

POLICY ANALYSIS

Revenue or Regulation? Designing Subnational Fiscal Instruments for Aggregate Extraction

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ABSTRACT

Subnational taxes on mineral extraction are ordinarily justified and evaluated as revenue instruments. This study argues that one such instrument is better understood as a regulatory device, and that evaluating it by yield would therefore misjudge it. The case is the provincial surcharge introduced by Indonesia's 2022 fiscal relations law on the district tax levied on non-metallic minerals and rocks, a sector in which licensing authority and taxation authority sit at different tiers of government and a published case study records a district lawfully taxing unlicensed extraction. The method is a policy-design analysis that tests the instrument against three candidate rationales — vertical fiscal balance, benefit correspondence, and incentive alignment — using a structured review of public finance research published between 2017 and 2024. Alignment fits best. Comparative evidence supports the underlying mechanism: reducing the local share of mining royalties in Colombia increased unreported mining, and Chinese local governments intensified enforcement on the bases they retained after a revenue-sharing reform. Two qualifications are decisive for design. The evidence concerns revenue and enforcement agencies rather than licensing authorities, so the central step is an extrapolation; and a revenue stake aligns an authority with revenue, which is not identical to accuracy, a distortion documented in the enforcement literature. The study concludes that the instrument should be evaluated against compliance indicators rather than collections, proposes five such indicators, and identifies the distributive risk that improved enforcement falls first on household-scale operators.

KEYWORDS: surcharge taxation; resource taxation; fiscal incentives; regulatory compliance; local government finance

ABSTRAK

Pajak daerah atas ekstraksi mineral lazimnya dibenarkan dan dinilai sebagai instrumen penerimaan. Penelitian ini berargumen bahwa salah satu instrumen tersebut lebih tepat dipahami sebagai perangkat pengaturan, sehingga menilainya dari hasil pungutan akan keliru. Kasusnya adalah opsen provinsi yang diperkenalkan undang-undang hubungan keuangan tahun 2022 atas pajak kabupaten/kota untuk mineral bukan logam dan batuan, sektor yang kewenangan perizinan dan perpajakannya berada pada tingkat pemerintahan berbeda dan yang satu studi kasus terbitnya mencatat kabupaten memungut pajak secara sah atas ekstraksi tanpa izin. Metodenya adalah analisis desain kebijakan yang menguji instrumen tersebut terhadap tiga rasionalitas kandidat — keseimbangan fiskal vertikal, korespondensi manfaat, dan penyesuaian insentif — dengan telaah terstruktur riset keuangan publik terbitan 2017 hingga 2024. Penyesuaian insentif paling sesuai. Bukti pembandingan mendukung mekanismenya: pengurangan bagian daerah atas royalti tambang di Kolombia meningkatkan penambangan tak dilaporkan, dan pemerintah daerah di Tiongkok memperkuat penegakan atas basis pajak yang tetap mereka pegang setelah reformasi bagi hasil. Dua catatan menentukan bagi desain. Bukti tersebut menyangkut otoritas penerimaan dan penegakan, bukan otoritas perizinan, sehingga langkah utamanya merupakan ekstrapolasi; dan kepentingan penerimaan menyesuaikan otoritas dengan penerimaan, yang tidak identik dengan akurasi, suatu distorsi yang terdokumentasi dalam literatur penegakan hukum. Penelitian menyimpulkan bahwa instrumen ini harus dinilai dengan indikator kepatuhan

alih-alih hasil pungutan, mengusulkan lima indikator, dan mengidentifikasi risiko distributif bahwa penegakan yang membaik lebih dulu menimpa penambang skala rumah tangga.

KATA KUNCI: *opsen pajak; pajak sumber daya; insentif fiskal; kepatuhan regulasi; keuangan pemerintah daerah*

INTRODUCTION

A tax has a rate, a base and a yield, and these are what fiscal analysis normally examines. The question asked of a new subnational levy is how much it will raise, for whom, and at what cost to the taxed activity. That question is the right one for most taxes, and it is the wrong one for some.

The exception arises when a fiscal instrument is designed to change the behaviour of a government rather than of a taxpayer. Ecological fiscal transfers are the clearest example: revenue is distributed to subnational governments on ecological indicators specifically so that those governments will protect more territory, and the volume of such transfers grew from around 0.35 billion United States dollars annually in 2007 to some 23 billion by 2020 (Busch et al., 2021). Judging such an instrument by how much revenue it moves would miss its purpose entirely.

