

Fiscal Geometry: Institutional Distortion in OECD Pillar Two Across an X–Y Fiscal Plane

Author: Jim Y. Huang*

1. Introduction

The OECD/G20 two-pillar project represents a shift from incremental anti-avoidance measures toward globally coordinated rule packages whose effects materialize through implementation systems. From Pillar One to Pillar Two and into implementation, the analytical challenge is no longer confined to interpreting individual provisions. It becomes a representational problem: how to read and compare the interaction between a global rule package and heterogeneous domestic fiscal execution systems without reducing the analysis to jurisdiction-by-jurisdiction narrative description (OECD, 2021a; OECD, 2021b).

As Pillar Two advances through the Global Anti-Base Erosion (GloBE) Model Rules and associated guidance, rule density increases across computation, reporting, verification, and audit pathways. These pathways operate as interfaces where capital is classified, reclassified, and constrained under legally accountable conditions. Conventional doctrinal or policy-oriented analyses can describe objectives and trade-offs, but they are not designed to preserve structural readability across the Pillar One → Pillar Two → implementation progression, where interaction effects arise from the coexistence of global coordination and domestic execution (OECD, 2021b).

This paper addresses that representational gap by employing Fiscal Geometry as a technical grammar for reading dense rule systems. The unit of analysis is the rule–capital event: a discrete encounter in which a rule is operationalized at an interface—such as calculation, reporting, crediting, or verification—producing auditable traces that can be treated as points and paths rather than narrative claims (Huang, 2025a; Huang, 2025b). The methodological premise is that institutional analysis should prioritize information produced within formal responsibility chains—rules, administrative classifications, and official fiscal aggregates—because these sources are generated under explicit accountability constraints.

In this paper, Fiscal Geometry functions as the underlying representational grammar. When this grammar is executed at the level of rule-triggered encounters—where rules are instantiated through calculation, reporting, verification, and enforcement interfaces—the analysis operates at an event-based layer.

This event-level operationalization of Fiscal Geometry may be referred to as *Fiscal Event Geometry (FEG)*, not as a separate framework, but as a descriptive expression of FG when institutional interaction is read through rule–capital events as the unit of analysis.

The coordinate commitments are fixed. The horizontal axis (X) captures cross-jurisdictional fiscal shift, representing the reclassification of capital as it traverses rule interfaces across tax jurisdictions. The vertical axis (Y) captures intergenerational post-tax capacity as a downward

transmission path, representing how post-tax private capacity is carried forward under rule-defined constraints (Huang, 2025b). Within this two-axis plane, the Pillar One-to-Pillar Two progression is treated as an event-generating process whose implementation produces observable geometric forms—trajectories, clusters, and bottlenecks—arising from duplicated pathways, interface congestion, and audit indeterminacy (Huang, 2025a).

The purpose of this paper is strictly technical and diagnostic. It does not evaluate policy intentions or propose reforms. Instead, it provides a replicable representational method for locating and comparing institutional distortion generated by globally coordinated fiscal rules as they are instantiated within domestic execution systems.

2. From Pillar One to Pillar Two: Rule Development as an Event-Generating Process

Pillar One and Pillar Two are commonly presented as distinct policy responses to different dimensions of digitalisation and profit shifting. From a technical perspective, however, they can be read as successive stages in the construction of a coordinated rule system whose primary effect lies in how rules are operationalized rather than in how they are articulated. The transition from Pillar One to Pillar Two therefore marks a shift in the density, scope, and enforceability of rule-triggered fiscal interactions (OECD, 2021a).

Pillar One introduced a reallocation logic that decoupled taxing rights from traditional physical presence, relying on formulaic thresholds, scope filters, and allocation keys. Although its political visibility was high, its operational footprint remained relatively constrained. Implementation depended on multilateral agreement, coordination of scope definitions, and limited points of interaction between global rules and domestic tax systems. As a result, Pillar One generated a comparatively narrow set of rule-capital events, concentrated around nexus determination and profit allocation interfaces (OECD, 2021a).

Pillar Two represents a structural escalation. Rather than reallocating taxing rights in specific cases, it establishes a minimum effective tax floor enforced through interlocking domestic and cross-border mechanisms. The Global Anti-Base Erosion (GloBE) rules introduce multiple, recurring interfaces: jurisdictional blending calculations, covered tax determinations, top-up tax computations, ordering rules, and information reporting requirements. Each interface functions as a rule-defined gate through which capital, income, and fiscal capacity are repeatedly classified and reclassified (OECD, 2021b).

From a Fiscal Geometry perspective, this shift is analytically significant because it multiplies the number and frequency of fiscal events. Under Pillar Two, the same underlying income may encounter several rule interfaces across accounting, computation, reporting, and verification stages. These encounters are not exceptional; they are structural features of the design. As implementation progresses, rule density increases not only vertically within a single jurisdiction's tax system but also horizontally across jurisdictions through coordinated enforcement and information exchange mechanisms.

Reading the Pillar One-to-Pillar Two progression as an event-generating process allows development to be analyzed as motion rather than as static institutional change. Each phase introduces new event types and modifies existing pathways, altering how fiscal capacity moves across jurisdictions and how post-tax capacity is constrained downstream. The analytical focus thus shifts from the intent or objectives of individual pillars to the observable structure produced when coordinated global rules are instantiated within heterogeneous domestic execution systems.

This framing sets the stage for the methodological sections that follow. By treating Pillar development as a sequence of rule-triggered fiscal events, it becomes possible to map their interaction within a two-axis fiscal plane and to examine how increasing rule density gives rise to identifiable geometric forms associated with institutional distortion.

