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Ağasadıq Gəraybəyli obrazlarının ədəbi-linqvistik-estetik semantikası

Natəvan Hacıyeva[1], Sevda Novruzəliyeva[1*]

Xülasə. *Bu məqalədə Azərbaycan teatr və kino sənətinin görkəmli nümayəndəsi, Xalq artisti Ağasadıq Gəraybəylinin yaratdığı obrazların ədəbi-linqvistik-estetik semantikası tədqiq edilir. Araşdırmanın məqsədi aktyorun müxtəlif janrlı obrazlarında bədii mətn, nitq mədəniyyəti, dil üslubu və estetik ifadə vasitələrinin qarşılıqlı əlaqəsini müəyyənləşdirməkdir. Tədqiqat zamanı obrazların məna yükü, leksik-semantik xüsusiyyətləri, milli-mədəni dəyərlərin ifadəsi, personajların psixoloji səciyyəsi və aktyor ifasının bədii-estetik funksiyaları müqayisəli və analitik metodlarla təhlil olunur. Məqalədə Ağasadıq Gəraybəylinin yaratdığı obrazların Azərbaycan milli aktyorluq məktəbinin inkişafında mühüm yer tutduğu, onların dil, ədəbiyyat və teatr sənətinin vəhdətini əks etdirdiyi əsaslandırılır. Tədqiqatın nəticələri göstərir ki, aktyorun obrazları yüksək estetik dəyərə malik olmaqla yanaşı, milli-mənəvi kimliyin, bədii təfəkkürün və dil mədəniyyətinin qorunması və gələcək nəsillərə ötürülməsi baxımından da mühüm elmi və mədəni əhəmiyyət daşıyır.*

Açar sözlər: *Ağasadıq Gəraybəyli, obraz semantikası, ədəbi-linqvistik təhlil, estetik semantika, nitq mədəniyyəti*

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The Literary, Linguistic and Aesthetic Semantics of Agasadig Garaybeyli's Characters

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Abstract. *This article examines the literary, linguistic and aesthetic semantics of the characters created by Agasadig Garaybeyli, a distinguished representative of Azerbaijani theatre and cinema and a People's Artist of Azerbaijan. The aim of the study is to identify the interrelationship between literary text, speech culture, language style and aesthetic means of expression in the actor's characters representing different genres. The research analyzes the semantic content of the characters, their lexical-semantic features, the expression of national and cultural values, the psychological characteristics of the characters, and the artistic and aesthetic functions of the actor's performance through comparative and analytical methods. The article demonstrates that the characters created by Agasadig Garaybeyli occupy a significant place in the development of the Azerbaijani national acting school and reflect the unity of language, literature and theatrical art. The findings indicate that, in addition to their high aesthetic value, the actor's characters possess considerable scholarly and cultural significance in preserving and transmitting national identity, artistic thought and language culture to future generations.*

Keywords: *Agasadig Garaybeyli, character semantics, literary and linguistic analysis, aesthetic semantics, speech culture*

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Giriş

Azərbaycan teatr və kino sənətinin inkişafında mühüm xidmətləri olan görkəmli sənətkarlardan biri Ağasadıq Gəraybəylidir. Onun yaratdığı obrazlar yalnız aktyor ifasının peşəkarlığı baxımından deyil, həm də obrazların dil, üslub və estetik xüsusiyyətlərinin zənginliyi ilə diqqəti cəlb edir. Sənətkarın yaradıcılıq irsində müxtəlif sosial-mədəni mühitləri, insan xarakterlərini və psixoloji vəziyyətləri əks etdirən obrazlar xüsusi yer tutur. Bu obrazların nitq xüsusiyyətləri, leksik-semantik seçimləri, ifadə vasitələri və emosional-ekspressiv çalarları onların bədii-estetik mahiyyətinin formalaşmasında mühüm rol oynayır. Ağasadıq Gəraybəylinin obrazlarının ədəbi-linqvistik-estetik semantikasının araşdırılması aktyor sənəti ilə dil faktlarının qarşılıqlı əlaqəsini üzə çıxarmaq baxımından əhəmiyyətlidir. Tədqiqat zamanı obrazların nitqində müşahidə olunan dil vahidlərinin semantik yükü, üslubi funksiyası və estetik təsir imkanları diqqət mərkəzində saxlanılır.

Metodlar

Bu tədqiqat zamanı aşağıdakı konseptual metodlar tətbiq olunmuşdur:
- *Təsviri metod* – Ağasadıq Gəraybəylinin yaratdığı obrazların əsas ədəbi və dil xüsusiyyətləri müəyyənləşdirilmişdir.
- *Linqvistik təhlil metodu* – Obrazların nitqində işlənən leksik, frazeoloji və sintaktik vahidlərin semantik xüsusiyyətləri araşdırılmışdır.
- *Müqayisəli metod* – Müxtəlif obrazların nitq və üslub xüsusiyyətləri müqayisə edilərək onların fərqli cəhətləri müəyyən edilmişdir.

Nəticələr

Bu elmi məqalədə dilçilik və sənətşünaslıq baxımdan tədqiqat apararkən aşağıda yer alan bəndlər aşkarlanmışdır:

- Ağasadıq Gəraybəylinin yaratdığı obrazların fərdi və sosial xüsusiyyətləri dil vasitəsilə aydın şəkildə ifadə olunur.
- Obrazların nitqində leksik, frazeoloji və sintaktik vahidlər mühüm semantik yük daşıyır.
- Dil elementləri obrazların xarakteri, emosional vəziyyəti və dünyagörüşünün açılmasına xidmət edir.
- Müxtəlif obrazların nitq xüsusiyyətləri onların fərdiləşdirilməsində və bədii-estetik təsirinin gücləndirilməsində mühüm rol oynayır.
- Gəraybəylinin obrazlarının nitqində milli-mədəni dəyərləri əks etdirən ifadə vasitələrinin mühüm yer tutduğu müəyyən edilmişdir.

Elmi-praktiki əhəmiyyəti
Bu elmi məqalə dörd bəndən ibarət elmi praktiki əhəmiyyəti önə çıxarır:

- Tədqiqatın nəticələri Ağasadıq Gəraybəylinin yaradıcılığının ədəbi-linqvistik və estetik aspektlərinin sistemli şəkildə öyrənilməsinə nəzəri zəmin yaradır.
- Araşdırmadakı nəticələr Azərbaycan teatr və kino sənətində obrazların dil xüsusiyyətlərinin tədqiqi üçün elmi mənbə kimi istifadə oluna bilər.
- Məqalənin materiallarından filologiya, dilçilik, teatrşünaslıq və ədəbiyyatşünaslıq üzrə aparılan tədqiqatlarda, eləcə də ali məktəblərdə tədris prosesində yararlanmaq mümkündür.

Müzakirə

Gerçək aktyor geniş dünyagörüşünə, yüksək mədəniyyətə, inkişaf etmiş estetik zövqə və zəngin yaradıcılıq təxəyyülünə sahib olmalıdır. Böyük aktyorun çıxış etdiyi salon tamaşaçı ilə doludur, belə aktyor onun sənətini sevən tamaşaçıdan güc-enerji-motivasiya alır. Görkəmli rus rejissoru, Boris Zaxava doğru buyurur ki, *"İnsanlarla dolu olan tamaşaçı salonu aktyorun səhnə diqqətinin əsas mərkəzini ara vermədən dəstəkləyən, onu reaksiyaları ilə ara vermədən bəsləyən bir ortamdır. Əgər salon boşdursa, əgər tamaşaçıların reaksiyası aktyora çatmırsa, aktyorun rolu ifa etməsi çətinləşir, diqqətini obyektlərə yönəltməsi çətinləşir"* (Zaxava, 2018, p. 64).

Bu gün Azərbaycan dili elm, texnika, poeziya dilidir. Bu dil həm də süni intellektin çağdaş texniki tələblərini cavablayan bir dildir. Dosent Yeganə Qəhrəmanovanın təbirincə desək, *"Süni intellekt modellərinin Azərbaycan dilindəki mətni emal edərkən nümayiş etdirdiyi semantik itkilər, hallyusinasiyalar və sintaktik uzlaşma xətaları yalnız korpus həcminin azlığı ilə izah edilə bilməz; burada dilin strukturu ilə süni intellektin riyazi-vektorial modeli arasındakı tipoloji uyğunsuzluq əsas rol oynayır"* (Qəhrəmanova, 2026, s. 115).

Ağasadıq Gəraybəyli dilin lüğət fonduna daxil olan leksik vahidləri, o sıradan ümumişlək sözləri tələffüz edərkən ədəbi dilin normalarını qoruyurdu, aydın və anlaşıqlı səsləndirirdi, sözlərin fonetik tərkibini gözləyirdi və bunları obrazın xarakterinə uyğun emosional çalarlarla ifa edirdi. *"Hər bir dildə olduğu kimi, Azərbaycan dilində də nitqin leksik-semantik əsasında ümumişlək sözlər dayanır. Bunlar o sözlərdir ki, cəmiyyətdə kifayət qədər populyar olmaqla dilin əsas lüğət fondunu təşkil etməkdədir"* (Əhmədova, 2024, s. 94).

Böyük aktyor öz sənəti ilə cəmiyyətin mənəvi-estetik inkişafına töhfə verir, insanlarda empatiya (başqalarının duyğu və düşüncələrini anlama bacarığı), vətənpərvərlik, humanizm və yüksək əxlaqi dəyərlərin formalaşmasına xidmət edir. Buna görə də aktyorluq təkcə peşə deyil, həm də böyük məsuliyyət, yüksək sənətkarlıq və yaradıcı fədakarlıq tələb edən bir sənət sahəsidir. Alman şair və dramaturqu F. Şiller yaxşı aktyorlardan söz açarkən vurğulayır ki, *"Yaxşı aktyor üçün pis rol yoxdur"* (Şiller, 2020).

Hər aktyor tamaşaçının qarşısında dürüst ola bilmir. Aktyor tamaşaçı qarşısında o zaman dürüst olur ki, o, kino və teatr səhnəsində sadəcə "oynamır", obrazın duyğu və düşüncələrini real olaraq yaşayır. Tanınmış rus aktyor və rejissoru Konstantin Stanislavski aktyor-tamaşaçı cütlüyünə açqlama verərkən vurğulayır ki, *"Aktyor tamaşaçı qarşısında dürüst olmalıdır, əks halda, teatrın sehri yox olar"* (Stanislavski, 2023).

Ağasadıq Gəraybəyli Azərbaycan milli kino sənətinin inkişafında xüsusi xidmətləri olan görkəmli aktyorlardan biridir. Onun kino yaradıcılığı yalnız peşəkar aktyor ifaçılığı ilə deyil, həm də milli-mədəni dəyərlərin, humanist ideyaların və estetik prinsiplərin ekran dili vasitəsilə ifadə olunması baxımından böyük əhəmiyyət kəsb edir. Gəraybəylinin yaratdığı obrazlar xarakter müxtəlifliyi, psixoloji dolğunluğu, emosional inandırıcılığı və bədii kamilliyi ilə seçilir. O, canlandırdığı personajların daxili aləmini dərindən mənimsəyərək onların mövqeyini, mənəvi dünyasını və sosial funksiyasını yüksək sənətkarlıqla təqdim etmişdir. Buna görə də onun obrazları təkcə müəyyən hadisələrin iştirakçısı deyil, həm də milli təfəkkürün, mənəvi dəyərlərin və ictimai münasibətlərin estetik daşıyıcısı kimi çıxış edir.

Kino sənətində obrazın semantikası onun zahiri görünüşündən daha çox daxili məzmunu, ideya yükü və tamaşaçıda yaratdığı assosiativ məna ilə müəyyənləşir. Gəraybəylinin ifasında bu semantik qat olduqca zəngin və çoxplanlıdır. O, hər bir personajın psixoloji durumunu, emosional gərginliyini və xarakter xüsusiyyətlərini yalnız dialoq vasitəsilə deyil, baxışların ifadəliliyi, mimika, jest, pauza və intonasiya kimi aktyor vasitələri ilə də ustalıqla çatdırırdı. Bu xüsusiyyətlər onun yaratdığı obrazların estetik təsir gücünü artırır, tamaşaçının obrazla emosional və mənəvi əlaqə qurmasına imkan yaradırdı. Onun ifasında süni pafos, şişirdilmiş emosiyalar və ya zahiri effektlərə rast gəlinmir. Əksinə, aktyor hadisələrin inkişafını və obrazın daxili dəyişməsini təbii psixoloji ardıcıllıqla təqdim edir. Bu yanaşma onun yaratdığı personajların inandırıcılığını artırmaqla yanaşı, milli kino sənətində realist aktyor oyununa yeni keyfiyyətlər qazandırmışdır.

Azərbaycan Respublikası Prezidenti İlham Əliyevin A.Gəraybəylinin 120 illik yubileyinin keçirilməsi haqqında (2017) imzaladığı Sərəncamda vurğulanır ki, *“Ağasadıq Gəraybəyli geniş yaradıcılıq diapazonuna malik böyük sənətkar kimi Azərbaycanın zəngin mədəniyyət salnaməsində özünəməxsus layiqli yer tutur. Onun milli dram teatrının səhnəsində və kinomatoqrafiyada professionallıq baxımından son dərəcə müvəffəqiyyətlə canlandırdığı müxtəlif xarakterli obrazlar yüksək bədii təsir qüvvəsini qoruyub saxlamış dəyərli sənət nümunələridir”*.

Aydın diksiya. Natiqin nitqinə, böyük aktyorun roluna aydın diksiya bu özəllikləri qazandırır: anlaşıqlılıq, inam və peşəkarlıq, təsir gücü, emosionallıq və ritm. Odur ki, *“Məzmuna uyğun intonasiya seçilməli, düzgün diksiya ilə ifadə olunan nitqin başa düşülməsinə cəhd göstərilməlidir. Çıxış edən səsini, nəfəsini, idarəetmə bacarığını təkmilləşdirməli, diksiya ilə bağlı şivə qüsurlarını düzəltməlidir”* (İskəndərova, 2023, s. 38).

Aktyor səs tembrini, nitqin ritmini, pauzaları və məntiqi vurğunu obrazın xarakterinə uyğun olaraq dəyişdirir, ədəbi dilin orfoepik normalarını qibtə ediləcək formada qoruyur, dialoq və monoloqlarda nitqin axıcılığını saxlayır, sözlərin semantik yükünü düzgün intonasiyanın qanadlarında vurğulayır. Nəticədə tamaşaçı yalnız sözləri eşitmir, həm də personajın emosional durum və yaşantısını, psixoloji çalar və incəliklərini ağlın, qəlbin və ruhun prizmasında hiss edir.

