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Article

Innovative Outsourcing in Small Business: Identification, Full-Cost Assessment, Firm-Level Evidence and an Interactive Center Model (Evidence from Namangan Region, Uzbekistan)

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Abstract: Small firms increasingly buy accounting, IT, legal and analytical functions from external providers, yet they rarely know whether such outsourcing is innovative, whether it is cheaper than in-house work once all costs are counted, and whether it is associated with better performance. This paper addresses these three questions and proposes an institutional model that helps small firms act on the answers. First, we propose the F–D–T approach, which identifies innovative outsourcing by separately recording the function transferred to an external provider (F), the digital tool used to perform it (D) and a documented change in the business process (T). Second, we propose a full comparative cost algorithm, TCout = P + I + M + R + Cret + Cexit, and a decision rule that adds quality, security and continuity constraints. Third, using a balanced panel of 25 small enterprises in Namangan Region for 2021–2025 (125 firm-year observations), we find that the year of joining comprehensive innovative outsourcing is associated with about 5.1% higher annual revenue growth ($p = 0.009$) and about 9.5% higher growth of revenue per employee ($p = 0.032$) in first-difference models; the firm fixed-effects estimate is positive but significant only at the 10% level. Finally, we describe the Interactive Center of Innovative Outsourcing (ICIO), an 11-step intermediary model, and its adoption by a national sector association and a regional chamber of commerce. The results are associations, not causal effects, and call for larger samples.

Keywords: innovative outsourcing, small business, full-cost comparison, panel data, first differences, test-before-invest, Uzbekistan

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1. Introduction

Small and medium-sized enterprises account for about 90% of businesses and more than half of employment worldwide [1]. Their limited financial, human and technological resources make it hard to perform accounting, IT, legal and analytical functions in-house at a high standard. Digital transformation sharpens the problem: the skills needed to use cloud services, software as a service (SaaS) and artificial intelligence tools are often missing inside the firm.

Outsourcing offers access to such skills without a matching rise in fixed costs [2]–[4]. Many countries support it through public programmes. The U.S. Manufacturing Extension Partnership gives small manufacturers consulting and technology services [5], and the European Digital Innovation Hubs let firms trial digital solutions under the "test before invest" principle [6], [7]. Published indicators of these programmes are, however, mostly descriptive, and their effect on firm results is hard to establish [8].

In Uzbekistan small business is a pillar of the economy: in Namangan Region it produced 73.6% of regional gross value added in 2025 [9]. The IT services market is growing fast, and in 2023 IT outsourcing accounted for 57% of the exports of IT Park

residents [10]. This growth is export-oriented. How regional small firms use innovative outsourcing, what it costs compared with in-house work and how it relates to their performance remains poorly measured.

This paper makes four contributions. (i) It proposes the F–D–T approach to distinguish innovative outsourcing from simple digitalization. (ii) It formalizes a full comparative cost algorithm with a multi-criteria decision rule. (iii) It estimates the association between comprehensive innovative outsourcing and firm performance on a 2021–2025 panel of 25 small enterprises in Namangan Region. (iv) It presents the Interactive Center of Innovative Outsourcing (ICIO), an intermediary model that turns these tools into a service process. Section 2 reviews the literature, Section 3 sets out the methodology, Section 4 reports the results, Section 5 describes the ICIO model, and Sections 6–7 discuss limitations and conclude.

Literature review

The theory of the firm explains outsourcing as a choice of boundaries. Coase showed that firms internalize activities when market transaction costs exceed internal coordination costs [2]. Williamson linked this choice to asset specificity, uncertainty and the risk of opportunism [3]. The resource-based view adds that firms gain advantage from resources that are valuable and hard to imitate [4], while core-competence theory warns against transferring strategically important functions [11].

Later work moved from cost to capability. Quinn argued that outsourcing can become a source of innovation when firms buy specialized knowledge they cannot build themselves [12]. Lacity and Willcocks documented the practices that separate successful IT outsourcing from failures [13], and Oshri, Kotlarsky and Willcocks extended the analysis to business process outsourcing and offshoring [14]. Reviews of the empirical literature identify transaction attributes, client capabilities and relationship governance as the main determinants of outcomes [15], [16]. Most of this evidence comes from large firms and IT contracts.

Innovation measurement offers a second strand. The Oslo Manual defines a business process innovation as a new or improved process that differs significantly from the firm's previous ones [17]. It does not, however, distinguish whether the change came from an external provider or from in-house digitalization. Programme evaluations of the MEP and of the European Digital Innovation Hubs report activity and client counts [5], [18], but independent audits show that impact estimates can be overstated [8].