2.1 Why the Pillar One → Pillar Two Progression: A Two-Axis Reading of OECD Design Drivers

The development from Pillar One to Pillar Two can be read as a sequence of design responses to the tax challenges arising from digitalisation and globalisation, structured around two distinct but interacting governance pressures: (i) reallocating taxing rights to market jurisdictions where physical presence is no longer a reliable nexus proxy, and (ii) placing a floor under tax competition and remaining BEPS incentives through a coordinated minimum tax system. (OECD, 2020; OECD, n.d.-a; OECD, n.d.-b)

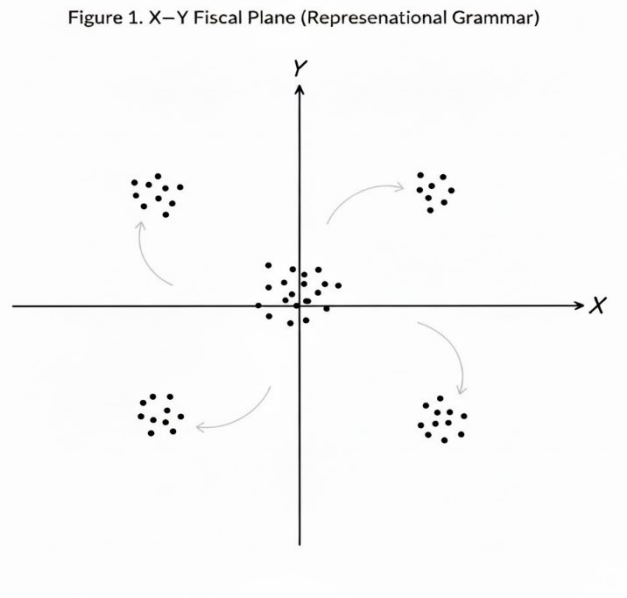
2.1.1 The Pillar One Driver: Market Nexus and Allocation as X-Axis Repositioning

Pillar One (notably Amount A) is fundamentally a nexus-and-allocation project aimed at reallocating taxing rights over a portion of residual profits to market jurisdictions, including where the multinational enterprise has no physical presence. (OECD, n.d.-b) Within the X–Y plane, this logic is primarily expressed as X-axis repositioning: the rule package creates new cross-jurisdictional interfaces that shift fiscal position toward markets through rule-triggered reclassification of taxing rights and allocation bases.

Technically, the Pillar One design driver can be stated in FG terms as follows: when the conventional physical presence nexus becomes structurally unstable under digitalisation, the system introduces new rule gates (thresholds, scope filters, allocation keys) that generate fiscal events concentrated at market-nexus determination and profit reallocation interfaces. (OECD, n.d.-b) This produces relatively sparse but high-salience event points on the X-axis, because the design's central mechanism is jurisdictional reallocation rather than recurring minimum-tax enforcement.

Figure 1 presents the X–Y fiscal plane as a neutral representational grammar for mapping rule-triggered fiscal events, trajectories, and clustering prior to substantive interpretation.

Figure 1. The X–Y fiscal plane as a representational grammar, illustrating rule-triggered fiscal events, trajectories, and clustering without reference to jurisdiction-specific data.



2.1.2 The Pillar Two Driver: Minimum Tax as X-Axis Interface Multiplication and “Flooring” Dynamics

Pillar Two introduces a different design driver: ensuring that large multinational enterprises pay a minimum level of tax in each jurisdiction where they operate, thereby reducing incentives for profit shifting and placing a floor under tax competition. (OECD, n.d.-a; OECD, 2023) The OECD describes Pillar Two’s function explicitly in these terms, including its role in “bringing an end to the race to the bottom on corporate tax rates.” (OECD, 2023)

In the X–Y plane, Pillar Two increases rule density by multiplying implementation interfaces across jurisdictions: jurisdictional ETR computation, covered tax determinations, top-up tax calculations, ordering rules, and reporting/verification pathways. (OECD, 2021; OECD, 2023) In FG terms, this is an expansion of event frequency and interface coupling on the X-axis: the same underlying income is repeatedly processed through coordinated gates across multiple jurisdictions and administrative systems, generating clustered compliance pathways and audit-facing verification structures.

This helps explain *why* Pillar Two develops as a high-density implementation architecture. A “floor” under tax competition is not accomplished by a single allocation decision; it requires recurring, repeatable minimum-tax enforcement logic that can operate through domestic adoption and cross-border coordination without a supranational enforcement authority. (OECD, 2021; Abbott & Snidal, 2000)

2.1.3 Why the Progression Intensifies: From Political Reallocation to Operational Enforcement

The Pillar One-to-Pillar Two progression can therefore be read as an intensification from a reallocation-oriented design (high salience, lower event frequency) toward an enforcement-oriented design (high event frequency, high interface coupling). The OECD’s programme of work explicitly distinguishes the pillars along these lines: Pillar One focuses on nexus and profit allocation, while Pillar Two focuses on a global minimum tax intended to address remaining BEPS issues. (OECD, 2020)

Under FG, the reason the later stage appears “more operational” is structural rather than rhetorical: a minimum tax architecture must be executed through repeated calculation, reporting, and verification cycles, so its event chains naturally become longer and denser. (OECD, 2021; OECD, 2023)

2.1.4 The Y-Axis Link: Post-Tax Capacity Under Distributed Authority

The OECD materials justify Pillar Two in terms of reducing profit shifting incentives and limiting tax competition. (OECD, n.d.-a; OECD, 2023) In the two-axis grammar, those design drivers are expressed as Y-axis constraints indirectly produced by repeated X-axis event chains. Specifically, when minimum-tax enforcement is operationalized through recurring interfaces, it constrains the space within which post-tax capacity can be carried forward under rule-defined conditions. This is not a behavioural claim; it is a representational claim about how repeated rule execution defines the boundaries of residual post-tax capacity over time within distributed authority systems. (Huang, 2025a; Huang, 2025b)

Accordingly, the “why” of Pillar Two’s development—its density, its interface emphasis, and its reliance on coordinated domestic execution—can be expressed as an X–Y structural statement: Pillar Two is designed to generate repeatable cross-jurisdictional enforcement events (X) that collectively impose a stable floor condition on tax competition, thereby shaping the boundary conditions of residual post-tax capacity transmission (Y). (OECD, 2021; OECD, 2023)

2.2 Tax Base Protection and Cross-Border Enforceability: Treaties as X–Y Interfaces

A recurring theme in international tax coordination is “tax base protection”—the idea that coordinated rules can reduce base erosion and profit shifting by aligning domestic regimes and limiting arbitrage across jurisdictions. In OECD framing, BEPS measures and the two-pillar project are explicitly positioned as instruments to address base erosion and ensure that profits are taxed where economic activity and value creation occur. (OECD, n.d.; OECD, 2021b)

However, “tax base protection” should not be treated as synonymous with cross-border enforceability. Under international coordination, rule design and administrative capacity are distributed across sovereign jurisdictions. While tax treaties and multilateral cooperation

instruments can facilitate administrative coordination, they do not create a unified enforcement chain comparable to domestic law. This distinction matters analytically because it explains why a system can expand its rule density for base protection while still exhibiting structural limits in cross-border recovery and execution. (Abbott & Snidal, 2000; OECD, 2021b)

2.2.1 The Enforceability Gap as a Structural Condition

Within domestic legal systems, enforceability is vertically integrated: legislative authority, administrative execution, and judicial mechanisms operate within a single sovereignty. In cross-border settings, enforcement is structurally conditional. A jurisdiction generally cannot unilaterally collect its tax claim in another jurisdiction without an agreed assistance mechanism, and even where such mechanisms exist, they operate under defined scope limits, procedural constraints, and reservations. (OECD, 2010; OECD, 2017)

This produces a persistent governance condition: international tax coordination can increase the density of rules intended to protect tax bases, but cross-border enforceability depends on the availability and practical operation of administrative assistance channels—especially assistance in recovery (collection). (OECD, 2010; OECD, n.d.)