Gücə dayanan söz və aydın diksiya bir sənət örnəyidir. Belə bir bacarıqdan bol-bol faydalanan insanlardan biri, sözsüz ki, Ağasadıq Gəraybəylidir. Onun hər çıxışı, hər diksiyası bir sistemli fikirdir, dil normalarını aşmayan yanaşmadır. Türk tənqidçi və yazarı Nüzhet Şenbay demişkən, *“Heç bir natiq öz fikirlərini öncədən sistemləşdirmədən dinləyicilər üzərində üstünlük əldə edərək onları öz arxasınca apara bilməz” (Şenbay, 2020, s. 8).*

İfadəli baxış. Sənətşünaslıqda ifadəli baxış anlayışı bir çox prizmadan açıqlanır. Onlardan biri Hasan Akbulut adlı Türkiyəli sənətşünaş professorun açıqlamasıdır, *“Kinoda və teatrda aktyorun ifadəli baxışı bir personajın daxili aləmini, boğulmuş duyğularını və hiss etdiklərini sözlər olmadan tamaşaçıya ötürən ən güclü aktyorluq vasitəsidir”* (Akbulut, 2026). Bu yanaşmanı tamamlayan Glen (2025) vurğulayır ki, aktyor təlimində və səhnə fəaliyyətində baxışın estetikası personajın daxili emosional vəziyyətini tamaşaçıya çatdıran əsas nəzəri və praktiki mexanizmdir. Azərbaycan teatr və kino sənətinin görkəmli nümayəndəsi Ağasadıq Gəraybəyli də sadalanan bu sənətkarlıq özəlliklərinə sözün tam mənasında yiyələnmiş ustadlardan biridir.

Gəraybəylinin ifadəli baxışı söz ilə deyilməyən psixoloji durum və emosional çalarları sözdən də gözəl bir biçimdə tamaşaçıya çatdırır. Onun ifadəli baxışını bu qollara ayırırıq: psixoloji dərinlik (baxışlar obrazın düşüncə və emosional gərginliyini açığa çıxarır), emosional ifadəlilik (sevinc, kədər, coşqu, təəccüb, rahatsızlıq və təmkin kimi duyğular baxışların dəstəyi ilə anlaşılır), nitqi tamamlama (baxışlar söylənən sözlərin emosional yükünü artırır), dramaturji funksionallıq (baxışlar səhnə elementlərinin sərgilənməsinə, tərəf-müqabil ilə kontaktlar qurulmasına xidmət edir), pauza ilə uzlaşma (səhnə pauzaları zamanı ifadəli baxışlar sözün demədiyini ya da deyə bilmədiyini deyir).

Aktyor etikası. Aktyorun yaradıcıllıq prosesində, həmkarları ilə münasibətlərində və tamaşaçı qarşısında davranışını nizamlayan peşəkar-əxlaqi prinsiplər toplusu olan aktyor etikası kijno və teatr səhnələrində sosial məsuliyyət yüklü bir prosesidir. Böyük Britaniyalı sənətşünas alim David Qrant vurğulayır ki, *“Aktyor etikası teatr, kino və rol oyunları mühitində performans sənətçilərdən gözlənilən mənəvi öhtəlikləri, peşəkar davranışı və psixoloji sərhədləri ehtiva edir”* (Grant, 2019, p. 105).

Gəraybəylinin aktyor etikasını bu qollara ayırırıq: sənətə sədaqət (aktyorluğu peşədən çox mənəvi missiya olaraq qəbul etmə), rol qarşısında məsuliyyət (hər obrazı ciddi hazırlıq və şəxsi araşdırma ilə yaratma), rejissorun yaradıcı yanaşmasına sayğı (quruluşçu rejissorun ideyasını peşəkar olaraq və səthi əlavə edərək həyata keçirmə), tərəf-müqabil olanlara peşəkar sayğı (ortaq hədəf uğruna tamaşanı aşağılaya biləcək davranışa yol verməmə), daimi özünüinkişaf (yaradıcı potensialını zəngin etmək üçün üzərində davamlı olaraq işləmə).

Səhnə enerjisi. Aktyorun səhnədə canlı və təsirli görünməsini reallaşdıran bir potensial olan səhnə enerjisi anlayışını Maltadan olan sənətşünas professor İzabella Qatt qeyd edir ki, “*Səhnə enerjisi anadangəlmə bir istedad deyil, laboratoriya teatrı texnikaları vasitəsi ilə inkişaf etdirilən və öyrənilməsi mümkün olan fiziki bir bacarıqdır*” (Gatt, 2024, p. 74).

Gəraybəyli sənətinin enerji qaynaqları: səhnədə güclü emosional cazibə (aktyor səhnəyə çıxan ilk andan tamaşaçının diqqətini çəkir və tamaşa boyunca bu diqqət qorunur), dinamik səhnə mövcudluğu (məqsədyönlü, ritmik və obrazın kimliyini açan hərəkətlilik), tamaşaçı ilə görünməz emosional bağlantı (onun ifasını izləyən tamaşaçı bir tək müşahidəçi deyil, yaşanan proseslərin emosional iştirakçısı olur), səhnə ritmini idarəetmə bacarığı (tamaşanın daxili tempini və emosional axarını bir bütöv olaraq qoruyub saxlama potensialı, bu bacarıq üzündən tamaşa monoton yox, dinamik olur).

Son olaraq vurğulayırıq ki, Ağasadıq Gəraybəyli istedadlı aktyor deyil, sözün geniş mənasında dahi aktyordur. Rus baletmeyster və pedaqoqu N. Makarov “Səhnənin tək şahı və tanrısı” kitabında yazır ki, *“İstedadlı sənətkarlar heyrətləndirir ya da valeh edirlər, ancaq yalnız dahilər eyni zamanda heyrətləndirir və valeh edirlər”* (Makarov, 2025).

Nəticə

Elmi-metodoloji təhlil baxımından bu müddəaları nəticə olaraq irəli sürürük:

- Aparılan araşdırma göstərir ki, Ağasadıq Gəraybəylinin yaratdığı obrazların bədii mahiyyəti onların yalnız aktyor ifası ilə deyil, həm də nitq və dil xüsusiyyətləri ilə sıx şəkildə bağlıdır.
- Obrazların nitqində leksik, frazeoloji, sintaktik və emosional-ekspressiv vasitələrin məqsədyönlü istifadəsi xarakterlərin fərdiləşdirilməsinə və onların psixoloji xüsusiyyətlərinin açılmasına xidmət edir.
- Gəraybəylinin obrazlarında dil və estetik ifadə vasitələrinin qarşılıqlı əlaqəsi milli-mədəni dəyərlərin, sosial münasibətlərin və insan xarakterlərinin daha dolğun şəkildə təqdim olunmasına imkan yaradır.

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Coğrafi adların tarixi-linqvistik identifikasiyası və genezisinin öyrənilməsində kartoqrafiya elmi bir vasitə kimi

Gülbəniz Mehdiyeva

Xülasə. *İnsan cəmiyyətinin təbiətə qarşılıqlı təsiri nəticəsində yaranan tarixi coğrafi adlar sistemi, yəni toponimik laylar hər bir ərazinin keçmiş siyasi vəziyyətini, xəritələrdə tutduğu mövqeyini, orada yaşamış etnosları və mədəniyyəti özündə əks etdirir. Toponimlər qədim dövrlərdən müasir günümüzə qədər gəlib çatmış, tariximizi, etnik mənsubiyyətimizi və mənəvi irsimizi öyrənməyə imkan verən ən dəyərli informasiya mənbələrindən biri kimi dəyərləndirilir. Tədqiqatın əsas məqsədi kartoqrafiya və toponimikanın bazis anlayışlarını təhlil etmək, toponimik xəritələrin funksional mahiyyətini açmaq və onların mühüm kartoqrafik məhsul kimi elmi-əməli əhəmiyyətini əsaslandırmaqdır. Kartoqrafiya və toponimika sahəsində əsas anlayışların, eləcə də toponimik xəritənin mahiyyətinin öyrənilməsi regional coğrafi tədqiqatlar üçün böyük əhəmiyyət kəsb edir. Coğrafi məkan tək natural mühit deyil, həm də etnosun tarixən məskunlaşdığı, yaşadığı, təsərrüfat qurub milli-mənəvi dəyərlərini formalaşdırdığı mühitdir. Məqalədə toponimika ilə kartoqrafiya arasındakı fənlərarası əlaqələrdən, coğrafi adların etimoloji və tarixi baxımdan tədqiqində xəritələrin əhəmiyyətindən bəhs edilir, Zəngəzur toponiminin tarixi xəritələrdə yeri və ilkin adlandırılması təqdim olunur. Bu baxımdan coğrafi adların dəyişdirilməsi, identifikasiyası və xəritələrdə əks etdirilməsi problemləri araşdırılaraq onların tarixi yaddaşın, mədəni irsin və milli kimliyin qorunmasındakı rolundan bəhs edilir, toponimik xəritələrin tarixi-coğrafi və linqvistik tədqiqatlarda toponimlərin bərpası və qorunması üçün mühüm kartoqrafik baza rolu oynadığı göstərilir.*

Açar sözlər: *kartoqrafiya, toponimika, toponim, tarixi-linqvistik identifikasiya, genezis, toponimik xəritə, coğrafi adlar, Zəngəzur, tarixi yaddaş, mədəni irs*

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Cartography as a Scientific Tool in the Study of the Historical-Linguistic Identification and Genesis of Geographical Names

Gulbeniz Mehdiyeva

Abstract. *The system of historical geographical names, that is, toponymic layers, which arose as a result of the interaction of human society with nature, reflects the past political situation of each territory, its position on maps, the ethnos and culture that lived there. Toponyms are valued as one of the most valuable sources of information that have survived from ancient times to the present day and allow us to study our history, ethnicity and spiritual heritage.*

The main purpose of the study is to analyze the basic concepts of cartography and toponymy, to reveal the functional essence of toponymic maps and to substantiate their scientific and practical significance as an important cartographic product. The study of the basic concepts in the field of cartography and toponymy, as well as the essence of the toponymic map, is of great importance for regional geographical research. Geographical space is not only the natural environment, but also the environment in which the ethnos historically settled, lived, established an economy and formed its national and spiritual values. The article discusses the interdisciplinary links between toponymy and cartography, as well as the significance of maps in the etymological and historical study of geographical names. The location and original designation of the toponym Zangazur on historical maps are presented. In this regard, the problems of changing, identifying, and representing geographical names on maps are examined, and their role in preserving historical memory, cultural heritage, and national identity is addressed. The article demonstrates that toponymic maps provide an important cartographic basis for the restoration and preservation of toponyms in historical-geographical and linguistic studies.

Keywords: *cartography, toponymy, toponym, historical-linguistic identification, genesis, toponymic map, geographical names, Zangazur, historical memory, cultural heritage*

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Giriş

Müasir dövrdə dünya elmində ən sürətlə inkişaf edən sahələr müxtəlif elmlərin qovşağında yaranan fənlərarası istiqamətlərdir. Bu istiqamətlər bir neçə elmin – coğrafiya, dilçilik və tarix elmlərinin qovşağında təşəkkül tapmış toponimikanın nəzəri və metodoloji əsaslarını özündə cəm etmişdir. Son illərdə coğrafiya elmi mühitində toponimikada özünəməxsus bir "intibah" dövrü yaşanır – bu elmi istiqamətə maraq əhəmiyyətli dərəcədə artmışdır. Məqalədə kartoqrafiya (xəritəşünaslıq) ilə toponimikanın fənlərarası əlaqəsindən bəhs edəcəyik. Bu iki elm coğrafiyada tutduğu mövqe ilə yanaşı, coğrafiya elminin *bütün sistemini əhatə edən, onların hər biri üçün zəruri olan ümumi elmlər kimi* səciyyələndirilə bilər. Çünki coğrafiya elmi kartoqrafiya və toponimika olmadan fəaliyyət göstərə bilməz. Əlavə edək ki, coğrafiya elminin fənn kimi dili xəritədir, xəritənin dili isə şərti işarələr sistemi ilə yanaşı, coğrafi adlar – yəni toponimlərdir. Toponimik araşdırmalarda kartoqrafik mənbələr mühüm elmi informasiya daşıyıcısı kimi coğrafi adların müxtəlif tarixi mərhələlərdəki yerləşməsinin, yazılışının və coğrafi yayılma arealının müəyyən edilməsinə şərait yaradır.

Hazırda toponimika və kartoqrafiya arasında qarşılıqlı və tədrici inteqrasiya prosesinin gücləndirilməsi diqqəti cəlb edir. Bu iki elmi istiqamətin bir-birini tamamlaması xüsusilə regional istiqamətdə daha aydın müşahidə olunur. Toponimik istiqamət elmi tədqiqatlarda geniş şəkildə yalnız XX əsrin ortalarından etibarən inkişaf etməyə başlamışdır. Lakin toponimlərə olan maraq tarixin ən qədim qatlarına, hətta antik dövrə qədər uzanır.

Kartoqrafik mənbələrin tarixi-dilçilik təhlili göstərir ki, xəritələr yalnız məkan məlumatlarını əks etdirmir, həm də toponimlərin etimoloji təbəqələşməsini və regionun tarixi areal dilçilik dinamikasını bərpa etməyə imkan verən mühüm sənədli mənbə rolunu oynayır (Giraut & Houssay-Holzschuch, 2016, pp. 58–60).

Kartoqrafiya və toponimika coğrafiya elminin mühüm sahələri olmaqla coğrafi tədqiqatların aparılmasında və nəticələrinin təqdim olunmasında bu elmlərdən geniş istifadə olunur. Xəritədə məlumatlar şərti işarələrlə yanaşı, coğrafi adlar – toponimlər vasitəsilə də ifadə edilir. Bu məqalədə nümunə gətirdiyimiz toponimin identifikasiyasından söhbət açacağıq. Buna misal olaraq deyə bilərik ki, Azərbaycan ərazisində rast gəlinən, uzun müddət Qafqaz, İran və ya ərəb-fars mənşəli hesab edilən bəzi dağ, çay və yaşayış məntəqələrinin adlarının qədim türkcəyə aid olduğunu əks etdirən dil layları aşkar olunur. Bu toponimlərin tədqiqi vasitəsilə dilçilər və tarixçilər bölgənin qədim etnik tərkibi və dil tarixi haqqında mühüm məlumatlar əldə edirlər.

Coğrafiya elmi formalaşmazdan xeyli əvvəl hər bir etnosun məskunlaşdığı ərazi (oykonimi) artıq zəngin və çoxlaylı toponimik sistemə malik idi. Həmin sistemdə hər bir coğrafi adın mənası, əsasən, mifoloji, əfsanəvi, daha nadir hallarda isə həqiqi tarixi hadisələrin məzmunu əsasında izah edilirdi. Beləliklə, toponimika çox uzun bir inkişaf yolu keçmiş, onun təşəkkültapma prosesi hətta ayrı-ayrı dillərin və etnosların formalaşmasından daha uzun sürmüşdür. Ümumilikdə, toponimika kartoqrafiyaya çox bənzəyir. Kartoqrafiya da ilkin xəritə təsvirləri şəklində hələ ibtidai icma cəmiyyəti dövründə, yazının meydana gəlməsindən çox-çox əvvəl formalaşmağa başlamışdır (Salishchev, 1990).

