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IMPROVING PUBLIC–PRIVATE PARTNERSHIP MECHANISMS FOR INFRASTRUCTURE DEVELOPMENT IN THE REGIONS: A CROSS-COUNTRY EMPIRICAL ASSESSMENT WITH EVIDENCE FROM UZBEKISTAN

Abstract. *Public–private partnerships (PPPs) are widely promoted as an instrument for closing regional infrastructure gaps in developing economies. This article asks whether the observed structure of global private infrastructure flows is compatible with that role. Using the World Bank Private Participation in Infrastructure database for 2024, merged with World Bank governance and national accounts data, a cross-section of 55 low- and middle-income economies is analysed by means of concentration measures, distributional statistics and ordinary least squares estimation with heteroscedasticity-consistent standard errors. Three findings emerge. First, private infrastructure flows are extremely concentrated: the five largest recipients absorb 70.9 per cent of global commitments, and the Gini coefficient across recipients reaches 0.829. Second, flows are sectorally concentrated in large, revenue-generating national assets energy accounts for 67.5 per cent and information and communication technology for 10.4 per cent of commitments, while water, sanitation and municipal solid waste, the sectors that constitute regional and local infrastructure, together receive 1.6 per cent. Third, flows are lumpy: 36.4 per cent of recipient economies closed exactly one project in 2024 and the median recipient closed two, with a median project size of US\$109 million. Regulatory quality does not explain flow intensity conditional on participation, but weaker regulatory environments are systematically associated with dependence on development-finance risk mitigation.*

Keywords: *public–private partnership, regional infrastructure, private participation in infrastructure, project aggregation, viability gap funding, contingent liabilities, sub-national finance, Uzbekistan.*

INTRODUCTION

Infrastructure is the physical precondition of regional economic convergence. Roads, water supply, sanitation, heat networks, waste management and social facilities determine whether firms located outside a capital city can reach markets and whether households outside it enjoy comparable public services. The productivity contribution of public infrastructure capital has been documented since the late 1980s (Aschauer, 1989:177); subsequent cross-country work has shown that infrastructure development raises growth and reduces income inequality simultaneously (Calderón & Servén, 2004). Where infrastructure provision is spatially uneven, the resulting divergence between leading and lagging territories carries political as well as economic consequences (Rodríguez-Pose, 2018:189).

Faced with fiscal constraints, governments across the developing world have turned to public–private partnerships as a means of mobilising private capital and managerial capability for infrastructure delivery. Uzbekistan is a clear example: a dedicated PPP law was adopted in 2019, a specialised agency was established, and by the beginning of 2025 the signed project portfolio had reached approximately US\$28 billion. The policy expectation attached to this instrument is broad that it will finance not only national generation capacity but also the schools, clinics, water systems and municipal services of the regions.

This article tests that expectation against the observed structure of global private infrastructure flows. The research question is not whether PPPs are desirable, but whether the instrument, as it actually operates, has the sectoral, spatial and transaction-size characteristics required to deliver regional infrastructure. The study makes three contributions. Empirically, it constructs a reproducible cross-section of 55 economies from the most recent private-participation data and quantifies concentration, lumpiness and sectoral composition with standard distributional measures. Analytically, it shows that national regulatory quality does not explain the intensity of flows conditional on participation, which relocates the institutional argument from the volume margin to the participation and financing margins. Practically, it derives a mechanism-reform agenda for Uzbekistan that follows from the measured structure of the instrument rather than from general prescription.

The article proceeds as follows. Section 2 reviews the theoretical and empirical literature and states four hypotheses. Section 3 describes the data and estimation strategy. Section 4 reports the results. Section 5 discusses their implications and sets out the proposed mechanism improvements. Section 6 concludes.

LITERATURE REVIEW AND HYPOTHESES

The economic case for PPPs rests on the bundling of construction and operation within a single long-term contract. Where quality is contractible, bundling internalises the effect of construction decisions on subsequent operating costs and therefore improves incentives for durable design (Bennett & Iossa, 2006:2143); where important quality dimensions are not contractible, bundling can instead induce cost reductions that damage service quality, which is the classic argument against contracting out core public functions (Hart, Shleifer, & Vishny, 1997:1127). Hart formalised the resulting trade-off for partnerships specifically and concluded that the case for bundling depends on the relative contractibility of construction and service quality (Hart, 2003:C69). Iossa and Martimort provide the general microeconomic treatment, showing that risk transfer, bundling and financing structure interact and cannot be chosen independently (Iossa & Martimort, 2015:4).