2.2.2 Treaties and Mutual Assistance as X-Axis Interfaces

In the Fiscal Geometry grammar, tax treaties and administrative assistance instruments are not treated as “background context.” They are treated as **X-axis interfaces**: institutional gates through which fiscal claims, classifications, and administrative capacities can move across jurisdictions.

At a minimum, tax treaties structure cross-border fiscal positioning through allocation rules (source/residence coordination) and procedural mechanisms (information exchange, dispute resolution, and in some cases assistance in collection). (Arnold, 2014) Where assistance in collection exists, it provides a formal interface for a requesting state to seek recovery of a tax claim through the requested state’s collection apparatus, subject to treaty conditions and domestic legal constraints. (OECD, 2017)

At the multilateral level, the Convention on Mutual Administrative Assistance in Tax Matters explicitly includes assistance in recovery (collection) among its cooperation forms, while also recognizing that countries may lodge reservations—meaning recovery assistance is not uniformly available across all parties and all taxes. (OECD, 2010; OECD, 2011) The Convention also contains structural limitations (e.g., procedural constraints and time limits for requests), which reinforces that “existence of a cooperation framework” is not equivalent to universal enforceability. (OECD, 2010)

Under the X-axis definition, these instruments operationalize a specific type of horizontal movement: not physical capital movement, but **cross-jurisdictional movement of fiscal claims and administrative action** through legally defined interfaces. The presence, scope, and usability

of these interfaces affect the degree to which global base-protection rules can be executed as intended across borders. (OECD, 2010; OECD, 2017)

2.2.3 The Same Instruments Also Produce Y-Axis Effects

Although treaties are often discussed as cross-border allocation devices, they also have an analytically relevant Y-axis dimension under this paper’s coordinate commitments. The Y-axis represents intergenerational post-tax capacity as a downward transmission path. When collection and recovery interfaces operate (or fail to operate) across borders, they alter the boundary conditions of residual post-tax capacity available to be carried forward under rule-defined constraints.

This is not a behavioural claim and does not assume particular taxpayer strategies. It is a representational claim: enforceability conditions shape the stability and predictability of post-tax capacity constraints across time. In the FG reading, the “recovery interface” is therefore a hinge point connecting cross-border fiscal shift (X) with downstream capacity boundaries (Y), because the realization of a tax claim (or its non-realization) changes the realized post-tax residual available for intergenerational transmission. (Huang, 2025a; Huang, 2025b)

2.2.4 A Demonstration Phenomenon: Base Protection without Unified Recovery

This section’s demonstration phenomenon can be stated precisely: a coordination regime can intensify “tax base protection” through dense global rule design (e.g., minimum tax computations, reporting, verification), while still operating under a structurally non-unified recovery architecture.

In practical terms, Pillar Two increases rule density through recurring computation and reporting interfaces, but cross-border recovery remains conditional on treaty coverage or multilateral assistance channels, subject to limitations and reservations. (OECD, 2010; OECD, 2021b) The analytical implication for Fiscal Geometry is straightforward:

- Pillar Two primarily increases event frequency and interface coupling through rule-execution chains. (OECD, 2021b)
- Treaties and mutual assistance mechanisms determine whether certain event chains can translate into cross-border administrative action, including recovery, thereby shaping the realized geometry of implementation across jurisdictions. (OECD, 2010; OECD, 2017)

Accordingly, “tax base protection” should be read as a design objective expressed through dense rule generation, while “enforceability” should be read as an interface property that varies with the availability and operation of treaty-based or multilateral recovery channels. Treaties therefore belong inside the FG representation—not as narrative background, but as measurable interfaces that shape both X-axis motion and Y-axis boundary conditions.

3. Method: Fiscal Events within Fiscal Geometry

This section sets out the methodological grammar used in the paper. The objective is not to interpret policy intent, but to establish a consistent way to represent how coordinated global rules generate observable institutional interaction once they are operationalized. Fiscal Geometry is used as a descriptive coordinate system, and fiscal events serve as the unit of analysis.

3.1 Fiscal Events as the Unit of Analysis

A fiscal event is defined as a rule-triggered, legally accountable interaction in which capital encounters an institutional interface. Such interfaces include, but are not limited to, calculation layers, reporting thresholds, crediting or offset mechanisms, information exchange requirements, and verification or audit triggers. What distinguishes a fiscal event from a narrative description is that it is anchored in formal rule execution and produces auditable traces within administrative systems (Huang, 2025a; Huang, 2025b).

Under Pillar Two, fiscal events are not episodic. They are recurrent and cumulative. Jurisdictional effective tax rate calculations, covered tax determinations, top-up tax computations, and ordering rules generate repeated encounters between the same underlying income and multiple rule interfaces. Each encounter constitutes a distinct fiscal event, even when applied to the same tax base, because each event occurs under a different rule condition and accountability structure (OECD, 2021b).

3.2 Two-Axis Fiscal Geometry

Fiscal Geometry maps fiscal events onto a fixed two-axis plane. The axes are not variables to be estimated; they are coordinate commitments that define how institutional interaction is read.

The horizontal axis (X) represents cross-jurisdictional fiscal shift. Movement along the X-axis captures the reclassification of capital as it traverses rule interfaces across tax jurisdictions, including changes induced by coordinated minimum tax enforcement, ordering rules, and information-sharing mechanisms. Horizontal displacement therefore reflects how global rules reorganize fiscal position across jurisdictions rather than within a single tax system (Huang, 2025a).

The vertical axis (Y) represents intergenerational post-tax capacity as a downward transmission path. Vertical movement captures how post-tax private capacity is constrained, preserved, or depleted under rule-defined conditions as it is carried forward across time. The Y-axis is directional and non-reversible, reflecting the structural reality that post-tax capacity transmission operates only downward across generations (Huang, 2025b).

Together, the two axes allow fiscal events to be positioned relative to both cross-border rule interaction and downstream capacity constraints, without introducing behavioural assumptions or normative evaluation.