Kartoqrafiya və toponimika sahəsində istifadə olunan əsas anlayışları müəyyənləşdirmək, toponimik xəritənin mahiyyətini və onun kartoqrafik məhsul kimi əhəmiyyətini izah etmək vacibdir. Bu məsələlərin müxtəlif elmi yanaşmalar əsasında, hər bir ölkə və ya ərazi üçün coğrafi məkan anlayışının düzgün müəyyənləşdirilməsi, xüsusilə regional coğrafi tədqiqatlar baxımından öyrənilməsi böyük əhəmiyyət daşıyır. Coğrafi məkan dedikdə, insanların yaşadığı, fəaliyyət göstərdiyi və müəyyən etnosun tarix boyu məskunlaşaraq təbii mühit və yaşadığı ərazi nəzərdə tutulur. Bu proseslər təsərrüfatın inkişafına, qohumluq münasibətlərinin, eləcə də insanların milli-mənəvi dəyərlərinin formalaşmasına təsir göstərmişdir. Eyni zamanda, insan cəmiyyəti də təbii mühitə təsir edir və bu təsirin nəticəsində coğrafi adlar sisteminin, yəni toponimik layın yaranması meydana çıxır. Toponimik layların hər biri ayrı-ayrılıqda öz dövrünün siyasi durumuna görə mövqeyi, sözü gedən ərazidə zamanında hansı etnosun məskunlaşması, xəritədə (kartoqrafiya yarandıqdan sonra) tutduğu yeri, həm mənəvi mədəniyyətin tərkib hissələri kimi, həm də tarixin qədim və dərin qatlarından müasir dövrümüzə qədər gəlib çatan ən qiymətli informasiya hesab edilir.

Sudakovun fikrincə, insanlar coğrafi adlarla əhatə olunmuş bir mühitdə yaşayırlar və onlarsız bu həyat təsəvvür edilə bilməz. Toponimlər insan cəmiyyətinin yaşadığı mühitin ayrılmaz hissəsidir və bu mühit insan üçün əlverişli və rahat olmalıdır (Sudakov, 1999, pp. 34–39). Tədqiqatın başlıca məqsədi toponimika və kartoqrafiya elmləri arasında mövcud olan qarşılıqlı əlaqələri araşdırmaq, tarixi xəritələrin coğrafi adların etimoloji, tarixi və linqvistik xüsusiyyətlərinin öyrənilməsindəki elmi əhəmiyyətini müəyyənləşdirmək, həmçinin Zəngəzur toponiminin tarixi-kartoqrafik mənbələr əsasında coğrafi mövqeyini və zamanla identifikasiyasını təhlil etməkdən ibarətdir. Yəni fikrimizi konkret olaraq belə ifadə edək: toponimik xəritələrdə tarixi yaddaşın, mədəni irsin və milli kimliyin qorunması, elmi baxımdan qiymətləndirilməsi nəzərdə tutulur.

Metodlar

Hazırda toponimika özünün formalaşmış elmi metodoloji bazasına malikdir. Bununla belə, bu sahənin bəzi problemləri, tədqiqat metodları və istiqamətləri hələ də kifayət qədər işlənilməmiş, yalnız ayrı-ayrı tədqiqatçılar tərəfindən ilkin şəkildə araşdırılmışdır. Əsas elmi məsələlərdən biri toponimika ilə kartoqrafiyanın bir-biri ilə əlaqəsi və bu əlaqənin öyrənilməsidir. Bu iki sahə coğrafiya elmi daxilində yaranmış və qarşılıqlı əlaqə nəticəsində birlikdə inkişaf edir. Toponimika və kartoqrafiya müxtəlif elmlərin kəsişməsində formalaşmışdır. Kartoqrafiya coğrafiyanın təbiət elmləri, fizika və riyaziyyatla əlaqəsi nəticəsində, toponimika isə coğrafiyanın dilçilik və tarix ilə qarşılıqlı əlaqəsi əsasında yaranmışdır. Görkəmli rus toponimisti, coğrafiyaşünası və kartoqrafı Yevgeni Mixayloviç Pospelovun (1923–2007) fikirlərinə görə, xəritələr toponimlərin öyrənilməsi, yayılma areallarının müəyyən edilməsi və tarixi inkişafının izlənilməsi üçün ən mühüm elmi mənbələrdəndir. Pospelov Rusiyanın Şimal bölgəsinin substrat toponimiyasını tədqiq edərək həmin ərazilərdə yaşamış qədim xalqların dil izlərini coğrafi adlar vasitəsilə müəyyənləşdirmişdir. Pospelov toponimlərin məkan üzrə yayılmasının öyrənilməsində toponimik xəritələrdən geniş istifadə etmiş, eyni zamanda toponimik tədqiqatlarda riyazi-statistik metodların tətbiqinin zəruriliyini vurğulamışdır (Pospelov, 1971, p. 135).

Pospelovun fikrincə, coğrafi adlar yalnız məkan obyektlərini adlandıran vasitə deyil, həm də xalqın tarixi, dili, mədəniyyəti, etnik tərkibi və qədim məskunlaşma prosesləri haqqında mühüm informasiya daşıyıcısıdır. Bu baxımdan, toponimik xəritələr müxtəlif dövrlərə aid coğrafi adların müqayisəli təhlilinə, onların yayılma qanunauyğunluqlarının müəyyən edilməsinə və tarixi-coğrafi dəyişikliklərin izlənilməsinə imkan verən mühüm kartoqrafik mənbə kimi böyük elmi əhəmiyyətə malikdir (Pospelov, 1971). Coğrafi adların genezisinin və tarixi transkripsiyasının öyrənilməsində tarixi xəritələrin geoinformasiya sistemləri vasitəsilə təhlili etno-dilçilik sərhədlərinin zaman daxilində dəyişməsini vizual və dəqiq şəkildə müəyyən etməyə imkan yaradır (Svensson, 2015, pp. 112–115).

Tədqiqatın metodoloji hissəsi tarixi-müqayisəli, kartoqrafik, toponimik və linqvistik metodların qarşılıqlı tətbiqinə əsaslanır. Araşdırma zamanı müxtəlif tarixi dövrlərə aid xəritələrdə qeydə alınmış coğrafi adlar toplanaraq sistemləşdirilmiş, onların yazılışı və fonetik variantlıqları müqayisəli şəkildə araşdırılmışdır. Eyni zamanda, toponimin xəritələrdəki coğrafi mövqeyi, yayılma xüsusiyyətləri və zaman-zaman məruz qaldığı (siyasi) dəyişikliklər təhlil edilmişdir. Tarixi və kartoqrafik mənbələrin müqayisəli araşdırılması əsasında coğrafi adın ayrı-ayrı tarixi mərhələlərdə hansı formalarda təqdim olunduğu müəyyənləşdirilmiş və onların transformasiya xüsusiyyətləri üzə çıxarılmışdır. Bundan əlavə, toponimin mənşəyi və linqvistik xüsusiyyətlərinin müəyyənləşdirilməsi məqsədilə tarixi-müqayisəli təhlil üsullarından istifadə olunmuşdur. Xəritələrdən əldə edilən məlumatların yazılı sənədlər və digər tarixi mənbələrlə qarşılıqlı müqayisəsi coğrafi adların tarixi identifikasiyasının daha dəqiq müəyyən edilməsinə şərait yaratmışdır. Tədqiqat zamanı xəritələr yalnız məkan haqqında informasiya verən kartoqrafik material kimi deyil, eyni zamanda tarixi-toponimik məlumatların sənədləşdirilməsi, sistemləşdirilməsi və gələcək nəsillərə ötürülməsində mühüm mənbə kimi qiymətləndirilmişdir.

Nəticələr

Coğrafi adlar insanların ətraf mühiti necə qəbul etdiyini və xalqın təfəkkür tərzini göstərən mühüm mədəni amildir. Toponimika regional landşaftın fiziki-coğrafi xüsusiyyətlərini, müvafiq tarixi-etnoqrafik prosesləri, xronoloji ardıcıllığı əks etdirən elmi mənbədir. Odur ki, onomastik vahidlərin kompleks şəkildə tədqiqi, regional tarix və tarixi coğrafiyanın bir çox qaranlıq məqamlarının bərpa edilməsində böyük əhəmiyyət kəsb edir. Bu baxımdan qədim yer-yurd adlarımızdan olan Zəngəzur toponiminin tarixi xəritələrdə yeri və ilkin adlandırılması xüsusi əhəmiyyətə malikdir. Zəngəzur qəzası coğrafi adlarının qədim türk tayfalarına məxsus olduğu və xəritədə tutduğu yeri barədə fikirlər çoxdur. Zəngəzur ərazisi fərqli tarixi mərhələlərdə müxtəlif adlarla qeyd olunmuşdur. Toponimin Sünik vilayətinin coğrafi bölgüsü və onun tərkibindəki *Sadak* tayfa adı əsasında yarandığı və zamanla fonetik dəyişikliklərə məruz qaldığı, *"Sadak", "Sisakan",* "*Sisacan/Sisəcan"* və *"Sünik"* adları ilə dəfələrlə təkrarlanması xüsusi olaraq diqqət çəkir. "Alban tarixi" kitabının iyirminci səhifəsində oxuyuruq: "Nuhun oğlu Yafəsin nəslindən Sisakan soyuna mənsub Aran (antroponim), hökmdar təyin olundu (Kalankatuklu, 2006, s. 20). Sitatdan aydın olur ki, Musa Kalankatuklu *Sisakanı* etnonim kimi tanıtmışdır.

Sünik toponimik termininin kökləri nəinki erkən orta əsrlərə gedir, hətta eramızdan öncə baş vermiş hadisələrlə əlaqəsi aydın görünür. Bu bağlılığa görə Sünik toponimini e.ə. IV minillikdə Çində uyğurların yaşadığı bölgədən Qafqaza köçən syun-na və syun-nu tayfalarının adı ilə əlaqələndirənlər də var. Qonşu ölkələrin bu ərazini Sisakan/Sisacan və ya Sisəcan adlandırması Sünik toponiminin etnotoponim olması fikrini söyləməyə əsas verir. Göstərilən dəlillər eramızdan çox-çox öncə Zəngəzurun türk tayfalarının məskəni olduğu fikrini təsdiqləyir.

Toponimin Sisakan adlandırılmasına ilk dəfə VI əsr Suriya salnaməçisi Zaxari Ritorun əsərində rast gəlirik. O, 555-ci il hadisələrindən bəhs edərkən Sisakanı, Ərməniyyədən ayrı müstəqil ölkə kimi təqdim edir (Bayramov, 2002). Budaqov və Qeybullayevin fikrincə, "Sakların bir hissəsi Zəngəzurda məskunlaşmış və sonralar bu ölkə erməni mənbələrində Siyunik, fars və ərəb mənbələrində Sisakan (Sisacan/Sisəcan - ərəb dilinə uyğun) adlandırılmışdır" (Budaqov və Qeybullayev, 1998, s. 69). Müəllifin təhlilinə görə, həm erməni mənbələrindəki *Siyunik*, həm də fars-ərəb qaynaqlarındakı *Sisakan* formalarının kökündə türk mənşəli sak etnonimi və bu tayfalara aid "Si" komponenti dayanır: "Ermənilər *Zəngəzur* sözünün təhlilini iki variantda verməyə cəhd edirlər. Məsələn, onlara görə, *Zange/Zanqa* – mağara, *zur* komponenti isə, ermənilərin dili ilə desək, biz azərbaycanlıların mətbəximizdən, musiqimizdən, daha nələrdən tutmuş ta torpaqlarımıza və onların adlarına qədər özünküləşdirmiş, "qədim milli erməni" aləti saydıqları bizim qara zurnanın *zur* komponentilə uyğunlaşdırmışlar. Uydurduqları rəvayət isə çox bəsit və mənasızdır. Guya ki, Zəngəzurda çoxlu kahalar və mağaralar vardır və bu mağaralar çox bərk əks-səda verir. Əslində, bu cür izah elmi əsası olmayan bir yanaşmadır" (Budaqov və Qeybullayev, 1998, s. 70). Urudun fikirlərinə görə, "Zəngəzurda o qədər də çox mağara yoxdur, əksinə, çoxlu sıldırım qayalı, başı qarlı dağlar, dərin dar dərələr, sıx meşələr, kollu yamaclar və çiçəkli alp çəmənliklər vardır" (Urud, 2013, s. 20). Onun fikrincə, dırnaqarası alimlərin nisbətən "abırlıları" *Zəngəzur* terminini *Zanqedzor* şəklində izah edirlər ki, buradakı *dzor* sözü ermənicə *dərə* deməkdir. Ermənilər özləri də heç bir zaman "*Zəngəzur*" sözünü *Zanqedzor* sözü şəklində işlətməyiblər" (Urud, 2013, s. 20). Qəhrəmanovanın fikrincə, Zəngəzur sözünün tərkib hissələrinin zəngi türk tayfa adı ilə "dağlıq", "dərə", "yarğan" mənalı "zur" sözünün birləşməsindən əmələ gəldiyini qəbul etmək olar (Qəhrəmanova, 2024, s. 132).

Zəngi/zanqi/sanqi morfemləri müxtəlif tarixi dövrlərin yazılı mənbələrində fərqli fonetik formalarda və antonim, etnonim, hidronimlərin tərkib hissəsi kimi işlənmişdir. *Zəngi* formatının ilkin yaranışı yazılı mənbələrdə XI-XII əsrlərə təsadüf edilir. Məsələn, fars ədəbiyyatında Firdovsi, Ünsuri, Fərruxi, Mənüçöhr və Nasir Xosrov kimi XI əsr müəlliflərinin əsərlərində *zəngi* sözünün nümunələri vardır. Ərəb dilində "g" hərfi olmadığından bu söz *zənc* kimi tələffüz olunmuşdur. Adlarını sadaladığımız XI–XII əsr müəllifləri əsərlərini farsca, lakin ərəb əlifbası ilə yazdıqlarından, məsələn, *zəngi-zənci* şəklində yazılması – g–c əvəzlənməsi morfemin tələffüzünü dəyişmişdir. Bununla bağlı Azərbaycan türkoloqu, filologiya elmləri doktoru, professor Zeynalov yazır: "Ərəb ölkələrindəki məmlük türkləri qıpçaq tayfalarıdır" (Zeynalov, 1992, s. 26).