This study argues that a recent Indonesian instrument belongs to that second class, though it has not been described as such. The 2022 law on fiscal relations between central and regional government introduced a provincial surcharge on the district tax levied on non-metallic minerals and rocks — the category covering sand, gravel and construction stone. Read as a revenue measure, the surcharge is unremarkable and modest. Read against the regulatory structure it sits inside, it is doing something else.

That structure has a specific feature. Licensing authority for this mineral category rests with the province; the tax on its extraction is a district levy assessed by officers who visit sites and estimate production. A published Indonesian case study records a district revenue authority lawfully taxing extraction businesses that hold no licence at all, on the reasoning that licensing has ceased to be a district function (Ardiansyah et al., 2023). The tier that observes extraction has no licensing jurisdiction; the tier with jurisdiction has had, until now, no revenue stake in what is extracted.

The surcharge changes the second of those facts. It gives the licensing authority a revenue entitlement calculated on the district's assessment of production, and therefore an interest in whether that production is fully reported and whether those reporting it are licensed. This study asks whether that reading is sustainable, what the public finance evidence says about whether such an interest changes government behaviour, and what evaluation framework follows if the reading is correct.

Three questions organise the analysis. First, which of the standard rationales for tax-base co-occupancy fits this instrument? Second, does the empirical literature support the mechanism the alignment reading requires? Third, by what indicators should the instrument be judged, and what does it risk?

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Tax-base co-occupancy and surcharge design

The theoretical question of whether two tiers of government should tax the same base is treated formally by Hoyt (2017), who examines the assignment and division of the tax base in hierarchical systems. Co-occupancy is desirable, absent other corrective policy, where the taxed commodities are substitutes; and where the upper tier can set a different rate on the shared portion than on its exclusive portion, it can attain second-best outcomes equivalent to those obtainable through intergovernmental grants. The result matters here because it establishes that a shared base can function as a corrective or coordinating device rather than merely as a revenue-splitting arrangement.

Matsumoto (2022) develops the complementary point for equalisation with multiple instruments, finding that where federal and regional taxation overlap on an immobile base, efficient equalisation requires a negative equalisation rate on that base, and that overlapping immobile bases generate fiscal externalities that equalisation alone cannot resolve without sacrificing equity. Mineral extraction is the paradigmatic immobile base — the deposit cannot relocate in response to rate differences — so this literature predicts a vertical externality wherever two tiers share it.

What this literature does not supply is empirical evidence on surcharge instruments specifically. No post-2017 empirical study of piggyback or surcharge taxation could be verified for this review. The theoretical foundation is therefore available; the empirical foundation for surcharge design as such is not, and arguments in this area must be built on theory plus adjacent empirical work rather than on direct evidence.

Fiscal instruments aimed at government behaviour

A second literature concerns fiscal instruments whose declared purpose is to alter what a subnational government does rather than to fund it. Busch et al. (2021) review ecological fiscal transfers across Brazil, Portugal, France, China and India, with emerging schemes in ten further countries, documenting growth from about 0.35 billion dollars annually in 2007 to roughly 23 billion by 2020. The design logic is explicit: distribution on ecological indicators is intended to make conservation fiscally attractive to the recipient government.

Nasir (2022) applies this to an Indonesian district, finding that ecological fiscal transfer design targets forest-zone and protected areas while omitting forested land in the non-forest zone, and that a district government already holds sufficient authority to adopt such a scheme provided it develops criteria and indicators tied to its own priorities and available data. The case establishes that behaviour-directed fiscal instruments are already part of the Indonesian subnational repertoire.

Revenue stakes and enforcement effort

The mechanism on which the alignment reading depends is that a government's revenue share in an activity affects how energetically it polices that activity. The evidence for this is real but narrower than the argument requires, and its boundaries should be stated precisely.

The most directly relevant study is Saavedra and Romero (2021). Colombia reduced the share of mining royalty revenue transferred back to producing municipalities; using machine-learning detection of mine sites from satellite imagery and difference-in-differences estimation, the authors find that reducing the local revenue share caused illegal, unreported mining to increase. The sign runs in the direction the present argument needs: a jurisdiction's revenue stake in extraction affects its willingness to police reporting accuracy.

Xiao (2020) provides the converse test in a general-tax setting. Following China's 2002 corporate income tax revenue-sharing reform, local governments that lost that revenue increased enforcement intensity on the business tax and surcharges still assigned to them, doing so selectively against non-state-owned and domestic firms, with roughly 62 per cent of the burden shifting to workers. Changing which tier keeps which base changed enforcement effort on that base.