A distinct strand concerns the public finance of partnerships. Engel, Fischer and Galetovic demonstrate that a PPP does not relax the government's intertemporal budget constraint: user fees and availability payments are alternative claims on the same future resources, and the fiscal attraction of PPPs derives largely from their accounting treatment rather than from genuine resource creation (Engel, Fischer, & Galetovic, 2013:83); the practical consequences for contract design and fiscal accounting are developed at book length (Engel, Fischer, & Galetovic, 2014). This makes the management of contingent liabilities central, since guarantees issued to private partners are fiscal commitments whose value must be estimated and disclosed (Irwin, 2007). Renegotiation is the empirical manifestation of these weaknesses: concessions in Latin America were renegotiated at high rates, typically soon after award and in the private partner's favour, with the probability of renegotiation rising where regulatory institutions were weak (Guasch, Laffont, & Straub, 2008:421).

Empirical work on the determinants of private participation finds market size, macroeconomic stability, past experience with partnerships and institutional quality to be the principal correlates of PPP activity (Hammami, Ruhashyankiko, & Yehoue, 2006). The institutional channel is theoretically well grounded: long-lived, asset-specific and politically salient investments are precisely those most exposed to hold-up, so credible commitment is a precondition for private entry (Williamson, 1985; North, 1990). Guasch's operational assessment of concession design reaches the same conclusion from the practitioner side (Guasch, 2004).

A separate literature warns that the instrument carries a systematic bias toward large transactions. Megaprojects attract sponsors and lenders because fixed transaction costs feasibility studies, legal structuring, due diligence, financial modelling are largely invariant to project size, but they display persistent cost overruns and benefit shortfalls (Flyvbjerg, 2014:6); the underlying risk analysis was set out earlier in book form (Flyvbjerg, Bruzelius, & Rothengatter, 2003). If fixed preparation costs are the binding constraint, the instrument will gravitate toward assets whose scale can absorb them generation plants, motorways, ports, data centres and away from the dispersed, small-ticket assets that constitute regional infrastructure. The OECD principles for the public governance of partnerships address the institutional side of this problem, requiring value-for-money assessment, budgetary transparency and a clear institutional home for project preparation (OECD, 2012).

Infrastructure economics has long recognised that returns depend on the existing stock and on complementary investment, so that the marginal value of infrastructure is highest where provision is thinnest (Gramlich, 1994:1176). Yet the very characteristics that make regional infrastructure economically valuable small scale, dispersed location, weak or absent user charges, dependence on sub-national budgets make it commercially unattractive under conventional partnership structures. The governance measures used to compare countries in this field are aggregated at national level (Kaufmann, Kraay, & Mastruzzi, 2011:220), which further obscures the sub-national capacity constraints that determine whether a regional project can be prepared at all. The empirical literature has consequently paid limited attention to the spatial composition of partnership portfolios, which is the gap this article addresses.

MATERIALS AND METHODS

The primary source is the World Bank Private Participation in Infrastructure (PPI) database as reported in its 2024 annual edition, which records investment commitments at financial close for infrastructure projects with private participation in low- and middle-income economies (World Bank, 2025a). Institutional quality is measured by the Worldwide Governance Indicators estimate of Regulatory Quality for 2024, defined as the perceived ability of government to formulate and implement policies and regulations that permit and promote private sector development (World Bank, 2025b). Economic size and income level are taken from World Development Indicators gross domestic product in current United States dollars and gross domestic product per capita at purchasing power parity, both for 2025 (World Bank, 2025c). Table 1 summarises the variables.

Table 1. Variables, definitions and sources

Variable	Definition	Source	Year
PPI	Investment commitments at financial close, US\$ millions	World Bank PPI Database	2024
Projects	Number of projects reaching financial close	World Bank PPI Database	2024
PPI/GDP	PPI commitments as a percentage of GDP	Author's calculation	2024/25
Size	Average project size = $PPI \div projects$	Author's calculation	2024
RQ	Regulatory Quality estimate (−2.5 to +2.5)	Worldwide Governance Indicators	2024
GDP	Gross domestic product, current US\$	World Development Indicators	2025
GDPpc	GDP per capita, PPP, constant 2021 int\$	World Development Indicators	2025
DEFI share	Share of projects with development or export finance support	World Bank PPI Database	2024

Note. Compiled by the author from the sources indicated.