In Uzbekistan, recent studies examine support strategies for small business [19] and the use of digital technologies in outsourced accounting [20]. Three gaps remain: no operational rule separates innovative outsourcing from digitalization, cost comparisons rarely include transition, risk and exit costs, and firm-level panel evidence for the regions is lacking. This paper addresses all three.

2. Methodology

2.1. The F–D–T identification approach

We classify outsourcing as innovative only when three features are recorded separately and all are present. F is a business function transferred to an external provider under a contract (accounting, HR, IT, legal, logistics and similar). D is a digital tool used to perform it (SaaS, cloud, CRM/ERP/HRM, electronic document flow). T is a documented change in the way the process is performed, with defined before and after states and measurable results. A firm that buys a cloud program without transferring a function has D but not F; a firm that hands its books to an outside accountant on paper has F but not D. Neither counts as innovative outsourcing under this rule. The rule is an operational proposal, not an official statistical standard.

2.2. Full comparative cost algorithm and decision rule

The annual full cost of performing a function in-house, TCin (wages, social tax, workplace, software), is compared with the full cost of the external option at the same volume and quality of service:

$$TCout = P + I + M + R + Cret + Cexit, \quad E = TCin - TCout \qquad (1)$$

Here P is the provider fee, I the transition and integration cost, M the client's retained monitoring cost, R the expected cost of risks (errors, delays, data loss), Cret the internal costs that remain in the firm, Cexit the cost of leaving the contract, and E the annual net effect for the client. Outsourcing is preferred only when four conditions hold at once:

$$E \geq 0, \quad Qout \geq Qmin, \quad S = 1, \quad Rcont \leq Rmax \qquad (2)$$

where Q is service quality, S indicates that data-security requirements are met and Rcont is the business-continuity risk.

2.3. Data

The panel covers 25 small enterprises in Namangan Region over 2021–2025, giving 125 firm-year observations. Revenue, profit, assets and the average number of employees come from the firms' accounting statements; outsourcing status comes from a firm survey. The indicator Dit equals 1 when firm i used a comprehensive outsourcing package (accounting, tax, HR, legal, IT and other support services) in year t. It is 1 in 60 observations and 0 in 65. The package is recorded as a whole, so the effects of individual services cannot be separated. Outcomes are the logarithm of revenue, the logarithm of revenue per employee, the profit margin and return on assets (ROA).

2.4. Econometric strategy

The fixed-effects (FE) model controls for time-invariant firm characteristics and common year shocks:

$$\ln Yit = \alpha i + \lambda t + \beta \cdot Dit + \gamma \cdot Lit + \varepsilon it \qquad (3)$$

where αi are firm effects, λt year effects and Lit the number of employees. The first-difference (FD) model relates annual growth to the year a firm newly joins the service, Nit:

$$\Delta \ln Yit = \lambda t + \beta \cdot Nit + \Delta \varepsilon it, \quad t = 2022, \ldots, 2025 \qquad (4)$$

Standard errors are clustered by firm with the small-sample correction $G/(G-1)\cdot(N-1)/(N-K)$, as in Stata's xtreg, fe vce(cluster). Robustness checks include a placebo test with the next year's status (lead), a lagged-status model, leave-one-firm-out (LOO) estimation and a cluster bootstrap with 399 replications (seed 20261026). Percentage effects are computed as $\exp(\beta) - 1$. Estimates were run in Stata 15 and replicated independently.

3. Results

3.1. Fixed-effects estimates

In levels, the association between outsourcing and revenue is positive but weak. With firm and year effects and the number of employees as a control, $\beta = 0.02754$ ($p = 0.074$), which is significant only at the 10% level. The estimate is similar without the employment control or with its logarithm. Profit margin and ROA show no significant association (Table 1).