3.3 Event Sequences and Institutional Motion

Individual fiscal events rarely operate in isolation. Under coordinated rule systems such as Pillar Two, events form sequences linked by computation logic, reporting dependencies, and verification pathways. When mapped onto the X–Y plane, these sequences appear as trajectories rather than isolated points.

As rule density increases, trajectories may converge, overlap, or diverge, producing identifiable geometric forms. Repeated encounters with similar interfaces generate clusters, while tightly coupled computation and verification pathways produce bottlenecks. Extended sequences of constrained movement may form corridor-like structures, reflecting persistent structural distortion generated by rule interaction rather than by discretionary enforcement (Huang, 2025a).

In this methodological framing, “interaction” refers to the geometry of these event sequences. It does not imply causal attribution or policy evaluation. Interaction is observed where rule-generated pathways intersect, compress, or fragment within the coordinate plane.

3.4 Methodological Scope and Limits

The method is intentionally representational. It does not model taxpayer behaviour, market responses, or welfare outcomes. Its inputs are limited to publicly accountable materials: rule texts, implementation guidance, formal reporting requirements, and observable administrative interfaces. Its outputs are geometric descriptions of institutional motion that can be replicated across jurisdictions using the same coordinate commitments.

By fixing the unit of analysis (fiscal events) and the coordinate grammar (Fiscal Geometry), the method provides a stable foundation for examining how Pillar One–to–Pillar Two development translates into operational structure. The following section applies this method to read the Pillar progression as motion on the X–Y plane.

4. Reading the Pillar Progression as Motion on the X–Y Plane

This section applies the methodological grammar introduced above to read the development from Pillar One to Pillar Two, and into implementation, as institutional motion rather than as static rule change. Once rules are treated as generators of fiscal events, their interaction can be observed as movement within the two-axis fiscal plane.

4.1 From Event Generation to Trajectories

Under Pillar One, fiscal events are relatively sparse and episodic. They arise primarily at nexus determination and profit reallocation points, producing limited horizontal displacement and weak

vertical coupling. As a result, event sequences remain short, and their geometric representation is dominated by isolated points or shallow trajectories.

Pillar Two alters this structure. The introduction of minimum effective tax rules transforms implementation into a recurring, multi-stage process. Jurisdictional blending, covered tax calculations, top-up determinations, and ordering rules generate repeated fiscal events linked through computation and reporting dependencies. When these linked events are mapped onto the X–Y plane, they form extended trajectories rather than discrete points. The length and density of these trajectories increase as implementation matures.

In this framing, development is not measured by legal completeness or political adoption, but by the expansion and thickening of event sequences. The more frequently capital encounters rule interfaces, the more pronounced the observable motion becomes.

4.2 Horizontal Displacement and Cross-Jurisdictional Interaction (X)

Horizontal movement reflects cross-jurisdictional fiscal shift. Under Pillar Two, the same income may be evaluated simultaneously under domestic tax rules, coordinated minimum tax rules, and foreign inclusion mechanisms. Each evaluation constitutes a distinct fiscal event, and the coordination between them generates horizontal displacement across jurisdictions.

This displacement does not imply physical movement of capital. It reflects reclassification and reallocation within a coordinated rule system. Horizontal compression occurs when multiple jurisdictions assert overlapping rule claims over the same income base, while horizontal dispersion occurs when ordering rules and credit mechanisms redistribute fiscal capacity across jurisdictions. These patterns become visible only when events are read in relation to one another rather than in isolation.

4.3 Vertical Constraint and Post-Tax Capacity (Y)

Vertical movement captures how post-tax capacity is bounded as rule density increases. Pillar Two introduces constraints that operate downstream of computation, limiting the residual capacity carried forward after coordinated tax enforcement. These constraints are applied repeatedly across periods, creating a cumulative vertical effect.

Because post-tax capacity transmission is directional, vertical movement is non-reversible. Once constrained, capacity cannot be restored by subsequent events within the same generational path. When repeated horizontal events coincide with recurring vertical constraints, the resulting geometry reveals structured patterns of depletion or compression rather than random variation.

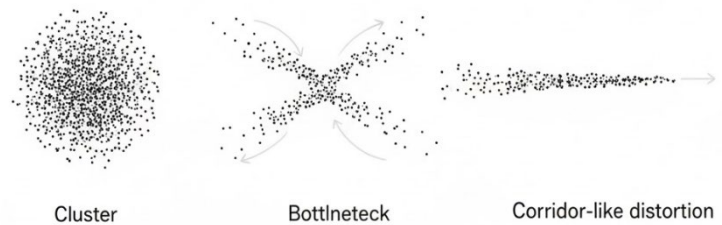
4.4 Emergent Geometric Forms

When event sequences are sufficiently dense, characteristic geometric forms emerge. Repeated interaction at similar interfaces produces clusters, reflecting concentrated institutional pressure.

Coupled computation and verification stages produce bottlenecks, where multiple pathways converge on limited administrative capacity. Extended sequences of constrained movement form corridor-like structures, indicating persistent distortion generated by rule interaction rather than by discretionary enforcement.

These forms are not assumptions; they are descriptive outcomes of mapping rule-generated events onto fixed coordinates. Their appearance signals where institutional distortion becomes structurally embedded in the implementation architecture.

Figure 2. Schematic Structural Forms Generated by Repeated Rule Execution



4.5 Analytical Implications

Reading the Pillar progression as motion reframes institutional analysis. Instead of asking whether a rule succeeds or fails, the analysis asks how rule interaction shapes the geometry of fiscal events. This shift allows comparison across jurisdictions without relying on normative benchmarks or behavioural models.

The following section formalizes this descriptive reading by introducing the Institutional Distortion Index (IDI) as a structured way to summarize and compare the geometric patterns generated by dense rule interaction.

5. Institutional Distortion Index (IDI)

This section introduces the Institutional Distortion Index (IDI) as a descriptive device for summarizing the geometric patterns produced by dense rule interaction. The index is not intended to measure policy success or failure. Its function is representational: to provide a stable way to read and compare institutional distortion generated by rule-triggered fiscal events across jurisdictions and implementation environments.

Figure 2 illustrates a set of schematic structural forms that may emerge from repeated execution of institutional rules over time. Rather than representing empirical outcomes or policy effects,

these forms depict recurring spatial patterns—such as clustering, bottlenecks, and corridor-like distortions—that arise prior to any index construction or quantitative summarization. The figure is intended to make visible the morphological layer of institutional behavior, where structural regularities can be observed before they are translated into metrics, thresholds, or comparative indicators.