In 2024 the PPI database recorded commitments in 58 economies, down from 68 in 2023, indicating a further concentration of activity. Of these, 55 could be matched to complete data on regulatory quality, gross domestic product and income per capita; two were dropped for missing national accounts data and one for a project whose value was not disclosed. The matched sample accounts for US\$100.7 billion, that is, effectively the entire recorded global total. Two features of the sampling frame must be stated explicitly. The database covers only low- and middle-income economies, so the analysis is a study of the developing-country market rather than of partnerships in general. More importantly, the sample is conditional on positive activity in a single year: economies that closed no transaction in 2024 are absent by construction. All results reported below

are therefore statements about the structure of flows among participants, and cannot be read as estimates of the determinants of participation itself.

Concentration is measured by the shares of the largest recipients, by the Herfindahl–Hirschman index computed on recipient shares of total commitments, and by the Gini coefficient of the commitment distribution across recipients; the same measures are applied to the sectoral composition of global flows and to the distribution of project counts. Lumpiness is characterised by the distribution of project counts and average project sizes. The institutional question is addressed by ordinary least squares estimation of the logarithm of PPI intensity on regulatory quality, with the logarithm of gross domestic product entering as a control for market size and the logarithm of income per capita as a control for development level; two further specifications take the logarithms of average project size and of project count as dependent variables. All models are estimated with HC3 heteroscedasticity-consistent standard errors (Long & Ervin, 2000:217), and a specification with regional fixed effects is reported as a robustness check.

Three limitations should be borne in mind. The design is a single-year cross-section, so the estimates describe the composition of one year’s flows rather than a long-run equilibrium; commitments are lumpy precisely because they record discrete financial closings. The database compiles publicly reported transactions, and its own documentation notes that small-scale and local projects may be under-represented a caveat that works, if anything, against the article’s own finding and is therefore treated as a conservative bias. Finally, sub-national data on the spatial allocation of partnership projects are not systematically published in the economies studied, so the regional argument is developed from sectoral composition and transaction size rather than from direct geographic evidence.

RESULTS

Global commitments reached US\$100.7 billion across 315 projects in 2024, a 16 per cent increase on 2023 and 20 per cent above the preceding five-year average, and the first time the threshold of one hundred billion dollars had been exceeded since the onset of the pandemic. Measured against the combined output of low- and middle-income economies, however, the same flow amounts to 0.27 per cent of gross domestic product. Table 2 reports the descriptive statistics of the matched sample.

Table 2. Descriptive statistics, 55 recipient economies, 2024

Variable	N	Mean	SD	Min	Median	Max
PPI (US\$ m)	55	1,831	5,791	2	218	40,843
Projects (number)	55	5.7	12.6	1	2	69
PPI/GDP (%)	55	0.609	0.964	0.005	0.288	5.590
Average project size (US\$ m)	55	200	241	2	109	1,200
Regulatory Quality	55	-0.261	0.484	-1.73	-0.240	0.68
GDP per capita, PPP (int\$)	55	14,918	13,817	1,404	10,794	83,659

Note. Author's calculations based on World Bank (2025a, 2025b, 2025c).

4.2. Concentration across recipients and sectors

Table 3 presents the concentration measures and supports H1 and H2 decisively. A single economy absorbed more than two-fifths of global commitments, three economies absorbed three-fifths and five absorbed over seventy per cent. The Gini coefficient of 0.829 across recipients exceeds the income inequality of any national economy on record, and the Herfindahl index of 0.197 corresponds to an effective number of roughly five equal-sized recipients out of fifty-five.

Table 3. Concentration of private infrastructure commitments, 2024

Measure	Value	Interpretation
<i>Panel A. Across recipient economies (n = 55)</i>		
Share of largest recipient	40.6%	One economy, two-fifths of flows
Share of three largest	59.9%	Three economies, three-fifths
Share of five largest	70.9%	Five economies, seven-tenths
Share of ten largest	85.4%	Residual 45 economies: 14.6%
Herfindahl–Hirschman index	0.197	≈ 5 effective recipients
Gini coefficient	0.829	Extreme inequality of flows
<i>Panel B. Across sectors (global)</i>		
Energy	67.5%	Generation, storage, transmission
Transport	20.5%	Roads, rail, ports, airports
Information and communication technology	10.4%	Data centres, backbone
Water and sanitation	1.3%	Local/municipal service
Municipal solid waste	0.3%	Local/municipal service
Herfindahl–Hirschman index (sectors)	0.508	Highly concentrated

Note. Author's calculations based on World Bank (2025a). Panel A is computed on the matched sample; Panel B on reported global sectoral totals. Rows in italics are panel headings.