Orta əsrlərdə yaşamış (təqribən 1160–1233) İbn əl-Əsir özünün "Əl-Kamil fi't-Tarix" əsərində Zəngi və Zəngilər tayfalarının həyat tərzi və yaşadıqları ərazi haqqında geniş məlumat vermişdir. Müəllif Səlib yürüşləri, eləcə də XII–XIII əsrlərdə Şimali İraq, Suriya və Levant bölgələrinin tarixinə həsr olunmuş xronoloji hissələrdə "Zəngi" morfemindən "İmadəddin Zəngi" antroponiminin tərkibində istifadə etmişdir (Ibn al-Athir, 1987, p. 103-109). Bu məqamı isə Salah Adalaziz Salamah öz "Mədinə və ona şiə təsiri" adlı monoqrafiyasında ətraflı şəkildə vermişdir. Əsərdə Zəngi sülaləsinin kökü Məlikşahın uşaqlıq dostu olan 1073-cü ildə Səlcuq sülaləsinin hakimiyyətini miras alan Ağ Sunqur adlı bir türkün adı ilə bağlı çəkilir. Ağ Sunqurun yaşadığı və hakimiyyətə gəldiyi dövr 479–487-ci illərə təsadüf edir. Ondan sonra hakimiyyətdə 1086–1094-cü illərdə Hələb hakimi olmuş İmadəddin Zənginin atası olmuşdur. Beləliklə, XI əsrdə *zəngi* sözü artıq həm antroponim, həm də etnonim kimi də mövcud idi (Salamah, 2008, p. 52). Faruq Şümerin "Oğuzlar" əsərində *"zəngi"* morfemi XII əsrdə Zəngilər dövlətinin görkəmli türkmən sərkərdəsi, Zeynəddin Əli Küçük Erbil

Atabəyliyinin, Bəkdəginlilər sülaləsinin banisi və ilk atabəyinin adında əks olunmuş və türk əsilli zəngilər nəsil adı ilə bağlıdır. O yazır: "Əlcəzair (əl-Cəzirə) və Suriya hakimləri olan zəngilər də türk məmlük ailəsindən idilər" (Sümer, 1992, s. 123).

Beləliklə, Azərbaycanda qədim coğrafi adların tərkibində olan zəngi morfemi tamamilə türk mənşəlidir və birbaşa türk əsilli zəngilər tayfasının/nəslinin adı (etnonim) ilə bağlıdır. *Zəngi*(lər) quruluşca sadə etnotoponimdir. Bayramovun əsərində Zəngi çayının adı qıpçaqların zəngi tayfasının adı əsasında yarandığı qeyd edilir (Bayramov, 2002, s. 72). Zəngi tayfaları qədim zamanlardan bəri Azərbaycan ərazisində yaşamış və Azərbaycan xalqının xalq kimi, Azərbaycan dilinin bir dil kimi təşəkkülündə önəmli rol oynamış tayfalardan biridir. Deməli, toponimin birinci komponenti zəngilər tayfa adı ilə bağlı olması məlumdur. Toponimin ikinci komponenti olan *"zur"* mofemini isə Murzayev türk dillərində *"dərə", "yarğan"* mənasında işlənən *car* komponentilə izah edir (Murzayev, 1984, pp. 178–179). Bayramov yazır: "Toponimin sonundakı *"zur"* türk dilində *"dərə", "yarğan"* mənasında işlənən car (>zar>zur - İ.B) sözünün fonetik variantıdır. Etnotoponimdir. Quruluşca mürəkkəb toponimdir (Bayramov, 2002, s. 72). Bu sözün ilkin mənbəyi Radlovun lüğətində 100-cü, Qədim türk lüğətində isə 238-ci səhifədə verilmişdir (Nadelyayev et al., 1969, p. 238).

Toponimlərdən əlavə "zəngi" sözü hidronimlərin də tərkibində diqqəti cəlb edir. İndiki Ermənistan ərazisində Zəngi çayı axır ki, o da başlanğıcını Göyçə gölündən alır. Çayın adı qıpçaqların zəngi tayfasının adı (Sümer, 1992, s. 26) əsasında əmələ gəlmişdir. Etnohidronimdir. Çayın adı dəyişdirilib Razdan çayı qoyulmuşdur (Budaqov və Qeybullayev, 1998, s. 395). Düşünürük ki, "Zəngəzur" toponiminin mənşəyi bu ərazilərdə məskunlaşmış, igidliyi və döyüşkənliyi ilə tanınan Zəngi tayfalarının adı ilə, həmçinin ərəblərin bölgəyə gəlişi ilə əlaqələndirilməlidir. *Zur* söz morfemin ilkin mənası isə "qala, divar, bürc" kimi dərk edilir. Zəngəzur torpağını düşməndən qoruyan qədim tarixi abidələrinin içində möhtəşəm qala divarları, bürclər və strateji müdafiə istehkamları vardır. Əslində, zəngi tayfalarının öz ərazilərini düşməndən qalın divarlarla qalalarla qoruması fikri Zəngəzur toponiminin düzgün təhlilinə daha çox yaxındır.

Müzakirə

Zəngəzur toponimi yazılı mənbələrdə XIV əsrdən coğrafi ərazi vahidi kimi diqqəti cəlb etmişdir (Budaqov və Qeybullayev, 1998, s. 387). Bölgə, əsasən, Sünik (Syunik), ərəb mənbələrində isə Sisəcan/Sisacan adlanırdı. Orta əsr ərəb və fars coğrafiyaşünaslarının xəritələrində bu ərazi Arazın şimalında, Qarabağla Naxçıvan arasında yerləşən dağlıq bölgə kimi göstərilirdi. XIX əsrdə isə bu bölgə xəritədə artıq Zəngəzur adı ilə təqdim edilir. Toponimik və tarixi mənbələrin xəritələrlə müqayisəli təhlili göstərir ki, Zəngəzur bölgəsinin yaşayış məntəqələri, coğrafi adları müxtəlif tarixi dövrlərdə mühüm dəyişikliklərə məruz qalmışdır. 1918-ci ildə Azərbaycan Xalq Cümhuriyyətinin yaradılması ilə Zəngəzurun bölünməsi və onun coğrafi-siyasi mövqeyinin dəyişilməsi tarixi sənədlərdə də öz əksini tapmışdır. Zəngəzur qəzası Azərbaycanın ayrılmaz ərazisi kimi qəbul edilmişdir. Bir müddət sonra 1933-cü ildə rəsmi Moskvanın qərarı ilə inzibati-coğrafi bütövlüyü dəyişdirilmiş Zəngəzur mahalının adı xəritələrdən silinmişdir (Urud, 2013, s. 95–100). Tarixi və müasir kartoqrafik materialların müqayisəli şəkildə araşdırılması müəyyən ərazidə mövcud olmuş toponimlərin zamanla dəyişməsini, eləcə də bəzi yaşayış məntəqələrinin qeydiyyatdan çıxarılaraq xəritələrdən və mənbələrdən silinməsi proseslərini müəyyənləşdirməyə imkan yaradır. Zəngəzur ərazisinə aid tarixi toponimlərin xəritələrdə bərpa edilərək əks etdirilməsi, regionun tarixi-coğrafi mənzərəsinin yenidən qurulması, yaşayış məntəqələrinin inkişaf xüsusiyyətlərinin araşdırılması və toponimik irsin qorunması elmi baxımdan mühüm əhəmiyyət kəsb edir. Qətiyyətlə demək olar ki, tarixən Azərbaycan xalqının etnogenezinin formalaşdığı ərazilərdən biri də Zəngəzur olmuşdur.

Toponimik xəritələşdirmənin coğrafi istiqamətinə nümunə kimi tematik və kompleks coğrafi atlaslarda yerləşdirilən toponimik xəritələri göstərmək mümkündür. Bu nümunə göstərir ki, toponimik məlumatlardan istifadə etməklə qədim landşaftları bərpa etmək mümkündür.

Beləliklə, 1950-ci illərdən etibarən elmi ədəbiyyatda mövcud olan "toponimik xəritə" anlayışı formalaşmışdır. Xanmahomedova görə, toponimik xəritə müəyyən regionun toponimik sistemini və toponimik strukturların ərazi üzrə yayılma xüsusiyyətlərini coğrafi mühit və əhalinin etno-dil tərkibi ilə əlaqəli şəkildə əks etdirən xəritədir (Khanmagomedov, 1991, pp. 57–59). Müəyyən regionun toponimiyasının sistemli şəkildə öyrənilməsi məkan-zaman təhlili vasitəsi kimi xəritələrdən geniş istifadəni tələb edir.

Nəticə

Araşdırma nəticəsində müəyyən edilmişdir ki, toponimin tarixi formalarının bərpası və düzgün identifikasiyası müxtəlif dövrlərə məxsus xəritə materiallarının yazılı tarixi sənədlər və linqvistik məlumatlarla qarşılıqlı şəkildə təhlil edilməsini tələb edir. Bu yanaşma coğrafi adların zaman və məkan üzrə dəyişmə xüsusiyyətlərinin daha obyektiv şəkildə müəyyənləşdirilməsinə imkan verir. Eyni zamanda, toponimik xəritələrin tərtibi və elmi dövriyyəyə daxil edilməsi, coğrafi adların sistemləşdirilməsi, tarixi formalarının müəyyənləşdirilməsi, bərpası və qorunması baxımından mühüm kartoqrafik baza formalaşdırılır. Belə xəritələr tarixi yaddaşın və mədəni irsin qorunması ilə yanaşı, milli-mədəni identikliyin (kimliyin) mühüm komponentlərindən biri olan coğrafi adların gələcək nəsillərə ötürülməsi və tarixi-coğrafi, eləcə də linqvistik tədqiqatların inkişafı üçün etibarlı elmi mənbə kimi çıxış edə bilər. Müasir dövrdə coğrafiya elminin mütəxəssiləri arasında toponimik tədqiqatlara marağın artması toponimikanın nəzəri və metodoloji əsaslarının təkmilləşdirilməsinə, toponimiya ilə kartoqrafiya arasındakı əlaqələrin araşdırılmasına, eləcə də müasir texnologiyalar əsasında toponimik-kartoqrafik tədqiqatların və regional xəritələşdirmə metodlarının inkişafına təkan verir.

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The Impact of Blockchain Technologies on Financial Reporting

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Abstract. *Blockchain technology, one of the most widely discussed digital innovations of the past decade, is reshaping the conceptual foundations of financial reporting systems. This article systematically examines the impact of blockchain technology on the preparation, presentation, and audit of financial statements. The study employs a mixed-method approach that combines content analysis of scholarly literature published between 2019 and 2025, economic-statistical analysis of secondary quantitative indicators, and a comparative analysis of the traditional double-entry bookkeeping system with the blockchain-based triple-entry accounting model. The findings show that blockchain adoption can reduce operating costs by an average of 30% and cut transaction-processing time by up to 85%, while lowering the routine workload of accounting staff by approximately 50%. Global surveys conducted across the financial services sector indicate that more than 90% of sector leaders regard blockchain as a scalable and workable solution. The study further demonstrates that, alongside improvements in transparency, accuracy, and real-time reporting, blockchain implementation faces significant constraints, including regulatory uncertainty, technical integration difficulties, and a shortage of qualified personnel. The article concludes with practical recommendations for regulators, higher education institutions, and enterprises aimed at expanding the application of blockchain in accounting and financial reporting, and outlines directions for future research, including its potential application within the Azerbaijani and post-Soviet context.*

Keywords: *blockchain technology, financial reporting, triple-entry accounting, transparency, audit, digital transformation*

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Blokçeyn texnologiyalarının maliyyə hesabatlarına təsiri

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Xülasə. *Blokçeyn texnologiyası son onilliyin ən çox müzakirə olunan rəqəmsal innovasiyalarından biri kimi maliyyə hesabatlılığı sistemlərinin konseptual əsaslarını dəyişməkdədir. Bu məqalədə blokçeyn texnologiyasının maliyyə hesabatlarının hazırlanması, təqdim edilməsi və auditi proseslərinə təsiri sistemli şəkildə araşdırılır. Tədqiqatda 2019–2025-ci illər ərzində nəşr olunmuş elmi mənbələrin məzmun təhlili, ikincil statistik göstəricilərin iqtisadi-statistik təhlili və ənənəvi ikili yazılış sistemi ilə blokçeyn əsaslı üçtərəfli yazılış sisteminin müqayisəli təhlili metodlarından istifadə olunmuşdur. Əldə edilən nəticələr göstərir ki, blokçeynin tətbiqi əməliyyat xərclərini orta hesabla 30%, əməliyyatların emalına sərf olunan vaxtı isə 85%-ə qədər azaltmaq imkanı yaradır, mühasibat işçilərinin rutin əmək yükünü isə təxminən 50% aşağı sala bilər.*

Maliyyə xidmətləri sektorunda aparılmış qlobal sorğuların nəticələrinə görə, sektor liderlərinin 90%-dən çoxu blokçeyni geniş miqyaslı və işə yararlı həll hesab edir. Tədqiqat həmçinin blokçeynin şəffaflığı, dəqiqliyi və real vaxt rejimində hesabatlılığı artırmaqla yanaşı, tənzimləyici qeyri-müəyyənlik, texniki inteqrasiya çətinlikləri və ixtisaslı kadr çatışmazlığı kimi ciddi məhdudiyyətlərlə də üzləşdiyini ortaya qoyur. Məqalənin sonunda blokçeynin mühasibat uçotu və maliyyə hesabatlılığı sahəsində tətbiqinin genişləndirilməsi üçün praktiki tövsiyələr və gələcək tədqiqat istiqamətləri təqdim olunur.

Açar sözlər: *blokçeyn texnologiyası, maliyyə hesabatlılığı, üçtərəfli mühasibat uçotu, şəffaflıq, audit, rəqəmsal transformasiya*

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Introduction

In an era when digital technologies permeate every sector of the economy, blockchain technology has emerged as one of the central innovations driving the transformation of the financial sector and the accounting system. Originally developed to secure cryptocurrency transactions, this technology has today become a universal tool that shapes the conceptual foundations of financial reporting through its properties of the distributed ledger, immutability, and cryptographic security (Saheb et al., 2025; Dashkevich et al., 2024).

The traditional financial reporting model relies on centralized information systems, numerous intermediaries, and periodic reconciliation procedures (Imanova, 2025). This model is accompanied by a number of institutional problems — delayed reporting, human error, the risk of data manipulation, and the high cost of auditing. Major corporate accounting scandals in recent decades have undermined public trust in financial statements and have made it urgent to build a reporting system that is more transparent, traceable, and resistant to manipulation. Blockchain technology is regarded precisely as the alternative infrastructure capable of meeting this need (Tan & Low, 2019). The most fundamental conceptual innovation that blockchain brings to accounting is the complementing of the double-entry principle — used since the fifteenth century — with the concept of "triple-entry accounting." In this model, each transaction is confirmed not only by the traditional entries that both parties record in their own books, but also by a third, cryptographically sealed and immutable ledger entry. This approach significantly reduces the need for traditional auditing to verify the authenticity of a transaction and lays the groundwork for the practical application of the continuous audit model (Cai, 2021; Majumdar, 2021; Sunde & Wright, 2023).

