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ECONOMIC PRINCIPLES OF ATTRACTING INVESTMENTS TO UKRAINE ON THE BASIS OF PUBLIC-PRIVATE PARTNERSHIP

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ABSTRACT. The article analyzes the economic foundations for mobilizing private and blended capital in Ukraine through public–private partnerships (PPP) amid the urgent need to restore and modernize infrastructure under constrained fiscal space. It is shown that PPPs make it possible to combine long-term resources with performance-based remuneration and a rational allocation of risks, whereas traditional public investment mechanisms neither guarantee sufficient funding volumes nor ensure whole-life asset efficiency. The study identifies key barriers: a gap between CAPEX needs and budget capacity; higher WACC driven by war-related, political, regulatory, and currency risks; institutional gaps in project preparation and selection; a protracted pre-feasibility/feasibility/VfM/PSC cycle; a tension between socially acceptable tariffs and project bankability; and limited project capacity at the municipal level. It is substantiated that selecting the payment model (user-paid tariff, availability payments – AP, or hybrid) should be based on the life-cycle cost (LCC) approach, Value for Money (VfM) assessment and the Public Sector Comparator (PSC), as well as analysis of demand elasticity and fiscal space. The article demonstrates the need for a coherent de-risking architecture combining political/war risk insurance and guarantees with VGF and MRG instruments, indexed payments, FX hedging, and the development of long-term hryvnia financing (project and municipal bonds, participation of institutional investors). The paper proposes institutionalization (a central coordinating body, regional hubs, a Project Preparation Facility), standardization of template contracts and KPI / SLA, fiscal rules (limits on direct and contingent liabilities, a registry, regular stress tests), alongside open data, market sounding, and digital contract-management tools (BIM / CMMS / IoT). The importance of ESG requirements and transparent monitoring is emphasized. The conclusion is that a portfolio-based, standardized, and transparent PPP approach reduces the risk premium and WACC, increases competition and fiscal manageability, improves VfM, and accelerates infrastructure recovery and modernization without sacrificing service quality.

Keywords: public-private partnership (PPP), investments, infrastructure, availability payments (AP), minimum revenue guarantee (MRG), viability gap funding (VGF), Value for Money (VfM), Public Sector Comparator (PSC), life-cycle cost (LCC), weighted average cost of capital (WACC), de-risking, fiscal liabilities, long-term hryvnia financing, political and war risk insurance.

INTRODUCTION

Problem statement. Ukraine is in a situation where there is an extremely high need for capital investment to restore and modernize infrastructure, energy, housing and communal services, transport, social facilities, and defense-critical logistics. Budgetary possibilities are limited by wartime priorities and the need for fiscal stability, while traditional mechanisms of public investment (capital expenditures, subsidies, public procurement of "works") do not provide either the necessary volumes or long-term efficiency of asset operation.

Under these conditions, public-private partnerships (hereinafter referred to as PPPs) are naturally considered as a basic tool for mobilizing private and mixed capital with the transfer of part of the risks to the private partner and payment for the result throughout the project life cycle. At the same time, a number of contradictions come to the surface:

- first, there is a gap between the need for large-scale investments and limited budgetary capacity, as the necessary CAPEX volumes cannot be financed solely from the state budget without threatening macrofinancial stability;

- secondly, despite the significant potential of PPPs, they remain unsuitable for financing on acceptable terms, as high non-commercial risks – military, political, regulatory, and currency – increase the cost of capital and make financial closure impossible without special risk mitigation instruments (insurance, guarantees, etc.);

- thirdly, even with an updated legal framework [1], institutional and market gaps remain, as it does not ensure high-quality project selection and preparation, transparent risk allocation, or proper management of fiscal commitments (availability payments, state guarantees, minimum revenue guarantees), nor does it guarantee access to long-term financing;

- fourth, the need to quickly restore assets contradicts the long stages of PPP preparation: from pre-feasibility and full feasibility study (FES) to VfM (Value for Money) assessment and PSC (Public Sector Comparator) and procurement – which often takes 12 to 24 months or more;

- fifth, the requirement to maintain socially acceptable tariffs in the utility sectors is inconsistent with the investment attractiveness of projects without support instruments such as Viability Gap Funding (VGF) or budget payments for accessibility;

- sixth, in conditions of decentralization, a significant part of initiatives arise at the community level, but local authorities lack project offices, standard contracts, and proven risk management practices, which reduces the likelihood of high-quality PPP portfolio formation.