Figure 2. Schematic structural forms generated by repeated rule execution, including clusters, bottlenecks, and corridor-like distortions, prior to index-based summarization.

5.1 Conceptual Basis

Institutional distortion, as used in this paper, refers to structural deformation arising from the interaction of multiple rule interfaces rather than from discretionary enforcement or behavioural response. When global rules are instantiated within domestic execution systems, fiscal events accumulate along particular paths. Over time, these paths generate observable geometric forms—clusters, bottlenecks, and corridors—that indicate persistent compression, duplication, or fragmentation within the implementation architecture.

IDI is designed to summarize these forms without collapsing them into narrative judgment. It treats distortion as a property of event geometry, not as an evaluative claim about institutional intent or outcome. The index therefore operates at the level of structure rather than effect.

5.2 Analytical Inputs

The inputs to IDI are derived directly from mapped fiscal events. These inputs include:

- Event frequency: the number of rule-triggered encounters generated by a given rule set within a defined period.
- Event overlap: the degree to which multiple rules assert concurrent classification or computation claims over the same fiscal base.
- Path dependency: the extent to which events are sequentially linked through computation, reporting, or verification requirements.
- Interface congestion: the concentration of events at specific administrative or compliance interfaces.

Each input is observable through publicly accountable materials such as rule texts, implementation guidance, reporting structures, and verification procedures. No behavioural assumptions are introduced at this stage.

5.3 Constructing the Index

IDI is constructed as a normalized composite of geometric features observed on the X–Y plane. Rather than assigning normative weights, the index aggregates structural properties of event distribution:

- Horizontal compression captures overlapping cross-jurisdictional claims.
- Vertical constraint captures cumulative limitation of post-tax capacity across periods.
- Cluster density captures repeated interaction at identical or closely related interfaces.
- Corridor persistence captures sustained directional constraint across linked event sequences.

The resulting index value represents the intensity of structural distortion generated by rule interaction within a given implementation environment. IDI values are comparable across jurisdictions only insofar as the same coordinate commitments and event definitions are applied.

5.4 Interpretation and Use

IDI does not predict outcomes, allocate responsibility, or prescribe reforms. Its interpretive value lies in comparison and diagnosis. Higher IDI readings indicate environments where rule interaction produces dense, persistent geometric deformation. Lower readings indicate more dispersed or weakly coupled event structures.

Because IDI is derived from the same representational grammar used throughout the paper, it remains consistent with the non-normative stance of the analysis. It allows institutional distortion to be discussed with precision while avoiding evaluative language.

5.5 Methodological Limits

IDI is not a substitute for economic modelling, legal interpretation, or policy evaluation. It abstracts from behavioural response, market adjustment, and welfare analysis. Its scope is confined to structural representation under coordinated global rule systems.

Within that scope, IDI provides a compact way to summarize how the development from Pillar One to Pillar Two, once operationalized, reshapes the geometry of fiscal interaction.

The next section applies the IDI framework to selected implementation environments to demonstrate how the index operates as a comparative descriptive tool under real-world rule density.

6. Demonstration: Applying Fiscal Geometry and IDI to Implementation Environments

This section demonstrates how the Fiscal Geometry framework and the Institutional Distortion Index (IDI) operate when applied to concrete implementation environments. The purpose is not comparative evaluation or country-specific analysis, but to show that the representational grammar can be executed consistently wherever coordinated global rules are instantiated (OECD, 2021b).

6.1 Demonstration Design and Selection Criteria

Implementation environments are selected based on technical criteria rather than institutional prominence. The criteria are:

- (1) high rule density arising from Pillar Two adoption,
- (2) observable implementation interfaces across computation, reporting, and verification, and
- (3) sufficient public documentation to reconstruct event sequences without reliance on interpretive inference (OECD, 2021b).

Each environment is treated as an execution instance of the same global rule package. The analysis therefore focuses on structural form rather than jurisdictional idiosyncrasy.

6.2 Event Mapping Procedure

For each environment, the demonstration proceeds in three steps.

First, rule-triggered fiscal events are identified along the implementation chain, including calculation thresholds, jurisdictional blending steps, top-up tax determinations, reporting obligations, and verification triggers. Each event is defined strictly by formal rule execution and documented interfaces (OECD, 2021b).

Second, identified events are mapped onto the X–Y plane. Horizontal positioning reflects cross-jurisdictional fiscal reclassification induced by coordinated rules, while vertical positioning reflects cumulative post-tax capacity constraints generated by repeated application across periods (Huang, 2025a; Huang, 2025b).

Third, event sequences are linked according to their procedural dependencies, producing trajectories rather than isolated points. This linkage is rule-based and does not rely on behavioural assumptions (Huang, 2025a).

6.3 Observed Structural Forms

Across implementation environments, several recurring geometric forms are observed.

Clusters emerge where multiple rules assert overlapping classification or computation claims over the same fiscal base within short procedural intervals. Bottlenecks appear where reporting, reconciliation, or verification interfaces concentrate multiple event paths into limited administrative channels. Corridor-like structures arise when repeated horizontal reclassification coincides with cumulative vertical constraint, producing sustained directional compression over time (Huang, 2025a).

These forms are consistent across environments despite differences in domestic legal structure, indicating that they are properties of rule interaction rather than of jurisdiction-specific design choices (OECD, 2021b).

6.4 IDI Readings and Comparability

IDI is calculated for each environment using the same event definitions and coordinate commitments. The resulting readings differ in magnitude but exhibit similar internal composition, with variation driven primarily by event frequency and interface congestion rather than by isolated rule features (Huang, 2025a).

Comparability is preserved because the index summarizes geometric properties derived from a fixed representational grammar. Differences in IDI values therefore reflect differences in structural interaction intensity rather than differences in evaluative criteria.

6.5 What the Demonstration Establishes

The demonstration establishes three points.

First, Fiscal Geometry can be operationalized using publicly accountable materials alone.

Second, the same global rule package generates comparable geometric structures across heterogeneous execution systems.

Third, IDI provides a compact descriptive summary of institutional distortion that remains consistent with a non-normative analytical stance (Huang, 2025b).

7. Discussion: Representation, Replicability, and Boundary Conditions

This section situates the preceding analysis within a technical discussion of what Fiscal Geometry makes observable, how the method can be replicated, and where its analytical boundaries lie. The focus remains representational rather than evaluative.