In recent years, the volume of scholarly literature on this topic has grown rapidly. A bibliometric analysis of the Web of Science database covering 2013–2023 shows that more than 1,400 publications on blockchain and accounting have been recorded, and that the field, while still at an experimental stage, is maturing rapidly (Liu et al., 2024). Nevertheless, a systematic scholarly gap persists in existing research regarding the comprehensive impact of blockchain on financial reporting processes and its integration models with other digital technologies such as artificial intelligence and Big Data (Prokopenko et al., 2024; Saheb et al., 2025).

The purpose of this study is to comprehensively assess the impact of blockchain technology on the preparation and presentation of financial statements, to determine the qualitative and quantitative dimensions of this impact, and to identify the main barriers to its widespread adoption. The article consists of five parts. Following the introduction, the research methodology is presented; the findings are then illustrated and discussed with a table and figures; the discussion section compares the results with prior research and examines implications for the Azerbaijani context; and the final section summarizes the main conclusions and recommendations.

Methods

The study employs a mixed-method approach. This approach combines qualitative and quantitative analysis and is a methodology widely applied in comparable studies in the field of blockchain and accounting (Prokopenko et al., 2024). In the first stage, a search was conducted on the Scopus, Web of Science, ScienceDirect, MDPI, and Frontiers platforms using combinations of the keywords "blockchain", "financial reporting", "accounting", "triple-entry accounting" and "audit". Peer-reviewed scholarly articles, systematic literature reviews, and global survey reports from reputable international organizations (Deloitte) covering the period 2019–2025 were selected in accordance with the inclusion criteria. Works that did not directly address the relationship between blockchain and financial reporting, and that focused solely on cryptocurrency market price dynamics, were excluded from the scope of the study.

In the second stage, a content analysis of the selected sources was conducted, identifying the main thematic directions reflecting blockchain's impact on financial reporting (transparency, accuracy, timeliness, audit transformation, institutional adoption). In the third stage, secondary quantitative indicators obtained from academic publications and Deloitte's Global Blockchain Survey (cost reduction, transaction-time reduction, industry adoption rates) were systematized and interpreted using economic-statistical analysis methods. In the fourth stage, a comparative analysis of the traditional double-entry system and the blockchain-based triple-entry system was conducted across key parameters. Certain limitations of the study should be noted: the analysis is based mainly on secondary sources (published scholarly literature and survey reports), and no primary survey was conducted; since the majority of the empirical studies analyzed cover developed markets (the United States, China, and European Union countries), extrapolation of the findings to the post-Soviet space, including the Azerbaijani context, should be approached with caution.

1. Findings

1.1. Impact on the Qualitative Characteristics of Financial Statements

The analysis shows that blockchain technology has a direct impact on the four main qualitative characteristics of financial statements – transparency, accuracy/reliability, timeliness, and comparability. The distributed ledger architecture reduces information asymmetry and enhances the transparency of financial statements by giving all authorized participants simultaneous access to the same database (Saheb et al., 2025). The property of cryptographic immutability makes retrospective modification of recorded transactions practically impossible, which significantly strengthens the reliability of statements and their resistance to manipulation (Dashkevich et al., 2024).

Real-time reconciliation capability minimizes the need for the extensive end-of-period matching procedures required in traditional accounting systems and enhances the timeliness of financial statements (Tan & Low, 2019). Standardized smart-contract protocols facilitate the mutual comparison of financial data across different organizations, thereby enhancing the comparability of statements. Table 1 presents a comparative summary of the traditional accounting system and the blockchain-based system across key parameters.

Table 1
Comparison of the traditional accounting system and the blockchain-based system

Criterion	Traditional Accounting System	Blockchain-Based System
Recording method	Centralized, double-entry	Distributed, triple-entry
Alterability	Entries can be edited afterward	Cryptographically immutable
Third-party confirmation	Requires intermediaries such as auditors, banks, notaries	Confirmed by network participants through consensus
Reporting frequency	Periodic (monthly, quarterly, annual)	Near real-time
Audit trail	Reconstructed from documentation, time-consuming	Automatic, fully traceable per transaction
Error/fraud risk	High risk due to human factor	Reduced risk through smart-contract automation

Source. Compiled by the author based on Cai (2021); Tan & Low (2019); Sunde & Wright (2023).

1.2. Quantitative Indicators: Cost and Time Efficiency

The quantitative dimension of blockchain's impact on financial and accounting processes is confirmed by a growing body of empirical evidence in the academic literature. A comparative analysis conducted in the financial sector found that the adoption of blockchain solutions reduces operating costs by an average of 30% and transaction-processing time by up to 85% (Mohammad et al., 2025). In parallel, a bibliometric analysis of the integration of blockchain and accounting indicates that widespread adoption of this technology could automate approximately 50% of accountants' routine, repetitive labor functions, potentially generating savings of billions of dollars globally (Liu et al., 2024). Figure 1 presents a comparative view of these three indicators.

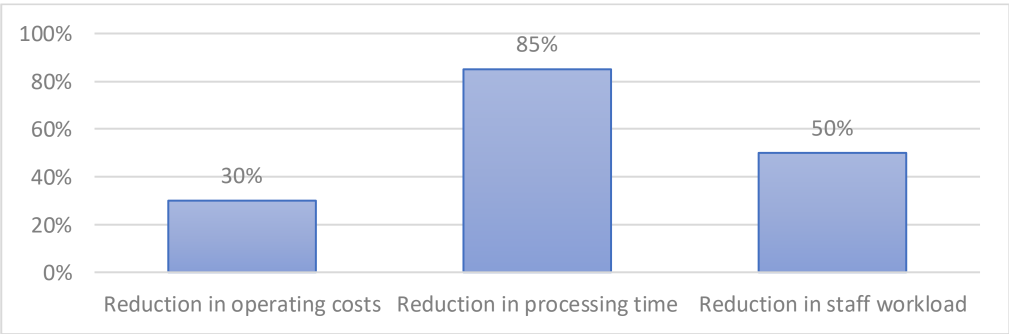

Figure 1
Quantitative impact of blockchain technology on financial-accounting processes

Source. Prepared by the author based on Mohammad et al. (2025); Liu et al. (2024).

These figures suggest that the economic effect of blockchain is not limited to qualitative improvement but also generates measurable financial efficiency. In particular, the 85% increase in transaction-processing speed — explained by the reduced number of intermediaries (banks, clearing houses) and the application of automated consensus mechanisms — is of particular importance for cross-border payments and multilateral supply-chain transactions.

1.3. Industry Adoption and Institutional Factors

To assess the institutional adoption of blockchain, the results of global surveys conducted in the financial services sector were analyzed. According to Deloitte's Global Blockchain Survey (2021), among "pioneer" organizations that have already applied the technology to production processes or integrated digital assets into their core business activities, 96% consider blockchain a scalable and widely accepted solution, 93% confirm the existence of a compelling business case for it, and another 93% report actively negotiating blockchain initiatives with business partners, suppliers, and customers (Deloitte, 2021). Figure 2 presents these indicators.

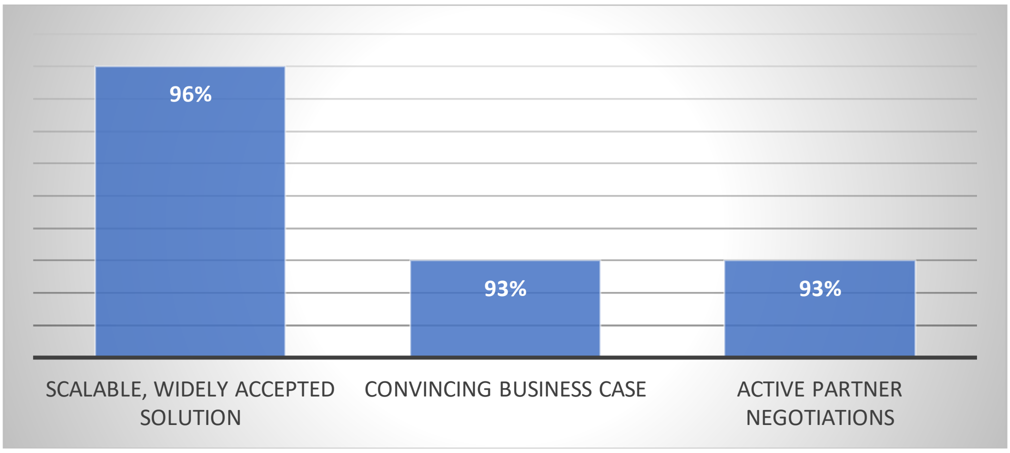

Figure 2

İnstitutional adoption of blockchain among financial-sektor leader (Deloitte, 2021)

Source. Prepared by the author based on the Deloitte Global Blockchain Survey (2021).

These indicators show that attitudes toward blockchain among leading organizations in the financial services sector are already shifting from an experimental phase to institutional strategy. At the same time, this trend is supported by the active investment and platform-development activities of the "Big Four" audit firms (Deloitte, EY, KPMG, PwC) in applying blockchain technology to auditing — each of the "Big Four" firms has introduced blockchain-based audit and crypto-asset accounting solutions in recent years.

1.4. Transformation of Triple-Entry Accounting and the Audit Process

The triple-entry model, the conceptual innovation blockchain brings to accounting, has become a subject of systematic scholarly research in recent years (Cai, 2021; Majumdar, 2021). The practical application of this model fundamentally changes the audit process: instead of traditional sampling-based auditing, the recording of all transactions on the blockchain as "financial fingerprints" enables the practical application of continuous audit methodology (Sunde & Wright, 2023). Smart contracts contribute to reducing audit costs by enabling automatic verification of regulatory compliance, real-time reporting, and identity management.

A systematic literature review conducted by Kunariyah and Dewayanto (2025) further shows that blockchain's impact on financial reporting quality is not driven solely by technological factors but is also synergistically linked to the quality of corporate governance — for example, the presence of independent audit committees and the application of international accounting standards. In other words, the full realization of blockchain's potential benefits is only possible when combined with a strong corporate governance framework.

1.5. Evidence from the Real Sector

One study that empirically assesses blockchain's real impact on the quality of financial reporting examines the effect of a blockchain-based electronic invoicing system implemented at the municipal level in China since 2018. Using a difference-in-differences approach on a sample of companies listed on Chinese stock exchanges between 2016 and 2022, this study demonstrates that, following the adoption of the blockchain invoicing system, companies' accrual quality and earnings informativeness improved to a statistically significant degree, while instances of income shifting declined (Liao et al., 2025). This finding confirms that blockchain's contribution to corporate reporting outcomes is not merely theoretical but practical and measurable.

Discussion

The findings align with the existing scholarly consensus confirming that blockchain technology has a positive effect on the main quality criteria of financial reporting — transparency, reliability, and timeliness (Saheb et al., 2025; Dashkevich et al., 2024). From the perspective of agency theory, these results find a logical explanation: blockchain's distributed and immutable ledger architecture structurally reduces the information asymmetry between principals (investors, creditors, regulators) and agents (management), which in turn limits opportunities for earnings management — a thesis also confirmed by empirical research on the Chinese market (Liao et al., 2025).

At the same time, the quantitative indicators obtained (30% cost reduction, 85% time reduction, 50% workload reduction) show that blockchain is attractive not only in qualitative terms but also in cost-benefit terms. However, it is important to note that most of these indicators were obtained from large, technologically mature organizations; for small and medium-sized enterprises, initial infrastructure investment, a shortage of qualified personnel, and technical complexity may pose serious barriers (Prokopenko et al., 2024).

In practical terms, the study's findings are significant for several stakeholders. For accountants, blockchain technology necessitates a shift from the traditional transaction-recording function toward strategic data analytics and control functions. For auditors, the transition from sampling-based verification to continuous audit requires new methodological skills. For regulators, issues such as the accounting treatment of digital assets, the legal status of smart contracts, and the regulation of cross-border blockchain transactions create the need to develop new regulatory frameworks.

These findings are particularly relevant in the Azerbaijani context. As the country continues to develop its digital economy and gradually align its financial reporting with International Financial Reporting Standards (IFRS), piloting blockchain-based solutions in government agencies — particularly in tax administration and public procurement — as well as in the banking sector, can be regarded as a promising direction for enhancing reporting transparency. Nevertheless, progress in this direction first requires the development of an appropriate legal-regulatory framework and the training of a specialized workforce.

The study also identifies objective limitations to blockchain adoption. These include the high energy consumption of public blockchain networks, the tension between commercial confidentiality and transparency requirements, the difficulty of reconciling data-protection legislation (such as the "right to be forgotten") with the principle of immutability, and integration challenges with existing legacy information systems (Prokopenko et al., 2024; Basdekidou & Papapanagos, 2024). These factors highlight the importance of viewing blockchain not as a universal solution but as a technological tool to be applied contextually.

Conclusion

This study demonstrates that blockchain technology has a multifaceted impact on the financial reporting system. First, through distributed ledger, cryptographic immutability, and smart-contract mechanisms, the technology significantly enhances the transparency, reliability, and timeliness of financial statements. Second, blockchain adoption generates measurable economic benefits — a reduction in operating costs of up to 30%, a reduction in processing time of up to 85%, and a roughly 50% decrease in accounting workload. Third, institutional trust in blockchain among leading organizations in the financial services sector is high, indicating that the technology is moving from an experimental phase to a strategic application phase. Fourth, the blockchain-based "triple-entry accounting" model is a fundamental conceptual innovation that enables the transition from traditional sampling-based auditing to a continuous-audit paradigm.

Based on the analysis, the following practical recommendations are formulated. For regulators: developing a clear regulatory framework governing the accounting treatment of digital assets and the legal status of smart contracts, and supporting pilot projects on blockchain-based reporting. For higher education institutions: integrating blockchain technologies, digital audit methods, and cryptoasset accounting into accounting and finance education curricula. For enterprises: beginning with a comprehensive readiness assessment for blockchain adoption, gaining experience through phased pilot projects, and planning an integration strategy with existing information systems in advance (Prokopenko et al., 2024).

Several promising directions exist for future research: developing models for integrating blockchain with artificial intelligence and Big Data technologies, assessing the long-term economic outcomes of blockchain-based reporting, and conducting empirical research on the prospects for applying blockchain to public and private-sector financial reporting in post-Soviet countries, including Azerbaijan (Prokopenko et al., 2024; Saheb et al., 2025). Such research can make an important contribution to both theoretical literature and practical decision-making processes.