Analysis of recent research and publications. The issue of economic principles of attracting investment through PPPs has a powerful international theoretical and methodological base, formed at the intersection of finance, institutional economics and public administration. Classical approaches to PPP policy and financing are systematized in the works of E. Yescombe, who outlined the principles of decision-making, contract structuring and criteria for the feasibility of using PPPs compared to traditional public investment [2]. A significant place is also occupied by the generalization of the "global PPP revolution" by D. Grimsey and M. Lewis, which describes the evolution of infrastructure contracts and project financing in different countries [3].

From the standpoint of economic demand theory, risk pricing and fiscal effects, fundamental guidelines were proposed by E. Engel, R. Fischer and A. Galetovych: they showed when PPP has advantages over budget construction and why PPP does not "free up" public funds, if we consider the full life cycle and hidden liabilities [4]. From the perspective of public administration and performance evaluation, G. Hodge and K. Greve emphasized the contradiction of empirical findings on PPP effectiveness and the determining role of institutional quality, transparency and accountability [5].

International organizations have supported academic findings with practical standards. The OECD has adopted the "Principles of Good Governance for PPPs", which guide governments in selecting projects based on the criterion of "value for money", transparent budget presentation and fiscal risk management [6]. The World Bank and partners have created the "PPP Reference Guide 3.0" as a navigational guide to PPP policy, law, and preparation-implementation processes, which is widely used by governments and municipalities [7]. EPEC (European PPP Expertise Center, EIB) has proposed practical guidelines "The Guide to Guidance: How to Prepare, Procure and Deliver PPP Projects", which describes in detail the stages of the cycle, the roles of the parties and typical procurement instruments [8]. To measure fiscal risks, the IMF and the World Bank have developed the PFRAM 2.0 model, which allows identifying direct and contingent liabilities of the state under PPPs and conducting fiscal sustainability stress tests [9].

A significant contribution to the Ukrainian scientific and applied discourse was made by I.V. Zapatrina, who studies the regulatory and institutional aspects of the development of PPPs (in particular, in public buildings and infrastructure) and the evolution of PPP regulation in Ukraine; her works outline barriers to the entry of private capital and possible ways to overcome them [10; 11].

The purpose of the article is to study the economic principles and instruments for attracting private and mixed capital to Ukraine on the basis of public-private partnership, with the determination of optimal risk sharing mechanisms.

Presentation of the main material of the study. Public-private partnership in modern economic practice is considered as a contractual-institutional way of attracting long-term capital to create and provide socially significant services. Its logic is based on managing the value over the life cycle of the asset: the key effect is formed not only during construction, but primarily in the operation phase through quality standards, forecasted maintenance costs and incentive mechanisms for payment "for the result" rather than "for the process". The distribution of functions and risks between the state and the private partner is based on the principle of comparative advantage: each party assumes those risks that it can control or reduce through insurance and hedging. With a properly configured architecture, PPP combines long-term private money with a public mandate for service quality, reduces transaction costs through document standardization and increases accountability through clear KPI (Key Performance Indicators) / SLA (Service Level Agreement).

Ukraine needs large-scale capital investments to restore and modernize infrastructure, energy, housing and utilities, transport, social services and critical logistics. Budgetary opportunities are limited by defense requirements and fiscal sustainability, and traditional public investment schemes do not provide either the required amount of financing or guarantees of effective asset operation. Under these conditions, PPP acts as a natural channel for mobilizing private and mixed capital, which allows simultaneously structuring risks, ensuring predictable quality of services and maintaining control over the state's fiscal obligations [12].

The economics of PPPs boil down to comparing the options of “traditional public investment” and “PPP” according to the criteria of life cycle cost (LCC), weighted average cost of capital (WACC), risk allocation and fiscal consequences. The public sector seeks to obtain “value for money” (VfM), i.e. either a lower present value of the service for a given quality, or a higher quality for the same cost. The choice of payment model: tariff or hybrid, is determined by the demand forecast, social constraints, sectoral specifics and the availability of co-financing sources.

In user-paid models, revenue is generated at the expense of users; the private partner assumes the demand risk and receives remuneration in the form of tariff revenue (Table 1). The model is appropriate where demand is predictable and solvent, and regulatory rules are stable.

In contracts with availability payments, regular payments are made from the budget for the availability and quality of the service regardless of actual demand, while the private partner bears construction and operational risks and is subject to a system of penalties for non-compliance with KPIs.