Zhen and Pan (2023), using a Chinese provincial panel for 2000 to 2018, find that fiscal pressure significantly raises local tax collection effort, with central transfers moderating the relationship in an inverted-U pattern such that transfers that are either too small or too large weaken collection motivation. The design implication is that the size of the stake, not merely its existence, governs effort.

Two further studies establish that the administering agency's incentives, rather than the taxpayer's, are often the binding constraint on realised collections. Khan et al. (2019), in a randomised trial with 525 property tax inspectors in Pakistan, find that a performance-ranked posting mechanism raised annual tax revenue growth by 30 to 41 per cent. Naritomi (2019) examines Brazil's programme giving consumers a financial stake in firms reporting sales accurately, and finds reported retail sales rising at least 21 per cent over four years with net

revenue up 9.3 per cent after rewards. The Brazilian case is the closest published analogue to the present mechanism: a third party is given a revenue stake, and reporting accuracy improves as a result.

The counter-argument

The same literature supplies a serious objection. Makowsky et al. (2019) find that where local budgets are strained and institutions permit the enforcing agency to retain forfeiture revenue, the composition of arrests shifts toward revenue-productive offences, concluding that revenue-driven law enforcement distorts the behaviour of the enforcing agency. The implication for the present argument is direct and uncomfortable. A revenue stake aligns an authority with revenue. It aligns that authority with accuracy only insofar as accuracy and revenue point the same way, and they diverge whenever the revenue-maximising action differs from the correct regulatory one — for instance, where refusing a licence would reduce collections. Any design proposal in this area that omits this objection is incomplete.

Resource levies that are not revenue instruments

It is worth establishing that a mineral levy failing as a revenue instrument is not anomalous. Tarras-Wahlberg (2023) documents Swedish mining taxation, in which the state relies on general business taxation with no royalty and no windfall tax, and the existing mineral fee yields negligible income while remaining poorly understood and contested. Maroun et al. (2019), scoring composite tax burdens across 19 African mining jurisdictions against democratic strength and corruption, find democracies extracting value as effectively as authoritarian regimes, with the latter trading lower headline rates for greater administrative difficulty. Both indicate that the headline design of a mineral levy is a poor guide to its actual fiscal function.

Indonesian fiscal context

Lewis (2023) provides the peer-reviewed assessment of the statute from which the surcharge derives, arguing that the implicit intent of the 2022 law is greater central control over regions, operationalised through performance incentives, revenue earmarks and spending mandates, that several reform designs are flawed, and that the law cannot address the underlying corruption and clientelism problems, so it is unlikely to improve transfer equity, subnational tax mobilisation, spending efficiency or service outcomes. The characterisation is significant for the present argument in two ways: it independently identifies the statute's instruments as behaviour-steering rather than purely fiscal, and it counsels against optimism about their effects.

On collection capacity, Rosid and Romadhaniah (2023), using administrative data from all 352 Indonesian tax offices, find enforcement activity measurably improving compliance, with audit coverage and criminal investigation both significant drivers. Abrori et al. (2024), in a structural model of 188 respondents at a Jakarta local tax office, find tax morale and service quality driving compliance while awareness alone does not, and digitalisation strengthening external compliance factors while barely moving the moral dimension. Lewis (2018) finds that directly elected local heads do not raise more own-source tax revenue than indirectly elected ones, though they spend less and more efficiently, which suggests that local tax mobilisation is not strongly responsive to electoral incentive.

Kuralbayeva (2019) supplies a caution specific to developing economies: modelling environmental tax reform with a large informal sector and rural-urban migration, welfare falls even where a double dividend is attainable, and agricultural workers lose income through migration effects despite bearing no direct tax. Where a substantial share of an activity is informal, the incidence of a fiscal instrument is not confined to those it formally taxes.

What resource revenue does when it reaches a subnational budget

A surcharge on extraction is only worth designing if the revenue it moves does something once it arrives, and the evidence on subnational resource windfalls is discouraging on that point. Aragon and Winkler (2023), examining a long-running resource transfer to producing localities, find that despite sizeable increases in municipal revenue, personnel and equipment there was no significant improvement in access to public services, poverty or inequality, with only weak evidence of additional local infrastructure works.

Corral et al. (2019), exploiting the allocation rules of a separate resource fund as a natural experiment, find a positive effect on municipal capital expenditure and local infrastructure alongside a negative effect on current expenditure, indicating that administratively thin municipalities reallocated effort rather than expanded it. The implication for the present analysis is that an instrument evaluated on revenue delivered may record success while the receiving administration merely substitutes one category of spending for another.