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Systematicity and Evidential Density in a Corpus-Based Conceptual Metaphor Dictionary of J. R. R. Tolkien's The Lord of the Rings

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Abstract. *Conceptual Metaphor Theory holds that metaphor is systematic: a single cross-domain mapping licenses many linguistic expressions. This claim is routinely invoked in literary metaphor scholarship but rarely tested against the evidence that individual studies actually assemble. The present study reports a corpus-based conceptual metaphor dictionary of J. R. R. Tolkien's The Lord of the Rings and uses it to examine both the metaphorical architecture of the trilogy and the evidential basis on which such architectures are ordinarily claimed. Metaphorically used lexical units were identified following MIPVU and grouped into conceptual mappings, yielding 283 verified attestations distributed over 210 conceptual metaphor headwords, supplemented by a further 220 attestations from a pre-filtering dataset. Three substantive findings emerge. First, mapping direction is almost perfectly unidirectional: of 203 headwords with a classifiable source domain, 202 (99.5%) draw on a concrete domain, with a single counterexample. Second, target domains cluster heavily on inner states, with emotion and psychology accounting for 27.2% of verified attestations – almost three times the next field. Third, structural metaphors predominate (42.0%), followed by ontological metaphors and personification. A fourth finding is methodological and, we argue, the most consequential: 184 of 210 headwords (87.6%) rest on a single attestation, and only 26 are supported by two or more. A dictionary of this shape is an inventory of candidate mappings containing a small well-evidenced core, not a demonstration of systematicity across its full extent. We propose that corpus-based literary metaphor studies report evidential density as a matter of routine, and that claims of systematicity be restricted to mappings meeting a stated recurrence threshold.*

Keywords: *conceptual metaphor theory, MIPVU, corpus stylistics, systematicity, image schemas, unidirectionality, J. R. R. Tolkien, fantasy literature*

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J. R. R. Tolkienin "Üzüklərin hökmdarı" əsərinin korpus əsaslı konseptual metafora lüğətində sistemlilik və sübut sıxlığı

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Xülasə. *Konseptual metafora nəzəriyyəsi metaforanın sistemli olduğunu iddia edir: tək bir sahələrarası xəritələşdirmə bir çox linqvistik ifadələrə icazə verir. Bu iddia ədəbi metafora tədqiqatlarında müntəzəm olaraq istinad edilir, lakin nadir hallarda fərdi tədqiqatların əslində toplaşdığı dəlillərlə müqayisə edilir. Bu tədqiqat J. R. R. Tolkienin "Üzüklərin hökmdarı" əsərinin* *korpus əsaslı konseptual metafora lüğətini təqdim edir və ondan həm trilogiyanın metaforik arxitekturasını, həm də bu cür arxitekturaların adətən iddia edildiyi sübut əsasını araşdırmaq üçün istifadə edir. Metaforik olaraq istifadə edilən leksik vahidlər MIPVU-dan sonra müəyyən edilmiş və konseptual xəritələşdirmələrə qruplaşdırılmış, 210 konseptual metafora başlığı üzərində paylanmış 283 təsdiqləmə vermiş və əvvəlcədən süzgəcdən keçirilmiş məlumat dəstindən daha 220 təsdiqləmə ilə tamamlanmışdır. Üç əsaslı tapıntı ortaya çıxır. Birincisi, xəritələşdirmə istiqaməti demək olar ki, tamamilə bir istiqamətlidir: təsnif edilə bilən mənbə domeninə malik 203 başlıq sözdən 202-si (99,5%) tək bir əks nümunə ilə konkret bir domendən istifadə edir. İkincisi, hədəf sahələri daxili vəziyyətlərə çox təsir edir, emosiya və psixologiya təsdiqlənmiş attestasiyaların 27,2%-ni təşkil edir - bu, növbəti sahədən təxminən üç dəfə çoxdur. Üçüncüsü, struktur metaforalar üstünlük təşkil edir (42,0%), ardınca ontoloji metaforalar və personifikasiya gəlir. Dördüncü tapıntı metodolojidir və iddia edirik ki, ən əhəmiyyətlidir: 210 başlıq sözdən 184-ü (87,6%) tək bir attestasiyaya əsaslanır və yalnız 26-sı iki və ya daha çox subyekt tərəfindən dəstəklənir. Bu formalı lüğət, sistemliliyin tam şəkildə nümayişi deyil, kiçik bir yaxşı sübut edilmiş nüvəni ehtiva edən namizəd xəritələşdirmələrinin inventarıdır. Biz korpus əsaslı ədəbi metafora tədqiqatlarının sübut sıxlığını rutin məsələ kimi bildirməsini və sistemlilik iddialarının yalnız müəyyən edilmiş təkrarlanma həddinə cavab verən xəritələşdirmələrlə məhdudlaşdırılmasını təklif edirik.*

Açar sözlər: *konseptual metafora nəzəriyyəsi, MIPVU, korpus stilistikası, sistemlilik, görüntü sxemləri, bir istiqamətlilik, J. R. R. Tolkien, fantaziya ədəbiyyatı*

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Introduction

Since Lakoff and Johnson (1980) recast metaphor as a property of conceptual structure rather than of ornamental language, the central empirical claim of Conceptual Metaphor Theory (CMT) has been systematicity. A conceptual metaphor is not a single striking comparison but a mapping between domains that generates families of related expressions. *Argument is war* is offered as a conceptual metaphor precisely because English speakers attack positions, defend claims, shoot down arguments and win or lose disputes; the individual expressions are surface evidence for an underlying mapping, and it is their recurrence and mutual coherence that constitutes the evidence.

This is an empirical claim, and it carries a methodological obligation. If a conceptual metaphor is posited on the basis of a single linguistic expression, the central evidential property – recurrence – has not been demonstrated. The mapping may be real; nothing in the data shows that it is. Lakoff and Turner (1989) and Gibbs (1994) both stress that the systematic elaboration of a mapping is what distinguishes conceptual metaphor from isolated figuration, and Kövecses (2010, 2020) makes the point again in framing conceptual metaphors as schematic structures instantiated at lower levels of specificity.

The corpus turn in metaphor research was in part a response to this problem. Deignan (2005) and Charteris-Black (2004) argued that intuition-driven metaphor analysis systematically overestimates the productivity of mappings, because the analyst supplies from competence the expressions the corpus does not contain. Semino (2008) extended the argument to discourse, and Abdul Malik et al. (2022), reviewing corpus-based metaphor research published between 2015 and 2020, found that the field has increasingly adopted specialised corpora over reference corpora – a shift that raises rather than settles questions about what counts as adequate evidence for a mapping. Zhao et al. (2023), in a bibliometric survey of two decades of conceptual metaphor research, document a steady growth in corpus-assisted work without a corresponding consolidation of evidential standards.

Metaphor identification has meanwhile been placed on a firm procedural footing. The Pragglejaz Group (2007) introduced MIP, and Steen et al. (2010) extended it into MIPVU, adding explicit treatment of direct metaphor, implicit metaphor and metaphor signals. MIPVU has since been adapted to a wide range of languages, including Uzbek (Gen Kaya, 2019) in the volume edited by Nacey et al. (2019). Subsequent procedural work has addressed the layers of analysis that follow identification: DMIP for potentially deliberate metaphor (Reijnierse et al., 2018; Steen, 2017) and MSDIP for source-domain coding (Reijnierse & Burgers, 2023). What these procedures share is a recognition that the step from identified lexical unit to posited conceptual mapping is not automatic and requires its own justification.

Literary metaphor has been comparatively slow to absorb this discipline. Heywood, Semino and Short (2002) showed early that applying identification procedures to literary extracts produces results markedly different from intuitive analysis, but much subsequent literary CMT scholarship continues to proceed by illustrative example. Coll-Florit and Climent (2023), discussing the construction of metaphor repositories, note that dictionary-style resources tend to record mappings without recording how strongly each is evidenced, so that a mapping attested once and a mapping attested forty times appear identically as entries.

Tolkien’s The Lord of the Rings is a productive test case. Its metaphorical language has attracted cognitive-linguistic attention – Sullivan (2013) analyses the One Ring as a metaphoric blend grounded in the Object Event-Structure metaphor and compares it with other object-based conceptualisations of power across the trilogy – and Kullmann and Siepmann (2021) provide a corpus-stylistic account of Tolkien’s lexis and syntax that establishes the viability of quantitative approaches to this text. The trilogy is long, stylistically consistent, and organised around abstractions (power, corruption, mortality, hope) that invite metaphorical construal. It is also a secondary world, which raises a question of theoretical interest: whether an invented setting is rendered cognitively accessible through the same embodied mappings that structure ordinary language.

This study reports a conceptual metaphor dictionary compiled from all three volumes and asks two sets of questions.
RQ1 (substantive). What is the structure of the metaphorical system in The Lord of the Rings – which source domains are recruited, which target domains are metaphorically construed, which image schemas underwrite the mappings, and is mapping direction unidirectional as CMT predicts?
RQ2 (methodological). How densely is each posited mapping evidenced, and what follows for the claims that a corpus-based literary metaphor dictionary can legitimately support?
The second question is not incidental. We report it because the answer, in this corpus, turns out to constrain the first – and because the pattern is unlikely to be peculiar to this study.

Methods

Corpus
The primary texts were the three volumes of The Lord of the Rings: The Fellowship of the Ring, The Two Towers and The Return of the King (abbreviated FOTR, TT, ROTK). The analysed material is not a running-text sample of the trilogy but a curated corpus of metaphorically used lexical units extracted from it, compiled volume by volume. This distinction matters for interpreting all frequency data reported below and is returned to in § 4.6.

Metaphor identification

Metaphorically used words were identified following MIPVU (Steen et al., 2010). For each candidate lexical unit the contextual meaning was established, the more basic – more concrete, body-related, precise or historically prior – meaning was determined, and the unit was marked as metaphorically used where the two meanings contrasted but could be understood by comparison. Units whose contextual and basic meanings had converged to the point that no contrast remained were excluded as conventionalised. Expressions such as the sun was climbing and the mists were drawn up were excluded on this basis. Every retained unit is recorded with its lexical form, full sentence context, basic meaning, contextual meaning, metaphor type and discursive function, so that each entry in the resulting dictionary is traceable to a numbered corpus row.

Formulation and consolidation of conceptual metaphors

Identified units were assigned conceptual metaphor labels in the conventional Target is source format. *During compilation the same mapping was frequently labelled several different ways: armies are liquids, armies are water, army movement is water, enemy forces are water and large groups in motion are liquids all name one mapping.* Retaining such variants as separate entries would inflate the headword count and, more seriously, would fragment the evidence for a mapping across several apparently thinly-supported entries.

Labels were therefore consolidated under a single headword where the underlying source-to-target correspondence was identical, with every original label preserved in the entry so that the consolidation remains auditable. Labels were kept separate where the target genuinely differed, as with *despair is darkness, evil is darkness and fear is darkness*, which share a source but not a target. Consolidation reduced 254 raw labels to 210 verified headwords. Three corpus rows carried two conceptual metaphors in a single cell and were split, so that attestation counts exceed row counts by three.

Analytical annotation

Three further annotation layers were added: image schemas, source-domain category, and target semantic field. None of these is recorded in the identification data; all were derived from the conceptual metaphor labels by explicit rule and are analytical rather than observational. This distinction is stated here because it bears on the status of the results in § 3.4 and § 3.5.

Image schemas follow Johnson (1987) and the standard inventory *(contaıner, source-path-goal, force, vertıcalıty* and so on); a mapping may invoke more than one, so schema totals exceed attestation totals. Source-domain coding was necessarily coarser than the procedure recommended by Reijnierse and Burgers (2023), whose MSDIP allows multiple source-domain candidates to be coded simultaneously where discourse underdetermines the mapping; the present study assigned a single dominant category per headword, and this is acknowledged as a limitation. Roughly 8% of source domains and 5% of target domains resisted confident classification and were recorded as unclassified rather than forced into a category.

Two-tier evidential design

A methodological complication arose during compilation and has been handled explicitly rather than silently. The Fellowship material existed in two states: a pre-filtering dataset of 274 rows, and the 54 rows surviving strict MIPVU filtering. Cross-referencing established that all 54 verified entries appear in the 274-row dataset with identical conceptual-metaphor labels, confirming the larger file as the pre-filtering state of the same data. The 220 non-surviving rows are therefore items the identification protocol excluded, many of them conventionalised expressions of the kind the protocol is designed to remove (tackle, plodded on, halted).

Rather than either discarding this material or merging it undifferentiated into the dictionary – the latter would have silently reversed a documented methodological decision – the study adopts a two-tier design. Tier 1 comprises the 283 verified attestations. Tier 2 comprises the 220 pre-filtering attestations, retained and marked but excluded from any claim requiring verified evidence. All substantive results in §3 are reported on Tier 1 unless otherwise stated. Table 1 summarises the corpus.

Table 1
Composition of the corpus by volume and evidential tier

Volume	Tier 1 (verified)	Tier 2 (supplementary)	Total
The Fellowship of the Ring	56	220	276
The Two Towers	140	0	140
The Return of the King	87	0	87
Total attestations	*283*	*220*	*503*
Conceptual metaphor headwords	210	169 additional	379

Source. Prepared by the author.

Note. Tier 2 material derives entirely from the pre-filtering Fellowship dataset, which is why the supplementary column is empty for the other two volumes.

Analysis
Analysis is descriptive. Frequencies were computed over attestations and over headwords, and evidential density was operationalised as the number of attestations supporting each headword. No inferential statistics are reported: the corpus is a curated selection rather than a probability sample, and significance testing against an undefined population would be uninterpretable. Cross-volume comparison is reported but treated with caution for reasons set out in § 4.6.

Results

Distribution of metaphor types
Structural metaphors dominate the verified corpus at 42.0%, followed by ontological metaphors (27.2%), personification (14.8%), orientational metaphors (8.1%) and image metaphors (6.0%). This ordering is consistent with expectations for extended literary prose, in which mappings that transfer rich inferential structure are more useful than those that merely orient a concept in space. A residue of five attestations was labelled "Container" during compilation. This is not a category in the Lakoff–Johnson taxonomy: it names an image schema, and the items so labelled are ontological metaphors built on that schema. They are reported separately in Table 2 rather than silently reassigned, since the discrepancy is informative about the difficulty of applying the taxonomy consistently at scale.

Table 2
Metaphor types, verified attestations

Type	n	%	In Lakoff–Johnson taxonomy
Structural	119	42.0	Yes
Ontological	77	27.2	Yes
Personification	42	14.8	Yes
Orientational	23	8.1	Yes
Image	17	6.0	Yes
Container	5	1.8	No – image schema
Total	*283*	*100.0*	

Source. Prepared by the author.

Target domains
Target domains cluster sharply. Emotion and psychology accounts for 77 verified attestations (27.2%), almost three times the next-largest field. War and conflict (9.5%), cognition and knowledge (9.2%), power and social order (7.8%) and morality (7.8%) follow at comparable levels. The dominance of inner states is the single clearest distributional finding in the corpus.

Table 3
Target semantic fields, verified attestations (fields with n ≥ 10)

Target semantic field	N	%
Emotion & psychology	77	27.2
War, conflict & destruction	27	9.5
Cognition & knowledge	26	9.2
Power, status & social order	22	7.8
Morality, evil & deception	22	7.8
Nature, landscape & elements	20	7.1
Action, purpose & difficulty	17	6.0
Light & darkness as phenomena	14	4.9
Time & history	10	3.5

Source. Prepared by the author.