7.1 What the Representational Shift Makes Observable

By treating the Pillar One-to-Pillar Two progression as an event-generating process, Fiscal Geometry shifts attention from isolated rule interpretation to structural interaction. This shift makes several features observable that are difficult to capture through narrative or provision-by-provision analysis. In particular, it reveals how rule density translates into repeated encounters at specific interfaces, producing clusters, bottlenecks, and corridor-like distortions that persist across implementation environments (Huang, 2025a).

These geometric forms do not emerge from discretionary enforcement or behavioural response. They arise from the internal logic of coordinated rule design once instantiated within administrative systems. As such, they can be observed without recourse to intent-based interpretation or outcome-based evaluation.

7.2 Replicability and Cross-Environment Reading

A central feature of the framework is replicability. Because Fiscal Geometry relies on fixed coordinate commitments and publicly accountable inputs, the same mapping procedure can be applied across jurisdictions and over time. Replication does not require harmonization of domestic legal concepts; it requires only consistent identification of rule-triggered fiscal events and their procedural linkages (OECD, 2021b).

This property allows structural comparison without collapsing heterogeneous systems into a common doctrinal language. Differences in observed geometry reflect differences in implementation density and interface design rather than differences in analytical criteria. In this sense, the framework supports comparison while avoiding jurisdiction-specific normalization.

7.3 Boundary Conditions and Non-Claims

The framework operates under explicit limits. It does not model taxpayer behaviour, strategic response, or welfare effects. It does not predict revenue outcomes or evaluate policy effectiveness. Its purpose is confined to representing institutional interaction as geometry generated by rule execution (Huang, 2025b).

These boundaries are intentional. By restricting the analysis to formally accountable materials and observable interfaces, the method avoids conflating structural properties of rule systems with contingent behavioural or political factors. This restraint preserves analytical clarity at the cost of explanatory breadth.

7.4 Position Relative to Narrative and Policy Analysis

Fiscal Geometry is not positioned as a replacement for doctrinal analysis, economic modelling, or policy evaluation. Instead, it operates at a different analytical layer. Narrative approaches explain why rules were adopted and what they are intended to achieve. Policy analysis assesses trade-offs and outcomes. Fiscal Geometry provides a way to read how rules interact once operationalized, independently of intent or evaluation.

This layered positioning allows the framework to coexist with other analytical approaches while maintaining internal coherence. Its contribution lies in offering a stable representational grammar for environments where rule density and coordination make narrative synthesis increasingly fragile.

Figure 3. A schematic representation of Pillar One repositioning events, Pillar Two dense enforcement trajectories, and treaty-based cross-border interfaces within a single X–Y fiscal plane.

Figure 3. Pillar One, Pillar Two, and Treaty Interfaces within a Single X–Y Fiscal Plane

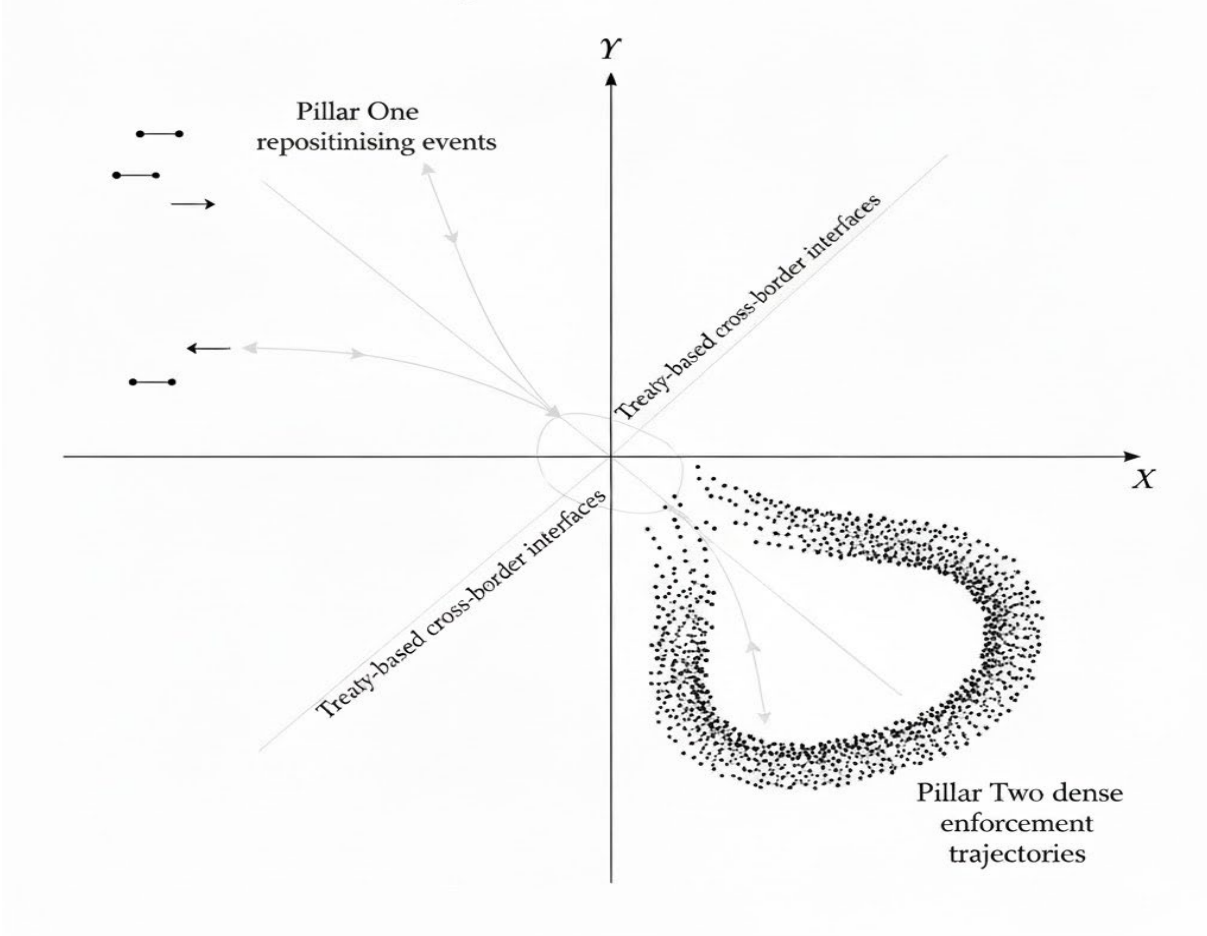


Figure 3 situates Pillar One repositioning events, Pillar Two dense enforcement trajectories, and treaty-based cross-border interfaces within a single X–Y fiscal plane. The diagram does not represent legal hierarchy or policy effectiveness, but rather distinguishes the structural roles these instruments occupy within a shared representational space. Pillar One appears primarily as episodic repositioning movements, Pillar Two as sustained and dense execution trajectories, while tax treaties function as interface mechanisms that mediate cross-border interaction without constituting enforcement paths themselves. The figure highlights how distinct international tax instruments may coexist geometrically within the same fiscal grammar while generating fundamentally different structural patterns.