Banda (2023) supplies the design counterpart, modelling how alternative mining fiscal regimes perform over the life of a project and finding that the regime with higher revenue-raising potential and the regime more attractive to mobile capital are different regimes. That the revenue-maximising and the behaviour-steering configurations diverge is the premise on which the argument of this article rests, and it is here demonstrated within a single fiscal system rather than inferred across cases.

Vertical externalities and the limits of assignment

Because the instrument places two tiers on one base, the vertical externality literature bears on it directly. Reingewertz (2018) finds such externalities modest in magnitude and confined to a single tax type, while Perez-Sebastian et al. (2019) show their size depending on a region's fiscal advantage rather than being uniform. Anetsberger and Arnold (2019) show that where the centre sets vertical equalisation and regions set horizontal equalisation, the centre prevails and horizontal equalisation does not occur, which places any surcharge running upward inside the vertical rather than the horizontal architecture.

Two Indonesian findings qualify what the instrument can achieve within that architecture. Vincent (2023) finds greater subnational taxing discretion and administrative control associated with lower compliance, working through enforcement intensity and perceived legitimacy. Chalil (2020) finds significant fiscal spillovers among Indonesian municipalities coexisting with an absence of electoral response to neighbourhood performance, so that the yardstick mechanism assumed to discipline subnational fiscal choices is not operating.

Research gap

Three gaps follow. No located study examines the surcharge on this mineral category, which is too recent for the literature. No verified empirical work on surcharge instruments published since 2017 was located at all, so surcharge design rests on theory. And nothing located connects a revenue stake to the behaviour of a licensing authority as distinct from a revenue or enforcement authority, which is the precise step the alignment reading requires. This study addresses the first, works within the second, and is explicit about the third.

METHOD

The study is a policy-design analysis supported by a structured review. It generates no primary data, makes no revenue projection, and does not evaluate implementation, which has not yet occurred.

Materials

Legal materials comprise the 2022 law on fiscal relations between central and regional government and its implementing regulation, the mineral and coal law establishing licensing authority, and regional regulations on mineral taxation. All are public. Academic materials comprise peer-reviewed studies published between 2017 and 2024, retained only where bibliographic details could be verified against a publisher page, digital object identifier record, or the journal's own site. Works with conflicting metadata or unstable indexing were excluded rather than qualified.

Analytical procedure

The instrument was first described mechanically: who levies it, on what base, at whose assessment, and to whom the proceeds accrue. Three candidate rationales drawn from public finance were then specified — vertical fiscal balance, benefit correspondence, and incentive alignment — and for each, the observable implications that would follow if it were the operative rationale were stated in advance. The instrument's design features were then compared against those implications. The rationale whose implications the design satisfies is taken as the

best available reading, not as the demonstrated legislative intent, which would require examination of a drafting record not consulted here.

Construction of evaluation criteria

Where a rationale was selected, evaluation indicators were derived from it directly: an indicator was admitted only if the selected rationale predicts movement in it and at least one alternative rationale does not. This procedure is what distinguishes the resulting framework from a general list of desirable outcomes.

RESULTS AND DISCUSSION

The instrument described

The surcharge is levied by the province on the same base as the district tax on non-metallic minerals and rocks, calculated on the district's assessment, collected alongside it, and accruing to the province. The province performs no separate assessment and issues no separate demand. Its entitlement is therefore a strict function of what the district assesses, which is in turn a function of what district officers observe and record at extraction sites.

Table 1. Mechanics of the instrument

Source: authors' analysis of the 2022 fiscal relations law and its implementing regulation.

The last row is the analytically decisive one. The statute creates a fiscal relationship between the two tiers and no regulatory relationship. The province gains a stake in the district's assessment without gaining any power over how that assessment is made, and without the district acquiring any duty to inform the province about the licensing status of those it assesses.

Testing three rationales

Table 2 sets out the three candidate rationales, the observable implications each would carry, and how the instrument's design compares.

Table 2. Three candidate rationales tested against the instrument's design

Source: authors' analysis. Assessments reflect fit between design features and predicted implications; they are not evidence of legislative intent, which was not examined.