Panel B carries the argument central to this article. Energy alone accounts for slightly more than two-thirds of global commitments, and together with information and communication technology and transport for 98.4 per cent. Water, sanitation and municipal solid waste the sectors that constitute regional and municipal infrastructure in any conventional definition receive 1.6 per cent between them. Moreover, water commitments have declined for several consecutive years, falling to US\$1.3 billion in 2024 from US\$1.8 billion in 2023 and against a five-year average of US\$4.6 billion. Whatever else private participation delivers, it is not delivering local service infrastructure.

The distribution of project counts supports H3. Twenty of the fifty-five recipients 36.4 per cent closed exactly one transaction in 2024, and 52.7 per cent closed no more than two; the median recipient closed two. Economies with eight or more projects, of which there were few, accounted for 81.7 per cent of total commitments, and the Gini coefficient of project counts reached 0.654. The median average project size was US\$109 million and the sample mean US\$200 million. These magnitudes are two to three orders above the scale of a district water system, a regional clinic or a municipal waste facility. Half of all recipients 28 of 55 recorded commitments below 0.3 per cent of gross domestic product, a level at which the instrument cannot be macro-economically material even where it is politically prominent.

Table 4 reports the regression results and supports the first part of H4. Regulatory quality is statistically indistinguishable from zero in every specification in which PPI intensity is the dependent variable, and the simple correlation between the two is essentially nil ($r = -0.014$, $p = 0.919$). The result is robust to controlling for market size, income level and region. By contrast, market size is a powerful and highly significant predictor of both the number of projects and the average project size, and regulatory quality correlates strongly with income per capita ($r = 0.570$, $p < 0.001$) rather than with flow intensity.

Table 4. OLS estimates, 55 recipient economies, 2024

	M1 ln(PPI/GDP)	M2 ln(PPI/GDP)	M3 ln(size)	M4 ln(projects)	M5 ln(PPI/GDP)
Regulatory Quality	-0.046 (0.528)	0.178 (0.530)	0.130 (0.435)	0.049 (0.228)	-0.213 (0.514)
ln GDP	—	-0.197 (0.124)	0.413*** (0.099)	0.390*** (0.085)	-0.174 (0.179)
Constant	-1.515*** (0.219)	-0.535 (0.648)	2.622*** (0.560)	-0.855** (0.395)	-0.331 (1.527)

	M1 ln(PPI/ GDP)	M2 ln(PPI/ GDP)	M3 ln(size)	M4 ln(projects)	M5 ln(PPI/GDP)
Region fixed effects	No	No	No	No	Yes
N	55	55	55	55	55
R ²	0.000	0.046	0.287	0.474	0.209

*Note. Author's calculations. HC3 heteroscedasticity-consistent standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$. A specification adding ln GDP per capita (not reported) leaves the Regulatory Quality coefficient at -0.004 with a standard error of 0.708.*

This null result should not be read as evidence that institutions are irrelevant. It is a statement about the margin on which they operate. Within the group of economies that succeeded in closing at least one transaction, the amount committed in a given year is determined by whether a large project happened to reach financial close, not by the marginal quality of the regulatory environment. The institutional variable is doing its work earlier in determining whether an economy enters the market at all and later, in determining the terms on which capital arrives.

Table 5 substantiates the second part of H4. Globally, one project in three received support from a development or export finance institution in 2024, accounting for 23 per cent of commitments by value, and direct development-finance lending doubled to US\$12.6 billion. The regional pattern is sharply differentiated. In the Middle East and North Africa seven of eight projects were so supported, and in Europe and Central Asia thirty-one of thirty-eight; in East Asia and the Pacific, by contrast, only ten of ninety-nine. Among economies eligible for concessional assistance the share reached 88 per cent, while commitments to that group fell by 38 per cent year on year and 57 per cent against their five-year average.