Hybrid solutions combine tariffs with support instruments, including variable capital grants (VGF), minimum revenue guarantees (MRG), revenue corridors (floor/ceiling), and partial debt guarantees. They are applicable where the tariff is an important economic signal but does not provide a return on investment on its own.

Thus, the three payment archetypes of PPPs perform complementary functions in the system of attracting investments: tariff models capitalize on market demand, AP guarantees basic accessibility of public services, and hybrids address intermediate cases with partial tariff capacity. The scientifically based choice between them should be based on the assessment of “value for money” (VfM / PSC), verification of fiscal sustainability and appropriate derisking, while in portfolio application this minimizes WACC and ensures manageability of budgetary obligations without loss of service quality.

Table 1. PPP payment models: application features and allocation of key risks

Criteria	Tariff (user-paid)	Availability Payments (AP)	Hybrid (AP + tariff / VGF)
Where it works best	Ports, parking lots, utilities with solvent demand	Social facilities, toll-free roads, critical infrastructure facilities	Water/heat, waste, digital infrastructure
Construction risk	Private (fixed price, performance guarantees)	Private	Private
Operational risk (O&M)	Private (KPI/SLA, penalties/bonuses)	Private	Private
Demand risk	Private	State	Shared: tariff → private; MRG/corridors → state
Regulatory / tariff risk	Shared: the state establishes/updates the methodologies; compensation for significant changes to the rules is contractual	Shared: AP indexation rules; compensation for regulatory changes specified in the contract	Shared: tariff methodology + AP/VGF review rules
Currency risk (FX)	Shared: private investor bears the base; mitigation occurs through tariff indexation / share of hryvnia debt / hedge	Shared: AP indexation; possible hryvnia loans / FX hedge	Shared: indexation, currency basket / hryvnia, FX hedge
Typical support tools	MRG for the first years, revenue corridors, regulatory agreements	Indexation, penalty deductions for KPI, adjustment of the service volume	CAPEX Grants (VGF), Guarantees, Indexation, FX Hedge

Source: *compiled by the authors based on a summary of research.*

The effectiveness of PPPs largely depends on how correctly key risks are identified, allocated and mitigated, because it is they that determine the risk premium, affect the WACC and ultimately decide whether the project will be eligible for financing. The distribution of key risks and the corresponding derisking instruments are summarized in Table 2.

Table 2. Matrix of allocation of key risks in PPP projects and tools for their mitigation

Risk	Risk division	Mitigation tools
Construction (price/terms)	Private	Fixed price, “turnkey”, performance bonds, insurance
Operational (O&M, reliability)	Private	KPI/SLA, fines/bonuses, provisions for major repairs
Demand (traffic / consumption)	Depending on the model	AP – state; tariff – private; hybrid – split + MRG/corridors
Regulatory/tariff	State/mixed	Rules for reviewing tariffs/payments, compensation for changes
Currency/inflationary	Mixed	Indexation, FX hedging, share of hryvnia debt
Political/military/force majeure	State/Insurer	Political/military insurance, contractual compensation clauses

Source: *compiled by the authors based on a summary of research.*

It has been proven that a properly compiled risk matrix is the heart of the PPP economy. In Ukrainian conditions, political, military and regulatory risks remain critical, which increase the

WACC and complicate financial closure. Tools are needed to reduce non-commercial risks: political / military insurance of investments and loans; guarantee mechanisms (including first-loss at the portfolio level); MRG for tariff models during the "promotion" period; grants for capital expenditures (VGF), which reduce the need for debt; indexation of payments and partial currency hedging; structural arrangements for compensation in the event of regulatory changes. All this reduces the risk-premium, makes investor offers more competitive and increases the likelihood of financial closure.

In general, the risk matrix in public-private partnership projects should be based on the principle of comparative advantage: construction and operational risks are more effectively held by the private partner through control over the budget, deadlines, and operational discipline, while regulatory and political risks are held by the state, in particular through stable rules, guarantees, and external insurance.

Demand risk is an adjustable parameter of the model: in contracts with availability payments, it is mainly transferred to the state, in tariff schemes it remains with the private partner, and in hybrid solutions it is shared and smoothed using the minimum guaranteed revenue (MRG) and revenue corridors.