Note. Semantic fields are an analytical grouping applied to the conceptual metaphor labels, not a category recorded during identification.

Source domains and the direction of mapping
Source domains show the mirror-image profile. The largest categories are physical objects, space and force; persons and agency; containers, barriers and coverings; journey and motion; water and liquid; darkness and shadow; and light and fire. Every one is concrete, directly perceptible and bodily manipulable.

This asymmetry was tested directly. Of 379 headwords, 203 had a source domain that could be confidently classified as concrete or abstract. Of these, 202 (99.5%) drew on a concrete source domain. Exactly one – *desire is love* – mapped one abstract domain onto another, and even this is arguably a case of construal within a single experiential field rather than a genuine counterexample. Mapping in this corpus is, to a first approximation, perfectly unidirectional.

3.4 Image schemas
The schemas underwriting the mappings are the familiar embodied inventory. *Container, force, light–dark, source-path-goal, verticality and animacy* account for the large majority of attestations. The prominence of *container* is notable and follows directly from the target-domain profile in § 3.2: emotions are located in hearts, minds hold thoughts, people are filled with dread. The prominence of *light–dark* reflects a well-known feature of the text but is here quantified rather than asserted.

Evidential density
The distribution of attestations across headwords is extremely long-tailed. In the verified corpus, 184 of 210 headwords (87.6%) are supported by exactly one attestation. The mean is 1.35 attestations per headword and the median is 1. Only 26 headwords (12.4%) are supported by two or more, and only 16 by evidence from more than one volume with at least two verified attestations.

Adding the Tier 2 material does not improve this. The full dictionary contains 379 headwords and 503 attestations, of which 334 (88.1%) rest on one attestation – a marginally worse ratio, because the supplementary material contributed 169 mostly single-instance headwords while strengthening only fourteen existing ones. Dictionary size and evidential quality moved in opposite directions.

Table 4
Evidential density of conceptual metaphor headwords

Attestations per headword	Verified corpus (n = 210)	%	Full dictionary (n = 379)	%
1	184	87.6	334	88.1
2	8	3.8	18	4.7
3	6	2.9	11	2.9
4	3	1.4	3	0.8
5	5	2.4	5	1.3
6 or more	4	1.9	8	2.1

Source. Prepared by the author.

The well-evidenced core
The 26 headwords supported by two or more verified attestations constitute the portion of the dictionary that demonstrates systematicity in the sense CMT requires. The best-attested are listed in Table 5. Their composition is itself informative: they are concentrated in exactly the fields identified in § 3.2, and several are attested across all three volumes, which strengthens the case that they are structural features of the work rather than local effects of a single passage.

Table 5
Conceptual metaphors with four or more verified attestations

Conceptual metaphor	Verified n	Volumes
Armies Are Water / Enemy Forces Are Liquids	8	Tt/Rotk
Evil Is Darkness/Shadow	8	Fotr/Tt/Rotk
Heart Is A Container Of Emotions	6	Fotr/Tt/Rotk
Psychological Burdens Are Physical Weights	6	Fotr/Tt/Rotk
Darkness Is A Physical Substance	5	Fotr/Tt/Rotk
Darkness Is An Animate Entity	5	Tt/Rotk
Emotional Distress Is Physical Damage	5	Single Volume
Mind Is A Container	5	Single Volume
People Are Containers For Emotions	5	Fotr/Tt/Rotk
Emotions Are Living Entities	4	Fotr/Tt/Rotk
Emotions Are Substances In A Container	4	Fotr/Tt/Rotk
Mental Conflict Is Physical Combat	4	Fotr/Tt/Rotk

Source. Prepared by the author.

A worked case: armıes are water
The mapping ARMIES ARE WATER is the clearest fully verified case in the corpus, with eight attestations across two volumes and no supplementary padding. Enemy forces flow up to walls, pour through breaches, come sweeping like a dark wave, and must be stemmed as a tide is stemmed. The correspondences transfer systematically: a liquid is a mass without individuated parts, moves by flowing, overwhelms barriers by volume, can be dammed, and exploits gaps. Each has a counterpart in the construal of the army.

The mapping carries an ideological entailment worth noting. To construe an army as a liquid is to remove the individual soldier from view entirely; a tide has no members. In this corpus the construal is applied overwhelmingly to enemy forces rather than to allied ones, which aligns with the depersonalising function that Charteris-Black (2004) identifies for mass-noun and natural-force metaphors in political discourse.

Discussion

Unidirectionality confirmed
The near-perfect unidirectionality reported in §3.3 is the strongest theoretical result in the study. CMT predicts that mapping runs from concrete, sensorimotor domains to abstract ones, because the function of metaphor is to make the unobservable tractable by recruiting the structure of the observable (Lakoff & Johnson, 1980, 1999; Johnson, 1987). A rate of 99.5% in a corpus of this size is a clean confirmation, and it is worth noting that it emerges from data collected without this hypothesis in view.

Two qualifications apply. Coding assigned a single dominant source domain per headword, whereas Reijnierse and Burgers (2023) show that source domains are frequently underdetermined and that a procedure permitting multiple simultaneous candidates yields more defensible results. A finergrained coding might expose borderline cases the present scheme resolves too neatly. And the classification of a domain as concrete or abstract is itself a judgement, though in the great majority of cases not a contentious one.

The metaphorisation of inner states

That emotion and psychology should dominate the target domains at 27.2% is consistent with a general finding in cognitive linguistics: inner states are unobservable, lack independent perceptual structure, and are therefore metaphorically construed more heavily than any other domain (Kövecses, 2010). The corpus adds a specific observation. The CONTAINER schema is disproportionately recruited for this field – hearts contain emotions, minds contain thoughts, people are filled with feeling – which suggests that Tolkien's psychological vocabulary is organised around a spatial rather than, for instance, a hydraulic or mechanical model of the self.

This connects to a question that a secondary-world text poses with unusual clarity. Middle-earth is invented, but the mappings by which its inhabitants' inner lives are rendered are not: they are the ordinary embodied mappings of English. This is plausibly part of why the setting remains cognitively accessible despite its strangeness, and it is a claim that could be tested comparatively against realist fiction of the same period.

The systematicity problem

The finding with the widest implications is the one reported in § 3.5. With 87.6% of headwords resting on a single attestation, this dictionary – like, we suspect, many comparable resources – is not what it appears to be. It is an inventory of candidate mappings with a well-evidenced core of 26 entries embedded in it. The core is a genuine contribution. Presenting the whole as a set of established findings would not be defensible.

This is not a defect peculiar to the present study. It follows from a structural feature of literary metaphor research: the analyst reads for metaphor, records what is found, and labels each instance with a conceptual mapping. The labelling step is where the inflation occurs, because a plausible mapping can be formulated for any metaphorical expression whatsoever. A one-to-one correspondence between attestations and headwords is the natural endpoint of this procedure, and it is precisely the situation in which the mapping labels carry no evidential weight beyond the expressions that generated them.

Coll-Florit and Climent (2023) observe that metaphor repositories typically record mappings without recording how strongly each is supported, so that entries of radically different evidential standing appear identical. The present study suggests that this is not a cosmetic issue. Where the modal entry rests on one instance, the absence of density information means the resource cannot be used for the purpose it appears to serve.

We therefore propose two practices. First, that corpus-based metaphor studies report the distribution of attestations per posited mapping as a standard descriptive statistic, alongside the counts they already report. Second, that a stated recurrence threshold be applied before a mapping is described as systematic, with single-instance mappings reported as candidates. Neither is burdensome, and both would make studies comparable in a way they currently are not.

The value of the two-tier design

The two-tier treatment described in § 2.5 proved analytically useful beyond its immediate purpose. Because Tier 2 consists of items an identification protocol rejected, comparing tiers gives a direct view of what the protocol excludes and what difference it makes. Two observations follow.

The supplementary material added 169 headwords but strengthened only fourteen. Dictionary size grew by 80% while the number of entries meeting a two-attestation threshold grew by fourteen. This dissociation between size and evidential quality is worth stating plainly, because inventory size is often treated as a proxy for coverage.

A substantial share of the excluded material also turned out to be metaphor about the act of writing rather than metaphor within the narrative – the tale grew in the telling, the story put down roots, I plodded on – drawn from the Foreword. *Stories are plants and writing is a journey* are real mappings and Tolkien's authorial self-description is a legitimate object of study, but it is a different object from the narrative language of the trilogy, and conflating the two in a single alphabetical inventory obscures the distinction.

Relation to existing Tolkien scholarship
Sullivan (2013) analyses the One Ring as a metaphoric blend and traces object-based conceptualisations of power across the trilogy, finding that good characters are burdened and weighed down by power while corrupt ones grasp and hold it. The present corpus supports this from an independent direction: *psychological burdens are physical weights* is among the best-attested verified mappings, with six attestations across all three volumes, and *control is physical grasping* is separately attested. That two methodologically distinct studies converge on the same mappings is a form of corroboration that individual close readings cannot supply.

Kullmann and Siepmann (2021) establish through corpus stylistics that Tolkien's prose, for all its archaising surface, sits within the tradition of the nineteenth- and early twentieth-century novel. The metaphorical evidence points the same way. The mappings recruited here are not exotic; they are the ordinary embodied inventory. What is distinctive is their density and their thematic concentration, not their kind.

Limitations
Four limitations require statement.
The corpus is a curated selection, not an exhaustive concordance. Every frequency reported here describes the corpus rather than the trilogy. The claim that emotion metaphors are the largest field is a claim about this dataset; the stronger claim would require exhaustive sampling of defined text portions.

Sampling across volumes is uneven and non-random. The Two Towers supplies 49.5% of verified attestations against Fellowship's 19.8%, reflecting differences in compilation intensity rather than in the texts. No claim of the form "metaphor X intensifies across the trilogy" is supportable without normalisation by volume word count, which was not available. Cross-volume results in §3.6 are reported as presence/absence rather than as rates for this reason.

Attestations lack chapter-level references. The corpus records full sentence context but not location, so quotations are verifiable as text but not yet locatable in a standard edition. This is being remedied. Identification and coding were performed by a single analyst without a second-rater reliability check. MIPVU is designed for reliability testing (Steen et al., 2010), and both DMIP and MSDIP report inter-rater agreement as a matter of course (Reijnierse et al., 2018; Reijnierse & Burgers, 2023). The absence of such testing here is the most serious methodological gap and should be addressed before the substantive findings are treated as established.

Directions for further work
Three extensions follow directly. The first is a reliability study on a sample of the corpus, which would allow the identification and consolidation decisions to be assessed independently. The second

is the application of MSDIP (Reijnierse & Burgers, 2023) to permit multiple simultaneous source-domain candidates, which would test whether the unidirectionality result survives finer coding.

The third is cross-linguistic. The dictionary was compiled with Uzbek glosses, and Gen Kaya (2019) has established the adjustments MIPVU requires for Uzbek – concerning dictionary selection and the treatment of morphologically complex forms – which makes a genuine contrastive study feasible rather than merely aspirational. Mappings grounded in universal embodiment (weight, container, verticality) would be expected to transfer; those grounded in culturally specific material (*light–dark* moral symbolism inflected by Tolkien's Catholicism and Germanic sources) would be expected to require compensation. Zibin and Solopova (2024), setting out a research agenda for cross-cultural metaphor work, note that such asymmetries are where contrastive metaphor study is most productive.

Conclusion

This study reports a corpus-based conceptual metaphor dictionary of The Lord of the Rings comprising 283 verified attestations across 210 conceptual mappings, and uses it to examine both the metaphorical structure of the trilogy and the evidential foundations of literary metaphor analysis. Substantively, three findings hold. Mapping is almost perfectly unidirectional from concrete to abstract domains (99.5%), confirming a core CMT prediction on independent data. Target domains concentrate on inner states, with emotion and psychology accounting for 27.2% of attestations, and the CONTAINER schema is disproportionately recruited for this field. Structural metaphors predominate at 42.0%, as expected for extended narrative prose. Methodologically, the study finds that 87.6% of posited mappings rest on a single attestation and that only 26 meet a two-attestation threshold. Since systematicity – the recurrence of a mapping across multiple expressions – is the property that distinguishes a conceptual metaphor from an isolated figure, a dictionary of this shape supports claims of systematicity only for its core. We suggest that this pattern is a general feature of the way literary metaphor inventories are compiled rather than a peculiarity of this corpus, and that reporting evidential density should become routine practice.

The well-evidenced core, though small, is analytically substantial: mappings such as *armies are water, psychological burdens are physical weights, evil is darkness and heart ıs a container of emotions* are attested repeatedly and across volumes, and it is on these that an account of Tolkien's metaphorical architecture can properly be built. A smaller dictionary of well-attested mappings would be a stronger contribution than a larger one of candidates – and the material for it is already present in the larger.

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Decarbonization and Circular Supply Chain Integration in a Transit Economy: A Six-Pillar Policy Assessment for Azerbaijan's Logistics Sector

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Abstract. *Research on cutting carbon out of freight operations and research on the design of closed-loop supply chains (CLSC) have matured in parallel, with remarkably little contact between them. This paper asks where their combination yields something that neither delivers alone, and then reads the answer against a transit-dependent national economy. The work has two stages. An integrative review came first: queries covering January 2012 through March 2026 in Scopus, Google Scholar and the Core Collection of the Web of Science produced 412 records, from which 65 studies survived deduplication and full-text appraisal and entered the synthesis under a six-axis coding scheme. The second stage confronts that scheme with Azerbaijani strategy documents, agency reporting and branch statistics. Evidence drawn from modelled settings suggests that treating emission reduction and circular design as a single optimization problem lowers costs by as much as 31 per cent while cutting emissions by between 12 and 40 per cent, although such results hold only where financing channels, digital capability, managerial preparedness and geoecological reporting are already in place. At country level the assessment finds capital flowing into corridor infrastructure moving out of step with the instruments meant to govern emissions, and finds budgetary support unaccompanied by a carbon price unable to retain private green capital over time.*

Keywords: *decarbonization, closed-loop supply chain, sustainable logistics, green finance, geoecological monitoring, middle corridor, Azerbaijan*

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Tranzit iqtisadiyyatında karbonsuzlaşdırma ilə qapalı dövrəli təchizat zəncirlərinin inteqrasiyası: Azərbaycanın logistika sektoru üçün altısütunlu siyasət qiymətləndirməsi

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Xülasə*. Yük daşımalarında karbon emissiyalarının azaldılmasına dair tədqiqatlar ilə qapalı dövrəli təchizat zəncirlərinin (QDTZ) layihələndirilməsinə dair tədqiqatlar bir-birinə toxunmadan, paralel şəkildə formalaşmışdır. Məqalə bu iki istiqamətin birləşdirilməsinin ayrılıqda əldə edilə bilməyən hansı nəticəni verdiyini araşdırır və alınan cavabı tranzitə söykənən milli iqtisadiyyat kontekstində oxuyur. Tədqiqat iki mərhələdən ibarətdir. Birinci mərhələdə inteqrativ ədəbiyyat icmalı aparılmış, Scopus, Web of Science Core Collection və Google Scholar bazalarında 2012-ci ilin yanvarından*

2026-cı ilin martına qədərki dövrü əhatə edən axtarış 412 qeyd vermiş, dublikatların çıxarılması və tam mətn qiymətləndirməsi sonrası 65 mənbə altı tematik ox üzrə kodlaşdırılaraq sintezə daxil edilmişdir. İkinci mərhələdə alınan sxem Azərbaycanın strateji sənədləri, beynəlxalq təşkilat hesabatları və sahə statistikası ilə tutuşdurulmuşdur. Modelə əsaslanan mənbələr göstərir ki, emissiyaların azaldılması ilə dövrəli layihələndirmənin vahid optimallaşdırma məsələsi kimi həlli xərcləri 31 faizədək, emissiyaları isə 12–40 faiz aralığında azaldır; lakin bu nəticələr yalnız maliyyə kanalları, rəqəmsal potensial, idarəetmə hazırlığı və geoekoloji hesabatlılıq mövcud olduqda özünü doğruldur. Ölkə səviyyəsində qiymətləndirmə dəhliz infrastrukturuna yönələn kapitalın emissiya idarəçiliyi alətləri ilə uzlaşmadığını, karbon qiyməti ilə müşayiət olunmayan büdcə dəstəyinin isə xüsusi yaşıl kapitalı uzunmüddətli saxlaya bilmədiyini aşkar edir.