Table 5. Regional profile of private infrastructure commitments, 2024

Region	PPI (US\$ m)	Projects	PPI/GDP (%)	Mean Reg. Quality	DEFI-supported projects
East Asia and Pacific	56,959	99	0.27	0.003	10%
Europe and Central Asia	7,748	38	0.77	-0.008	82%
Latin America and Caribbean	21,865	95	0.36	-0.045	18%
Middle East and North Africa	491	8	0.02	-0.160	88%
South Asia	5,724	28	0.13	-0.533	39%
Sub-Saharan Africa	7,918	47	0.39	-0.505	64%
All regions	100,678	315	0.27	-0.261	33%

Note. Author's calculations based on World Bank (2025a, 2025b). Mean Regulatory Quality is the unweighted mean over sample economies in each region. Regional DEFI shares are as reported in the source; the all-region figure refers to the global project total.

The regional correlation between mean regulatory quality and development-finance dependence is weak in this small sample ($r = -0.148$ across six regions), because East Asia combines mid-range governance scores with deep domestic financial markets and therefore little need for external risk mitigation. The relevant observation is not a smooth statistical relationship but a categorical one: in every region where domestic capital markets are shallow, private participation exists only because a multilateral or bilateral institution is standing behind it.

DISCUSSION

The three structural findings country concentration, sectoral concentration in national revenue-generating assets, and transaction lumpiness are mutually reinforcing and have a common explanation in the fixed cost of project preparation. Feasibility work, legal structuring, financial modelling, due diligence and tendering absorb a largely size-invariant amount of scarce administrative and advisory capacity. A generation plant of US\$150 million and a district water system of US\$1.5 million impose comparable preparation burdens, so a capacity-constrained public partner rationally prepares the former. This is the aggregate expression of the megaproject bias documented at the level of individual investments (Flyvbjerg, 2014:6), and it explains why the sectors closest to regional development receive 1.6 per cent of global flows.

The fiscal literature adds a second reason for caution. Because a partnership does not relax the intertemporal budget constraint (Engel, Fischer, & Galetovic, 2013:83), using it to deliver services with weak or absent user charges which describes most regional infrastructure necessarily means committing future budget resources through availability payments or guarantees. Where those commitments are made by sub-national authorities with limited own revenue and limited capacity to value contingent liabilities (Irwin, 2007), the instrument transfers risk to precisely the balance sheet least able to bear it, and raises the probability of the renegotiation dynamics observed elsewhere (Guasch, Laffont, & Straub, 2008:421).

5.2. The case of Uzbekistan

Uzbekistan illustrates both the achievement and the limitation. Since the adoption of the PPP Law in 2019 (Law No. ZRU-537, 2019) and the establishment of a dedicated agency, the country has become the second-largest recipient of private infrastructure commitments in Europe and Central Asia. In 2024 it recorded US\$1,201 million across eight projects, equivalent to 0.817 per cent of gross domestic product nearly three times the sample median with an average project size of US\$150 million. All eight transactions were in renewable energy, and six of the eight were financed with multilateral support. At national portfolio level, approximately 90 per cent of the value of signed projects lies in energy. Table 6 places these figures in comparative perspective.

Table 6. Comparative profile of selected economies, 2024

Economy	PPI (US\$ m)	Projects	PPI/GDP (%)	Avg. size (US\$ m)	Reg. Quality	GDPpc PPP
Senegal	805	3	2.175	268	-0.24	4,669
Azerbaijan	1,024	3	1.348	341	0.13	22,314
Philippines	5,386	11	1.106	490	0.08	10,748
Kyrgyz Republic	218	2	0.964	109	-0.52	7,878
Uzbekistan	1,201	8	0.817	150	-0.53	11,623
Georgia	261	4	0.684	65	0.65	25,136
Brazil	12,663	64	0.555	198	-0.29	20,025
Viet Nam	1,664	4	0.323	416	-0.27	15,457
Türkiye	3,654	10	0.229	365	-0.21	37,301
Kazakhstan	610	2	0.199	305	0.05	37,851
India	5,689	26	0.144	219	-0.10	10,039

Note. Author's calculations based on World Bank (2025a, 2025b, 2025c). Ranked by PPI as a percentage of GDP.

