940)
Reliability	−3.100 (2.744)	−2.994 (2.836)	1.107 (3.123)	1.104 (3.768)
Integrity	−0.033 (2.101)	−0.215 (2.173)	1.640 (4.172)	0.618 (7.259)
Openness	2.571 (4.217)	2.161 (4.641)	0.008 (5.823)	−2.053 (12.770)
Vertical Trust	3.771 (4.467)	3.732 (4.591)	1.226 (2.071)	1.215 (2.444)
Interpersonal Trust	0.587 (2.538)	0.503 (2.548)	−0.113 (3.860)	−0.461 (4.591)
<i>Macroeconomic Controls</i>				
Log GDP pc	−6.204 (4.593)	−6.528 (4.720)	0.780 (16.410)	−4.136 (32.181)
Tax Burden	0.055 (0.105)	0.059 (0.109)	−0.184 (0.328)	−0.026 (0.928)
Unemployment	0.804*** (0.281)	0.807** (0.292)	−0.193 (1.310)	0.235 (2.657)
Year FE	No	Yes	No	Yes
Country FE	No	No	Yes	Yes
N	39	39	39	39
R^2	0.608	0.609	0.997	0.997

Sources: Author's own calculations based on Schneider (2026), OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves), and World Development Indicators (World Bank, 2026).

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. All seven trust dimensions enter simultaneously. Standard errors clustered by country (25 clusters). $N = 39$ due to one missing reliability observation. Country FE and Two-Way FE achieve near-perfect fit ($R^2 \approx 0.997$) but are severely over-parameterised. Sign reversals are identification artefacts.

C.4 Robustness Checks

Figure A11: Robustness to Country Exclusion



Sources: Author's own calculations based on OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: OLS coefficient on each trust dimension from 25 separate regressions, each dropping one country from the sample. The red solid line is the baseline coefficient from the full $N = 40$ sample and the red dashed lines are the baseline 95% confidence interval. Controls include log GDP per capita, tax burden, unemployment, and year FE.

Table A11. Oster, 2019 Sensitivity Analysis: Coefficient Stability

Trust Dimension	$\hat{\beta}$ (controlled)	$\hat{\beta}$ (uncontrolled)	R^2 (ctrl.)	R^2 (unctrl.)	Oster δ
Fairness	-3.937**	-5.316	0.552	0.349	0.416
Responsiveness	-3.253***	-2.990	0.556	0.066	6,488
Reliability	-2.933*	-5.380	0.533	0.332	0.400
Openness	-3.688*	-6.465	0.541	0.248	0.769

Sources: Author's own calculations based on Schneider (2026), OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves), and World Development Indicators (World Bank, 2026).

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Oster (2019) sensitivity test. $\hat{\beta}$ (controlled) is the coefficient from the main specification including log GDP per capita, tax burden, unemployment, and year FE ($N = 40$). $\hat{\beta}$ (uncontrolled) is the bivariate coefficient. Oster δ is the degree of selection on unobservables relative to observables required to explain away the result, assuming $R^2_{\max} = 0.90$. $\delta > 1$ indicates robustness to omitted variable bias.

Table A12. Cluster Bootstrap Sensitivity Check: Separate Regressions

	(1) Fair.	(2) Resp.	(3) Reliab.	(4) Integr.	(5) Open.	(6) Vert.	(7) Interp.
Fairness	−3.937** (1.561)						
Responsiveness		−3.253** (0.888)					
Reliability			−2.933* (1.433)				
Integrity				−2.615 (1.774)			
Openness					−3.688* (1.917)		
Vertical Trust						−1.021 (1.710)	
Interpersonal Trust							−0.483 (1.473)
Bootstrap p	0.042	0.015	0.090	0.208	0.095	0.589	0.762
N	40	40	39	40	40	40	40
R^2	0.552	0.556	0.533	0.520	0.541	0.492	0.486

Sources: Author's own calculations based on Schneider (2026) and OECD Survey on Drivers of Trust in Public Institutions (2021 and 2023 waves).

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. (999 replications, Rademacher weights). Each column is a separate OLS regression of shadow economy size (% of GDP) on one trust dimension with macroeconomic controls (log GDP per capita, tax burden, unemployment) and a year fixed effect. Standard errors clustered by country (25 clusters) in parentheses. Reliability has $N = 39$ due to one missing country-year observation.