7.5 Pillar One, Pillar Two, and Treaty Interfaces in the X–Y Grammar of International Tax Coordination

Within the Fiscal Geometry framework, Pillar One, Pillar Two, and tax treaty instruments are not treated as parallel policy domains. They perform distinct structural functions within a single event system and are therefore read differently on the X–Y plane.

Pillar One is best understood as an X-axis repositioning mechanism. Its core design objective is to modify nexus and allocation rules so that taxing rights over a portion of residual profits are reallocated toward market jurisdictions, including in the absence of physical presence. In geometric terms, Pillar One generates relatively sparse but high-salience fiscal events concentrated at jurisdictional reclassification thresholds. These events primarily alter cross-jurisdictional fiscal positioning rather than producing recurring enforcement chains (OECD, 2020; OECD, n.d.-b).

Pillar Two operates through a different structural logic. A global minimum tax cannot be implemented through a single reallocation event; it requires repeatable computation, reporting, and verification across jurisdictions operating under distributed sovereignty. As a result, Pillar Two multiplies implementation interfaces—jurisdictional effective tax rate calculations, covered tax determinations, top-up tax computations, ordering rules, and associated information pathways. In Fiscal Geometry, this appears as increased event frequency and interface coupling on the X-axis, producing extended trajectories and clustering effects once operationalized (OECD, 2021b; OECD, 2023).

Tax treaties and multilateral administrative assistance instruments occupy a third, distinct role. In this framework, they are treated as cross-border interfaces rather than as background legal context. Treaties condition whether and how rule-generated fiscal claims and administrative actions can move across jurisdictions, including through information exchange, dispute resolution, and, in limited cases, assistance in collection. Where such interfaces are present, they increase cross-jurisdictional connectivity; where they are absent, reserved, or procedurally constrained, they define enforceability boundaries that remain visible in the observed geometry (OECD, 2010; OECD, 2017).

Importantly, these treaty-based interfaces also have a downstream Y-axis implication. Because the realization or non-realization of cross-border tax claims affects the stability of residual post-tax positions over time, enforceability conditions shape the boundary conditions under which post-tax capacity is constrained or carried forward. This is not a behavioural or welfare claim; it is a representational statement about how distributed enforcement interfaces mediate the translation of rule density into realized fiscal outcomes under international coordination (Huang, 2025a; Huang, 2025b).

Read together, these components form a coherent structural picture. Pillar One shifts fiscal position across jurisdictions through targeted reallocation events. Pillar Two densifies cross-jurisdictional event chains to establish a minimum-tax floor under distributed authority. Treaties determine the permeability of cross-border administrative action, shaping both horizontal

connectivity and downstream capacity boundaries. Fiscal Geometry provides a single representational grammar capable of reading these mechanisms as parts of the same system without presuming centralized enforcement or unified global datasets.

8. Scope, Governance Constraints, and Distributed Decision Use

This section clarifies the scope and limits of the proposed framework by situating Fiscal Geometry (FG) and the Institutional Distortion Index (IDI) within the governance structure of OECD-led coordination. The objective is not to extend the method's claims, but to specify the institutional conditions under which the framework is intended to operate and the decision uses it can support.

8.1 Coordination without Central Enforcement

OECD-led tax coordination operates through rule harmonization and mutual commitment rather than centralized enforcement authority. Pillar Two exemplifies this structure: model rules and guidance are produced at the international level, while legal force and execution arise only through domestic adoption and administration. In this setting, compliance and verification remain distributed across national systems, and no supranational enforcement chain exists to unify execution outcomes (Abbott & Snidal, 2000; OECD, 2021b).

This governance condition is not incidental. It reflects a broader pattern of soft law and coordination regimes in which legitimacy derives from uptake and convergence rather than command. As a result, variation in domestic execution is an expected structural feature rather than an implementation defect.

8.2 International–Domestic Legal Tension as a Structural Condition

The interaction between international coordination and domestic tax law introduces a persistent tension between common rules and heterogeneous legal systems. Unlike domestic legislation—where a single legislature can revise rules in response to observed outcomes—OECD coordination relies on iterative guidance and peer alignment across sovereign jurisdictions. Consequently, identical rule packages interact with distinct administrative capacities, accounting conventions, and legal doctrines.

In international tax scholarship, this tension has long been recognized as a constraint on global coordination rather than a problem to be eliminated. Differences in domestic execution reflect the limits of harmonization under sovereignty, not a failure of coordination per se (Avi-Yonah, 2014; Li, 2021). For analytical purposes, this implies that observed variation should be treated as a property of the system's architecture.

8.3 Fiscal Geometry as Distributed Representational Infrastructure

Within these constraints, Fiscal Geometry functions as a distributed representational infrastructure rather than as a centralized analytical apparatus. The framework does not require a single, global fiscal map or a unified dataset. Instead, it allows each jurisdiction to construct local event mappings based on its own implementation interfaces—calculation, reporting, verification—while preserving a common coordinate grammar.

This feature is critical to its institutional fit. FG enables structural signals to be read without collapsing distributed decision authority into a single evaluative center. Indicators and representations, in this sense, support decision-making by making patterns visible, not by substituting for legal or political judgment (Porter, 1995; Merry, 2016). OECD-level actors can observe recurring geometric forms across environments, while member jurisdictions retain discretion over interpretation and response.

8.4 Scope and Non-Claims

The framework operates within explicit limits. FG and IDI do not predict behavioral responses, optimize revenue outcomes, or assess legal validity. They do not function as enforcement tools, compliance scores, or policy prescriptions. Their scope is confined to representing structural interaction generated by rule execution under distributed authority.

These limits are integral to the method's neutrality. By restricting claims to representation and comparability, the framework avoids conflating descriptive structure with evaluative or normative conclusions.

8.5 Implications for Distributed Use

Under OECD coordination, the practical value of FG lies in its capacity to support distributed reading rather than centralized control. Structural signals—such as clustering, bottlenecks, or persistent corridors—can be identified across jurisdictions without requiring uniform data or harmonized accounting. Decision authority remains local, but the language of comparison is shared.