The vehicle tax surcharge within the same statute makes the contrast concrete. There the transfer runs toward the tier that bears road expenditure responsibility, which is a benefit-correspondence rationale of the conventional kind. In the mineral case the transfer runs toward the tier that holds regulatory authority. That is a different design logic, and Hoyt's (2017) result that a shared base can substitute for corrective policy provides the theoretical warrant for reading it as corrective rather than distributive.

The mechanism and the gap in the evidence

Figure 1. The alignment mechanism and the point at which the evidence is inferential (authors' construction)

Figure 1 sets out the causal chain the alignment reading requires and marks where it is supported. The first link — that a revenue stake generates enforcement interest — is well evidenced. Saavedra and Romero (2021) show unreported mining rising when the local revenue share fell; Xiao (2020) shows enforcement effort following retained bases; Zhen and Pan (2023) show effort responding to the size of fiscal pressure. Naritomi (2019) shows the mechanism operating even for a party outside government altogether.

The second link is not evidenced. Every study located concerns a revenue-collecting or law-enforcing agency. None concerns a licensing authority, whose instruments are permit issuance, refusal and revocation rather than assessment and prosecution. Extending the finding across that boundary is plausible — the incentive structure is analogous — but it is an extrapolation, and the appropriate response is to design the evaluation so that this specific link is what gets measured.

The distortion risk

Makowsky et al.'s (2019) finding that revenue-driven enforcement distorts agency behaviour identifies the principal failure mode. A province whose revenue rises with assessed production has an interest in assessed production rising. Where accuracy and revenue coincide — as they do when an unlicensed operator is brought into the system and its output recorded for the first time — the incentive is benign. Where they diverge, it is not. Refusing a licence on environmental grounds reduces assessed production and therefore provincial revenue, which is precisely the decision the regulatory authority most needs to be able to take without fiscal consequence.

Two design responses follow. The first is to separate the fiscal and licensing consequences within the province by ensuring surcharge proceeds do not fund the licensing function itself, so that the officers deciding permits are not the officers whose budget depends on approvals. The second is to make refusal decisions and their grounds a published series, so that a decline in refusals is visible rather than inferred. Neither is present in the current design, and the second costs nothing.

An evaluation framework

If the alignment reading is correct, the instrument's success criteria are not fiscal. Table 3 sets out indicators derived from the alignment rationale, each of which the alternative rationales do not predict.

Table 3. Indicators implied by the alignment rationale

Source: authors' derivation from the alignment rationale. Revenue yield is deliberately excluded as a success indicator.

The exclusion of yield is the framework's substantive claim. A surcharge raising modest revenue while substantially increasing the licensed share of extraction would be a success on its own design logic. One raising substantial revenue from an unchanged unlicensed sector would not be, and would in fact demonstrate the distortion Makowsky et al. (2019) describe: revenue extracted from illegality rather than illegality reduced.

Incidence and the informal operator

A fiscal instrument that succeeds on these indicators brings previously unlicensed operators into the permitting system, and the incidence of that transition is not neutral. Lamb et al. (2019) argue that the global sand trade omits local livelihoods from policy calculation, and Kuralbayeva (2019) shows formally that where informality is extensive, the burden of a fiscal reform reaches beyond those it formally taxes.

The implication is that improved enforcement will fall first on the operators least able to navigate permitting, who in this sector are frequently households rather than enterprises. A simplified permit tier for small-scale extraction is therefore not a concession to be weighed against the instrument's objectives but a condition of achieving them: operators who cannot realistically be licensed will not enter the system, and their extraction will continue unmeasured regardless of how well the fiscal incentive works. Lewis's (2023) assessment that the 2022 law cannot address underlying governance problems is a reminder that a fiscal instrument operates only within the administrative capacity that already exists.

Transferability

Two features determine whether this analysis travels beyond the Indonesian case. The first is the separation itself: the reading applies wherever licensing authority and taxation authority over the same extractive activity sit at different tiers, which is a common consequence of assigning mineral permits upward while leaving local levies in place. The second is the direction of the transfer. A surcharge running from the licensing tier toward the taxing tier would carry none of the alignment logic set out here, since it would give a revenue interest to the tier that already possesses the information. Direction, not the existence of a shared base, is what makes the instrument corrective.

This has a practical consequence for jurisdictions considering similar arrangements. Where the observing tier is also the licensing tier — as it was in Indonesia before mineral permits were recentralised — a surcharge in either direction is a distributive measure and should be evaluated as one, by yield and incidence. The evaluation framework proposed in Table 3 applies only to the configuration in which information and authority are

separated, and applying it elsewhere would measure movement in indicators the instrument was never structured to affect.