Table 1. Fixed-effects estimates (firm and year effects, N = 125, standard errors clustered by firm)

Dependent variable	Controls	β (outsourcing)	Std. error	p-value
ln(revenue)	employees	0.02754	0.01476	0.074
ln(revenue)	none	0.02546	0.01491	0.101
ln(revenue)	ln(employees)	0.02606	0.01507	0.097
ln(revenue per employee)	none	0.09263	0.05520	0.106
Profit margin	employees	−0.00838	0.00740	0.269
ROA	employees	−0.02329	0.02238	0.308

3.2. First-difference estimates and robustness

Growth rates tell a clearer story. In the year a firm newly joins the service, revenue grows faster by β = 0.04991 (p = 0.009), or about 5.1%, and revenue per employee by β = 0.09076 (p = 0.032), or about 9.5% (Table 2). Headcount growth is about 4% lower in that year, but the difference is not significant (p = 0.351). Roughly half of the productivity gain therefore reflects faster revenue growth and the rest slower growth in employment.

Table 2. First-difference models and robustness checks (2022–2025, N = 100)

Model	Dependent variable	β	Std. error	p-value	Effect
FD, new adoption	Δln(revenue)	0.04991	0.01743	0.009	+5.1%
FD, new adoption	Δln(revenue per employee)	0.09076	0.03992	0.032	+9.5%
FD, new adoption	Δln(employees)	−0.04084	0.04294	0.351	−4.0%, n.s.
FE, same 2022–2025 sample	ln(revenue)	0.04047	0.01412	0.009	+4.1%
FE, placebo: next year's status	ln(revenue)	−0.00973	0.02453	0.695	n.s.
FE, lagged status	ln(revenue)	−0.02637	0.02683	0.335	n.s.

The placebo test finds no association with the following year's status, so the result is not driven by firms that were already growing before they joined. The productivity coefficient stays positive when each firm is dropped in turn (LOO range 0.07136–0.10766), and its 95% cluster-bootstrap percentile interval is [0.01733; 0.17302]. The lagged-status model shows no persistent effect in the following year, which suggests a one-off gain at adoption rather than a permanently higher growth path.

3.3. Full-cost scenarios

Applying the algorithm of Section 3.2 to the sample, we compared the comprehensive package with the cost of keeping equivalent staff in-house. Under s

tated assumptions on wages, social tax, rent and depreciation, the potential annual saving per firm-year is 255.3 million UZS if the package replaces 4 employees, 413.3 million UZS for 6 and 571.4 million UZS for 8. These are decision scenarios, not observed savings: eight service lines do not equal eight full-time positions, and for firms with few operations the advantage can be much smaller.

The Interactive Center of Innovative Outsourcing (ICIO)

The findings above suggest that small firms gain from outsourcing when the choice is well prepared and its results are checked. The ICIO model turns this into a service process. The center acts as an intermediary between firms and providers: it formulates the firm's problem in operational terms, finds and tests a solution, and monitors the result.

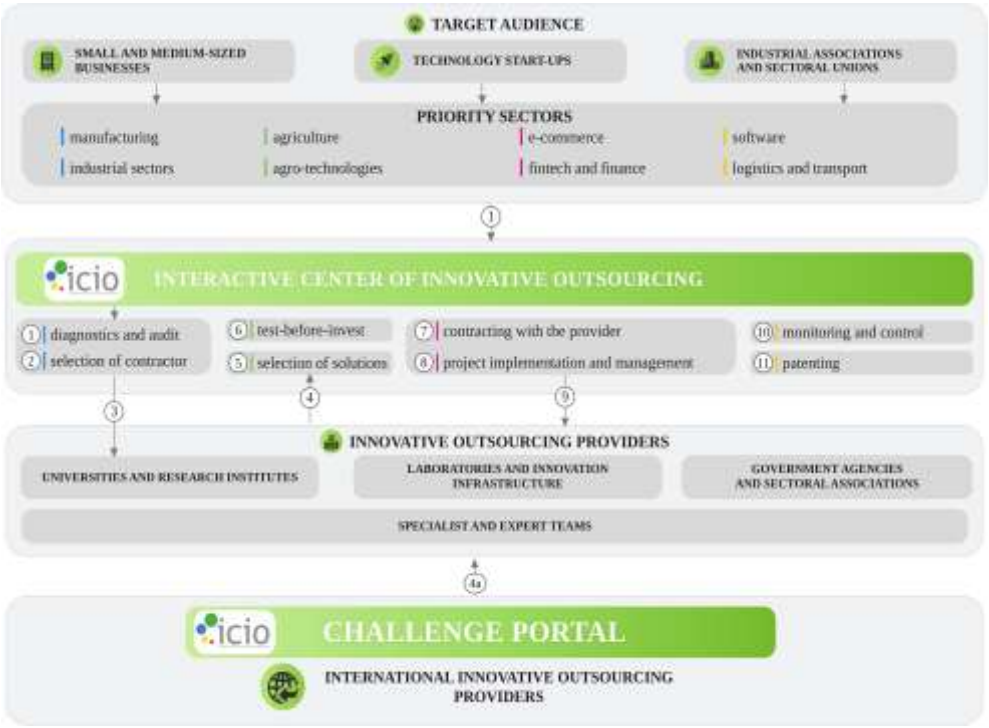


Figure 1. Structure of the Interactive Center of Innovative Outsourcing (ICIO). Source: developed by the author.