Two observations follow. First, Uzbekistan performs well on the volume margin despite a regulatory quality estimate of -0.53, which places it in the lower third of the global distribution; the residual from the estimated model is positive and among the larger in the sample. The country is attracting more private infrastructure capital than its institutional indicators would predict, which is a genuine policy achievement attributable to the legal framework, the sovereign support package and multilateral risk mitigation. Second, and equally clearly, none of this capital reached regional service infrastructure in 2024. A useful internal comparison makes the point: over 2019–2021 the water sector accounted for 105 of the 265 registered partnership projects, with a combined value of 1,233.7 billion soum, implying an average project of roughly eleven billion soum of the order of one million United States dollars at the exchange rates then prevailing, or about one hundred and fiftieth of the average energy transaction recorded in 2024. The country therefore already operates two entirely distinct partnership markets: a small

number of large, internationally financed generation projects, and a large number of very small local contracts that attract no international sponsorship whatsoever. The mechanism problem is the absence of anything between them.

The measured structure of the instrument suggests that reform should target the fixed cost of preparation and the bankability of small assets rather than the volume of transactions. Table 7 maps each empirical finding to the corresponding mechanism. The proposals are consistent with the OECD principles for the public governance of partnerships (OECD, 2012) and with the strategic priorities of the national development agenda (Decree No. PF-158, 2023; Resolution No. PQ-308, 2024).

Table 7. From empirical finding to mechanism reform

Empirical finding	Constraint implied	Proposed mechanism
Median project US\$109 m; local sectors receive 1.6% of flows	Fixed preparation cost makes small assets unpreparable	Programmatic bundling: aggregate homogeneous regional assets (school heating, district water, waste) into single multi-site tenders reaching bankable scale
36% of recipients closed one project; portfolios are lumpy	No repeatable pipeline; every project is bespoke	Standardised model contracts and pre-approved risk-allocation matrices by sector, with simplified appraisal below a defined value threshold
Regulatory quality does not predict flow intensity	Institutional reform works on entry and financing terms, not volume	Shift the reform target from transaction counts to preparation capacity, transparency of award and quality of the project register
82% of ECA projects rely on development finance	Country and offtake risk is not privately priced	A domestic guarantee and viability-gap facility with published, rules-based eligibility, replacing case-by-case sovereign support
Local services lack cost-recovering tariffs	Sub-national budgets carry the payment obligation	Mandatory contingent-liability valuation and disclosure for sub-national commitments; ceilings expressed as a share of regional own revenue
Two disconnected markets: US\$150 m energy vs ≈US\$1 m water	Missing middle in project scale	A regional project-preparation fund staffed jointly with the national PPP centre, financing feasibility work for the missing middle

Note. Compiled by the author from the results of Sections 4.2–4.5.

CONCLUSION

This article examined whether public–private partnerships, as the instrument actually operates, are capable of delivering regional infrastructure. Using a cross-section of 55 low- and middle-income economies constructed from the World Bank private participation, governance and national accounts data for 2024, four conclusions emerge.

First, private infrastructure flows are extremely concentrated across recipients: five economies absorb 70.9 per cent of global commitments and the Gini coefficient reaches

0.829. Hypothesis H1 is supported. Second, flows are sectorally concentrated in large national revenue-generating assets, with energy, transport and digital infrastructure absorbing 98.4 per cent and the water, sanitation and waste sectors 1.6 per cent. Hypothesis H2 is supported, and this is the single most consequential result for regional policy. Third, flows are lumpy: 36.4 per cent of recipients closed one project and the median transaction was US\$109 million, two to three orders above the scale of regional assets. Hypothesis H3 is supported. Fourth, regulatory quality does not explain flow intensity conditional on participation, while weaker environments depend heavily on development-finance risk mitigation 82 per cent of projects in Europe and Central Asia and 88 per cent among concessional-assistance economies. Hypothesis H4 is supported in both its parts.

For Uzbekistan the implication is specific rather than general. The country has built a functioning partnership market and attracts capital above what its institutional indicators predict, but that market is a national energy market. Extending it to the regions requires not more transactions but different ones: bundled multi-site tenders that reach bankable scale, standardised contracts and simplified appraisal below a value threshold, a rules-based viability-gap and guarantee facility, disciplined valuation and disclosure of sub-national contingent liabilities, and a preparation fund dedicated to the missing middle between one-million-dollar municipal contracts and hundred-and-fifty-million-dollar generation plants.

Three extensions would strengthen the evidence. A multi-year panel would separate the structural composition of flows from the lumpiness of a single year's financial closings. Sub-national project registers, if published, would permit direct measurement of the spatial allocation of partnership investment rather than inference from sectoral composition. Finally, ex post evaluation of the small water-sector contracts already concluded in Uzbekistan would establish whether the bundling proposed here is operationally feasible at the scale the regions require.

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