Revenue arriving is not the outcome the design predicts

The alignment reading advanced here predicts changes in licensing behaviour rather than changes in revenue, and the windfall literature explains why the distinction is more than terminological. Aragon and Winkler (2023) find substantial revenue increases producing no measurable improvement in services, poverty or inequality, and Corral et al. (2019) find capital spending rising while current spending falls. An evaluation that observed revenue reaching the province and concluded that the instrument had worked would therefore be observing the one quantity the design does not depend on.

Banda's (2023) demonstration that revenue-maximising and behaviour-steering fiscal regimes diverge within a single mining fiscal system is the sharpest available support for the evaluation framework proposed above. If the two objectives select different regimes, then an instrument cannot be assessed against both, and the choice of criterion is a policy decision that should be made explicitly at the design stage rather than settled afterwards by whichever indicator is reported.

Limitations

Four limitations qualify this analysis. First, it examines design rather than outcomes; the instrument is too recent for implementation evidence, and every claim about its effects is predictive. Second, the central causal link — from a licensing authority's revenue stake to its licensing behaviour — rests on extrapolation from studies of revenue and enforcement agencies, and could be wrong. Third, no verified post-2017 empirical literature on surcharge instruments exists, so the design analysis rests on theory and on adjacent empirical work rather than on evidence about this instrument type. Fourth, the characterisation of the rationale is inferred from design features; the drafting record was not examined and stated legislative intent may differ.

CONCLUSION

Fiscal instruments are normally evaluated by what they raise. This study has argued that the provincial surcharge on the district tax on non-metallic minerals and rocks should not be, because its design fits a regulatory rather than a fiscal rationale. Tested against vertical fiscal balance, benefit correspondence and incentive alignment, only the third accounts for the instrument's central feature: revenue directed to the tier that holds licensing authority over extraction while lacking any independent knowledge of what is extracted.

The mechanism the reading depends on has real empirical support at one remove. Reducing the local revenue share in Colombian mining increased unreported extraction; Chinese local governments intensified enforcement on the bases they retained; giving Brazilian consumers a stake in accurate reporting raised reported sales by at least a fifth. But every one of these concerns a revenue or enforcement agency, and the step to a licensing authority is an inference. The honest position is that the instrument rests on a well-founded mechanism applied across an untested boundary.

Two things follow for design. The instrument should be evaluated against compliance indicators — the licensed share of operating sites, the ratio of reported to independently estimated volumes, the entry rate of previously unlicensed operators, inter-tier responsiveness, and published refusals — with revenue yield deliberately excluded, since a rationale that predicts yield predicts nothing distinctive. And the design should guard against its own failure mode, in which a revenue stake aligns the province with collections rather than with accuracy; publishing licence refusals and their grounds costs nothing and makes that failure visible. Finally, because success means bringing unlicensed operators into the permitting system, and because many of them are households rather than firms, a simplified small-scale permit tier is a condition of the instrument working rather than an equity adjustment made afterwards.

DECLARATIONS

Author contributions (CRediT)

Conceptualisation: Author 1. Methodology: Author 1. Formal analysis and investigation: Author 1. Writing — original draft preparation: Author 1. Writing — review and editing: Author 1. Supervision: Author 1. All named authors have read and approved the final manuscript and accept responsibility for its content.

Conflict of interest

The authors declare that they have no financial or non-financial conflict of interest in relation to the subject matter of this article. No author holds a position in, or receives support from, any organisation examined or evaluated in this study.

Data availability

This study generated no primary data. It draws exclusively on published peer-reviewed literature, publicly available legal instruments and publicly available official statistics, all of which are identified in the text and listed in the references. No confidential administrative record, individual taxpayer record, permit file or personal datum was accessed, and no individual person or business is identified. Every quantity reported was traced to a single identified public source and can be verified by any reader from that source.

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Declaration on the use of artificial intelligence

In accordance with COPE, ICMJE and WAME positions, and with the RCP AI Use Declaration requirement, the authors disclose that generative artificial intelligence tools were used in preparing this manuscript, specifically to assist with literature identification, synthesis of the reviewed sources, and language editing of the draft. Artificial intelligence was not used to generate data, results or citations. Every reference in this article was verified by the authors against the publisher's own record, a digital object identifier record or an indexing database record before inclusion, and sources whose bibliographic details or indexing status could not be confirmed were excluded. No artificial intelligence tool is listed as an author. The authors take full responsibility for the accuracy, integrity and originality of the entire content of this article.

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