The structure has four layers. The target audience comprises small and medium-sized businesses, technology start-ups, and industrial and sector associations, with eight priority sectors: manufacturing, industry, agriculture, agro-technologies, e-commerce, fintech, software, and logistics and transport. The center performs the core functions. The provider network includes universities and research institutes, laboratories and innovation infrastructure, government agencies and sector associations, and expert teams. A Challenge Portal brings in international providers when no local solution exists.

The center works in eleven steps, numbered as in Figure 1:

1. Diagnostics and audit: the firm applies, and the center analyses its processes and defines the task.
2. Selection of contractors: the range of suitable providers is identified.
3. The task is sent to providers.
4. Providers return solution proposals. (4a) If no local solution exists, the task is published on the Challenge Portal as an open call to international providers.
5. Selection of solutions: proposals are compared on full cost (Section 3.2), quality and risk.
6. Test-before-invest: the chosen solution is piloted on a small scale before full investment.
7. Contract with the provider, specifying service levels (SLA), confidentiality and liability.
8. Project implementation and management by the center.
9. The provider implements the solution in the firm.
10. Monitoring and management against agreed KPIs, with correction or replacement of the provider if needed.
11. Patenting, when a new technical solution has been created.

The model has been adopted at a conceptual and methodological level. The National Association of Fruit and Vegetable Growers (MSMA) accepted the ICIO concept, the F–D–T approach and the full-cost algorithm for its sectoral digital platform (implementation act of 1 August 2026). The Namangan Regional Office of the Chamber of Commerce and

Industry of Uzbekistan applies the F–D–T approach and the cost algorithm in its Entrepreneurship Support Centre; in 2025, 30 businesses received recommendations on this basis (reference No. 23-F of 30 October 2026). The Committee on Entrepreneurship, Competition Development and Industry of the Legislative Chamber of the Oliy Majlis accepted the concept for information (reference No. 04/7-12-4 of 3 November 2026). None of these documents confirms financial results, which remain a task for a pilot evaluation.

4. Discussion

The evidence points to a gain concentrated in the year of adoption. FD estimates are positive and significant, the FE level estimate is weaker, and lagged status shows no persistent effect. This pattern fits the view that outsourcing changes how a function is performed once, through better processes and tools, rather than raising growth permanently. It also explains why the F–D–T rule matters: the gain is expected where a documented process change (T) accompanies the transferred function, not where a firm merely buys software.

The results should be read with five limitations. First, the sample is small (25 firms) and regional, so the estimates are imprecise and may not generalize. Second, firms chose to outsource, and time-varying factors such as new investment or management change may coincide with adoption; the placebo test reduces but does not remove this concern. Third, outsourcing is recorded as one package, so the contributions of accounting, IT or legal services cannot be separated. Fourth, the F–D–T classification was applied to the survey design but has not yet been validated on a large sample. Fifth, the cost scenarios rest on assumptions, not on observed contract prices.

Future work should record the month of adoption, actual contract payments and service quality, cover a wider control group and other regions, and evaluate ICIO pilots against a comparison group of similar firms.

5. Conclusion

Innovative outsourcing can help small firms obtain skills they cannot keep on staff, but only when it is identified correctly, costed in full and monitored. The F–D–T approach separates the transfer of a function from simple digitalization. The full comparative cost algorithm adds transition, monitoring, risk, retained and exit costs to the provider fee and combines them with quality, security and continuity constraints. On a 2021–2025 panel of 25 small enterprises in Namangan Region, joining comprehensive innovative outsourcing is associated with about 5.1% higher revenue growth and about 9.5% higher growth of revenue per employee in the year of adoption, while level estimates are weaker.

The ICIO model brings these tools together in an eleven-step process run by an intermediary that links firms with universities, laboratories, agencies and international providers. It has been adopted conceptually by a national sector association and a regional chamber of commerce and accepted for information by a parliamentary committee. A pilot with a comparison group is the next step to measure its effect.

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