In this sense, Fiscal Geometry provides a technical interface between global coordination and domestic execution: a way to observe institutional tension without presuming unified enforcement or centralized decision-making.

8.6 Concluding Synthesis: Pillar One, Pillar Two, and Treaty Interfaces in Fiscal Geometry

Within the Fiscal Geometry grammar, Pillar One, Pillar Two, and tax treaty instruments are not treated as parallel policy topics. They occupy distinct functional roles within a single event system, and their interaction is expressed as geometry on the X–Y plane.

First, Pillar One is primarily an X-axis repositioning mechanism. Its core function is to introduce rule gates that relocate taxing rights toward market jurisdictions through nexus and allocation interfaces. In geometric terms, Pillar One generates comparatively sparse but high-salience event points concentrated at market-nexus determination and profit reallocation thresholds. Its structure is defined by jurisdictional re-positioning rather than recurring enforcement cycles.

Second, Pillar Two is an X-axis interface multiplication mechanism with a floor condition. By design, a global minimum tax cannot be implemented through a single allocation event; it requires repeatable computation, reporting, and verification chains capable of operating under distributed sovereignty. Accordingly, Pillar Two generates dense, recurring event sequences—jurisdictional ETR computation, covered tax determination, top-up calculation, ordering rules, and associated information requirements—that appear as extended trajectories and clustering on the X-axis. These structures are not interpretive claims; they are representational consequences of rule density once operationalized.

Third, tax treaties and mutual administrative assistance instruments function as the system’s cross-border interfaces. In Fiscal Geometry, treaties are not background context; they are institutional gates that condition whether and how fiscal claims, classifications, and administrative actions can move across jurisdictions. Where information exchange, dispute mechanisms, or assistance in collection (recovery) is available, treaties provide an interface that converts a rule-generated claim into cross-border administrative action. Where such interfaces are absent, limited, or reserved, the geometry reflects a structural enforceability boundary: base-protection logic can intensify through rule density without producing a unified recovery architecture.

Taken together, these three components form a coherent representation of modern international tax coordination. Pillar One shifts fiscal position across jurisdictions (X repositioning). Pillar Two thickens the cross-jurisdictional event fabric through repeatable minimum-tax enforcement chains (X densification). Treaties determine the connectivity and permeability of cross-border administrative action, including whether certain event chains can translate into realized recovery, thereby shaping the boundary conditions under which residual post-tax capacity is constrained over time (Y boundary effects). In this reading, treaty connectivity is a measurable structural parameter: it changes the observed geometry without requiring a unified global dataset or centralized enforcement authority.

The practical contribution of this synthesis is representational. It provides a way to describe international tax coordination as a single event system operating under distributed authority, where institutional tension is expressed as geometry generated by rule execution rather than as

narrative disagreement about objectives. This does not replace doctrinal analysis or policy evaluation. It supplies a stable descriptive layer that preserves comparability across jurisdictions precisely because it treats Pillar rules and treaty interfaces as observable mechanisms in the same coordinate grammar.

9. Conclusion

This paper has presented Fiscal Geometry as a technical representational framework for reading the development from Pillar One to Pillar Two, and into implementation, as an event-generating process rather than as a sequence of policy reforms. By treating coordinated global tax rules as generators of rule-triggered fiscal events, the analysis reframes institutional interaction as observable motion within a fixed two-axis fiscal plane (Huang, 2025a; Huang, 2025b).

The application of this framework demonstrates that increasing rule density under Pillar Two produces identifiable geometric structures—trajectories, clusters, bottlenecks, and corridor-like distortions—once rules are instantiated within domestic execution systems. These structures are not inferred from intent or outcome; they arise directly from the procedural interaction of computation, reporting, verification, and enforcement interfaces defined by the rules themselves (OECD, 2021b).

The Institutional Distortion Index (IDI) provides a compact way to summarize these geometric patterns without collapsing them into narrative judgment or policy evaluation. As a descriptive device, IDI allows structural distortion to be located and compared across implementation environments while preserving a non-normative analytical stance (Huang, 2025a).

The contribution of this paper is therefore strictly methodological. It does not propose reforms, evaluate effectiveness, or predict behavioural response. Instead, it offers a replicable grammar for representing how globally coordinated fiscal rules interact with heterogeneous domestic systems once operationalized. In environments characterized by dense coordination and layered implementation, such a representational layer becomes necessary to preserve analytical readability.

By separating representation from evaluation, Fiscal Geometry provides a foundation upon which doctrinal, economic, and policy analyses may subsequently build, without conflating descriptive structure with normative claims.

References

- Abbott, K. W., & Snidal, D. (2000). Hard and soft law in international governance. *International Organization*, 54(3), 421–456.
- Arnold, B. J. (2014). *An introduction to tax treaties*. United Nations.

Avi-Yonah, R. S. (2014). *International tax as international law: An analysis of the international tax regime*. Cambridge University Press.

Huang, J. Y. (2025a). *A first-principles model of cross-jurisdictional fiscal flow (X-axis)* (Version 2).

Huang, J. Y. (2025b). *Fiscal epistemology and the X–Y coordinate of institutional information*.

Li, J. (2021). International tax law and governance in the BEPS era. *British Tax Review*, 2021(4), 383–401.

Merry, S. E. (2016). *The seductions of quantification: Measuring human rights, gender violence, and sex trafficking*. University of Chicago Press.

OECD. (2010). *Convention on Mutual Administrative Assistance in Tax Matters (as amended by the 2010 Protocol)*. OECD Publishing.

OECD. (2017). *Model Tax Convention on Income and on Capital: Full version*. OECD Publishing.

OECD. (2020). *Tax challenges arising from digitalisation – Economic impact assessment*. OECD Publishing.

OECD. (2021a). *Statement on a two-pillar solution to address the tax challenges arising from the digitalisation of the economy*. OECD/G20 Inclusive Framework on BEPS.

OECD. (2021b). *Tax challenges arising from digitalisation of the economy: Global Anti-Base Erosion model rules (Pillar Two)*. OECD Publishing.

OECD. (2023). *Minimum tax implementation handbook (Pillar Two)*. OECD Publishing.

OECD. (n.d.). *Base erosion and profit shifting (BEPS)*. OECD.

OECD. (n.d.). *Global minimum tax*. OECD.

OECD. (n.d.). *Reallocation of taxing rights to market jurisdictions*. OECD.

Porter, T. M. (1995). *Trust in numbers: The pursuit of objectivity in science and public life*. Princeton University Press.