Currency and inflation risks should be formalized in the contract through transparent indexation of payments, the share of long-term loans in the national currency, and hedging instruments, which directly reduces the risk premium and, accordingly, the weighted average cost of capital.

Political, military and force majeure risks should be covered by external insurance combined with clear compensation clauses, which increases the eligibility of projects for financing and reduces the time to financial close. Therefore, the content and parameters of the risk matrix should be adapted to the sector and confirmed by quantitative sensitivity tests to clearly record "who pays for what and when". This approach increases competition in the tender, improves banking conditions, reduces WACC and ensures a balance between service quality, investment attractiveness and fiscal sustainability.

The PPP generates direct (availability payments, grants) and contingent (guarantees, MRG, early termination compensation) government liabilities. Economic sustainability depends on the existence of rules limiting the acceptance of new liabilities, methodologies for their accounting, stress tests (inflation, exchange rate, rates, demand) and transparent reporting. A PPP liability register with risk-weighted estimates, limits as a percentage of budget revenues, procedures for approving contracts with fiscal authorities, and independent PSC / VfM verification are needed, thus making the PPP a managed instrument of development budget policy.

The practical implementation of the economic principles of PPP requires a holistic "package" of institutional, financial and procedural solutions. First of all, institutionalization: the creation of a central agency (or coordination office) and regional hubs of competences, the launch of a project preparation fund with cost recovery after financial closure, the approval of standard PSC / VfM / LCC methodologies and standard contracts (DBFOM / concession) with unified KPI / SLAs and payment mechanisms. In parallel, fiscal rules should be implemented: limits on long-term liabilities (as a share of budget revenues), a register of direct and contingent PPP liabilities with risk-weighted assessments, regular stress tests for inflation / exchange rate / rates / demand, integration with the medium-term budget declaration and public reporting in unified formats. It is necessary to form a financial ecosystem of long-term hryvnia resources – project and municipal bond programs, attracting pension and insurance funds, partial guarantees and framework credit lines, as well as indexation and FX hedging tools that reduce the currency gap. The derisking framework should combine political/military insurance of investments and loans, portfolio guarantees (with a first-loss component), customized MRGs and revenue corridors with transparent "cap" / "clawback", as well as contractual compensation mechanisms for regulatory changes. Standardization involves the announcement of "series" of typical projects (clusters) with the same requirements for technology, KPIs, payment formulas and procurement procedures, as well as market sounding protocols for early alignment of investor and lender expectations. Transparency

and control are provided by open data on KPI performance and payments, independent technical engineer and audit, digital monitoring tools (BIM / CMMS / IoT), integration with the e-procurement system and fast dispute resolution procedures (DAB / mediation / arbitration). Together, this creates a predictable environment for private investment, reduces the risk premium and WACC, increases competition in tenders and makes the PPP portfolio manageable in terms of fiscal sustainability and quality of public services.

CONCLUSIONS

Public-private partnership appears not as a substitute, but as a rational addition to traditional public investment, which, with proper project design, allows to reduce the total life cycle cost (LCC), lower the risk premium and, accordingly, the weighted average cost of capital (WACC), while increasing the quality and predictability of public services. The economic logic of the choice between tariff, contract-based payment for availability (AP) and hybrid models should be based on the assessment of "value for money" (VfM / PSC), elasticity and stability of demand, social acceptability of tariffs and the availability of fiscal space for long-term commitments. The key condition for "suitability for financing" is the correct risk distribution matrix: construction and operational risks with the private partner; regulatory, political and military risks under the responsibility of the state with the use of insurance, guarantees. The supporting derisking architecture (MRG, VGF, yield corridors, indexation, FX hedging) must be finely calibrated and transparently enshrined in contracts and rules.

The sustainability of the PPP portfolio is achieved through institutionalization (central coordination body and competence hubs), standardization of documents and KPIs / SLAs, creation of a project preparation fund, as well as the implementation of fiscal rules: limits on long-term and contingent liabilities, a risk register and regular stress tests. The development of long-term hryvnia financing (project and municipal bonds, participation of pension and insurance funds, partial guarantees) minimizes currency mismatches, and data transparency, independent technical supervision and digital control tools reduce transaction costs and increase competition in tenders. As a result, a portfolio, standardized and transparent approach to PPP creates a predictable environment for “involving” private and mixed capital, accelerates the restoration and modernization of Ukraine’s infrastructure and ensures a balance between investment attractiveness, quality of services and fiscal sustainability of the state.

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