Açar sözlər: *karbonsuzlaşdırma, qapalı dövrəli təchizat zənciri, dayanıqlı logistika, yaşıl maliyyə, geoekoloji monitorinq, orta dəhliz, Azərbaycan*

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Introduction

A large share of the world's climate burden originates in the movement and storage of goods. The International Energy Agency places road haulage at close to 7 per cent of energy-related carbon dioxide emissions worldwide and at more than a third of what the transport sector as a whole releases (International Energy Agency (IEA), 2017). What was once read as an environmental statistic now carries commercial and legal consequences under the temperature limit agreed in Paris. Carbon adjustment at the European Union border, mandatory sustainability disclosure and the conditions written into the contracts of international buyers have together turned the emission profile of a consignment into a precondition of market entry.

Two bodies of scholarship have grown up in response, and they have grown up apart. The first studies the instruments of emission reduction: electrified fleets, better routing, energy performance in warehouses, digital control systems (McKinnon & Piecyk, 2012; Lu et al., 2023). The second builds mathematical models of closed-loop supply chains, designs reverse logistics networks and asks how materials return to productive use (Govindan & Soleimani, 2017; Lozano-Oviedo et al., 2024). Each is methodologically well equipped. What lies between them is thinner. The emissions that reverse flows themselves generate, or the way spending on emission reduction reshapes decisions about circular design, are questions neither literature has claimed as its own.

For Azerbaijan the gap has a concrete counterpart. The second Nationally Determined Contribution, filed in 2023, undertakes a 40 per cent cut in greenhouse gases relative to 1990 by mid-century, and pairs this with a 2030 objective under which renewables would supply 30 per cent of installed generating capacity (2023; IEA, 2022). Transit activity has expanded quickly over the same years. Volumes moving across the Caspian on the Middle Corridor climbed from something near 0.5 million tons before 2022 to 4.1 million tons in 2024, a yearly rate above 63 per cent (Conradi, 2026), while transit cargo moving across Azerbaijani territory as a whole added 8 per cent in that year and reached 114.5 million tons (Oxford Business Group, 2026). The tension is easy to state. More transit is desirable economically, yet unless the machinery for managing emissions grows at a comparable rate, the additional tonnage sits awkwardly against the climate pledge. Work published earlier by the present authors found the institutional link between corridor capital and green investment mechanisms to be a weak one (Abdulhasanova, 2025; Abdulhasanova & Abdulhasanov, 2026).

Three questions structure what follows. By what mechanisms does the joint optimization of emission reduction and circular design actually operate? What has to be true organizationally, financially and territorially before that integration produces an effect? And how large is the measurable advantage under Azerbaijani conditions? Two contributions are intended. Review work in this field has kept its analytical categories close to operations and management; the scheme used here adds ecological accountability and the regional macroeconomic setting to that inventory. The scheme is then carried, for the first time, into the corridor economy of Azerbaijan, where each pillar is assessed for where the country now stands, what holds it back and which policy instrument deserves precedence. That country stage is what separates the present paper from the conceptual synthesis the authors published earlier (Abdulhasanova et al., 2026a).

Methods

Research design. The design is mixed and sequential. A review of the literature forms the first stage; the second takes the framework that emerges from it and tests that framework against secondary Azerbaijani data. An integrative approach was chosen because the material is heterogeneous in method, with optimization models sitting beside engineering assessments, policy analysis and institutional research. Meta-analysis in the quantitative sense cannot be applied where dependent variables and units of measurement share no common basis.

Search and selection. Retrieval was carried out in three databases — Scopus, Google Scholar and the Core Collection of the Web of Science — with the corpus limited to English-language work published from January 2012 onward and closing in March 2026. Three Boolean strings structured the retrieval: (1) ("reverse logistics" OR "closed-loop supply chain") AND ("carbon emission" OR "green logistics" OR "decarbonization"); (2) ("green supply chain" OR "sustainable logistics") AND ("framework" OR "optimization"); (3) ("geoecological monitoring" OR "IoT scheduling" OR "building energy") AND ("supply chain" OR "logistics"). Retrieval yielded 412 records, distributed 168, 142 and 102 across the three sources respectively. Once 87 duplicates had been withdrawn, 325 items remained; screening of titles and abstracts brought the set down to 142 studies read in full. To be included, a study had to be peer-reviewed, to engage directly with circular chain design or freight decarbonization, and to report either a measured result or a framework. Sixty-five works passed these filters and form the corpus of the synthesis.

Coding and derivation of the pillars. Coding of the 65 sources ran along six thematic axes. Three of them — the technological layer, the architecture of circular design and the instruments of policy — reproduce the operational and governance division that the field's principal reviews have established (Govindan & Soleimani, 2017; Genovese et al., 2017). The other three axes concern whether integration is feasible at all: what the organization must have in place, how ecological consequences are accounted for, and what the surrounding regional economy permits. Existing frameworks treat this second group thinly (Lozano-Oviedo et al., 2024). Nothing further emerged during coding with enough internal coherence to warrant a seventh axis.

Country-level stage and limitations. Applying the framework to Azerbaijan meant working with official documents, reporting by international organizations and branch statistics. Every pillar was assessed on three parameters: the present state of affairs, the binding constraint and the instrument that deserves priority. Each assessment was cross-checked against empirical studies the authors have published on Azerbaijan (Aliyev et al., 2024; Abdulhasanova et al., 2026c; Ahmadova et al., 2026). Three limitations deserve plain statement. An integrative review rests on qualitative judgement and cannot be declared free of selection bias. Restricting the corpus to English leaves part of the regional scholarship outside it. And the country stage draws on secondary material rather than on fieldwork of the authors' own.

Results

Mechanisms of emission reduction. Six families of mechanism recur across the reviewed material. Table 1 sets out how each works and what results have been reported for it.

Table 1
Mechanisms of emission reduction in freight activity and their reported outcomes

Strategy	Operating logic	Reported outcome	Source
Fleet electrification	Battery-electric vehicles drawing power from renewable generation	Lifecycle emissions lower by roughly 30%	Lu et al. (2023)
Thermal retrofit of buildings	Internal insulation reducing heat transfer through the envelope	Marked energy savings in warehouses and terminals	Hajiyev et al. (2025)
AI and IoT scheduling	Task allocation by a scheduler coupling fuzzy inference with evolutionary search	Computational energy demand and latency both fall	Akana et al. (2025)
5G and edge computing	Routing decisions taken in real time under very low latency	Latency down by as much as 85%	Wang & Wang (2025)
Green financing	Blended vehicles that capitalize assets in green logistics	Public funds attracting private capital at considerable leverage	Abdulhasanova (2025)
Shift between modes	Investment in rail that draws cargo away from the road	Journey times cut by up to 12%	Asgarova & Abbasova (2024)

Source. Prepared by the authors on the basis of the reviewed studies.

Taken singly, none of these mechanisms carries far enough. How much electrification saves depends on how carbon-intensive the grid is, and in the Azerbaijani case that intensity is governed by the renewables target for installed capacity. An exercise applying the Toda–Yamamoto procedure to Iceland and Azerbaijan reported a positive and statistically significant link running between renewable consumption and growth (Aliyev et al., 2024). Spending on electrification therefore rests on a productivity case as much as an environmental one.

Typologies of closed-loop modelling. Five principal types organize the modelling literature reviewed here. Multi-objective formulations weigh profit, emissions and social welfare at once through Pareto optimization (Mohtashami et al., 2020). Stochastic and robust programming handles uncertainty in demand and in return flows (Sardar et al., 2025). Game-theoretic constructions coordinate the choices of competing actors through Nash and Stackelberg equilibria (Song et al., 2026). Reward-penalty formulations build regulatory incentives aimed at maximizing collection rates (Li et al., 2021). IoT-integrated models feed real-time data back into operations to lower energy use while raising recovered volumes (Sorooshian et al., 2024; Akana et al., 2025). The categories do not exclude one another, and recent contributions combine them with growing frequency.

Quantified outcomes of integration. Table 2 collects what modelled studies report once the two problems are solved together.

Table 2
Reported gains from treating emission reduction and circular design as one problem

Object of study	Cost saving	Emission saving	Method applied	Source
Routing in a green cold chain	up to 31%	15–25%	Multi-objective routing solved by metaheuristics	Zheng et al. (2025)
Circular chain for EV batteries	15–22%	25–35%	IoT-based integration	Sorooshian et al. (2024)
Power battery closed loop	18–28%	15–22%	Stackelberg game	Song et al. (2026)
Petrochemical chain	10–15%	10–15%	Robust integrated programming	Sardar et al. (2025)

Source. Compiled by the authors from the reviewed literature.

Caution is needed in reading these numbers, which come from studies that differ in method. They convey the order of magnitude that becomes attainable under modelling assumptions and should not be mistaken for pooled statistical estimates. In practice the reported gains erode in proportion to whatever weaknesses exist in institutional quality and in the data infrastructure available.

Six pillars and what they show for Azerbaijan. Six pillars emerge from the synthesis, and they fall into two groups. The first group establishes whether integration is technically conceivable: it covers the technological layer, the architecture of circular network design and the instruments of policy. The second group decides whether integration can be executed at all: it covers organizational readiness, geoecological accountability and the regional macroeconomic setting. The central claim of the framework is that technical solutions across the first group leave integration a paper exercise for as long as the conditions in the second group go unmet. Table 3 carries the pillars into the Azerbaijani case, and this stage is where the study's own contribution lies.

Table 3
The six pillars applied to the logistics sector of Azerbaijan

Pillar	Where the country stands	Binding constraint	Instrument deserving priority
Technological layer	Renewables target of 30% of installed capacity by 2030; customs procedures being digitalized	Electric traction practically absent from heavy freight; no charging infrastructure	Pilot charging network along the corridor; digital platform for freight management

Pillar	Where the country stands	Binding constraint	Instrument deserving priority
Architecture of circular design	Recycling activity concentrated in the metal and paper segments	Extended producer responsibility only partly operational; reverse flows go unrecorded	Statutory collection targets for priority product groups
Instruments of policy	Climate commitment articulated in the NDC; the toolkit rests mainly on budget expenditure and tax relief	With no carbon price in place, fiscal spending has limited power to crowd in private green investment	A carbon price signal added alongside the existing fiscal incentives
Organizational readiness	Training capacity in logistics is widening	Departure of skilled labour, together with the drag that digital information overload places on productivity	Targeted vocational training; protocols governing the use of digital tools
Geoecological accountability	Large infrastructure projects undergo environmental impact assessment	Neither the retreating level of the Caspian nor the mined territories enter logistics planning	Monitoring of ecological conditions maintained continuously along the corridors
Regional macroeconomic setting	Transit volumes climbing; corridor prospects opening for Nakhchivan	High transport costs and limited scale economies under exclave conditions	A differentiated incentive regime that accounts for regional disparities

Source. Authors' assessment, drawing on Ministry of Ecology and Natural Resources of the Republic of Azerbaijan (2023), IEA (2022), Oxford Business Group (2026) and the authors' earlier empirical work.

Discussion

What fiscal policy cannot do by itself. Panel econometric work carried out by the present authors indicates that public environmental expenditure pulls in private green investment on a lasting basis only when a carbon pricing mechanism accompanies it; with no price signal in place the crowding-in effect weakens, and certain specifications turn it into crowding out (Abdulhasanova et al., 2026c). The reading for logistics follows directly. Warehousing that meets green standards, electric fleets and facilities for reverse flows are all long-payback assets, so financing them out of grants and concessional credit alone caps the achievable volume at whatever the state budget permits. This aligns with earlier analysis, which located the structural obstacles to mobilizing green capital in Azerbaijan in subsidized fuel, an underdeveloped set of green financing instruments and thin risk mitigation (Abdulhasanova, 2025), and with work on investment priorities which records a persistent distance between what is declared a priority and where money actually goes (Ahmadova et al., 2026).

The productivity paradox in digitalization. The literature treats digital instruments as the principal accelerator of emission reduction, and a scheduling framework that pairs fuzzy inference with an evolutionary search algorithm supports the claim on the energy side for fog and cloud networks

(Akana et al., 2025). Their organizational effect is more ambiguous. Empirical analysis for Turkey found that an abundance of information and dependence on digital tools both weigh negatively on worker productivity (Abdulhasanova et al., 2026d). Once the volume of real-time data outruns what the operator can process, decision quality falls away and the expected return on the technology investment declines with it. Deployment therefore needs filtering protocols and a decision-support architecture designed on purpose rather than assembled by default.

Customs efficiency and the environmental side of corridor logic. Border procedure rarely appears in the decarbonization literature as an emission factor, yet the emissions released at a crossing rise in step with the count of vehicles left idling while they wait. Analysis of how customs efficiency relates to logistics performance in Azerbaijan established that shorter procedural times raise trade volume (Abdulhasanova et al., 2026b); the same result admits an environmental reading, since digitalizing document flow is among the few measures that ease trade and cut emissions at once. Examination of the Middle Corridor alongside the Zangezur Corridor points in the same direction: the choice of corridor determines the emission outcome not through distance and tariff alone but through the modal composition it implies (Abdulhasanova & Abdulhasanov, 2026).

The geoecological dimension. Using monitoring models to trace how transport infrastructure alters land use is a relatively recent line of enquiry (Mamonov et al., 2024), and it acquires particular weight in Azerbaijani conditions. The Caspian Sea has been losing level at rates averaging as much as 30 centimetres a year since 2020, and ferry operations have already felt it: traffic in rail tank cars on the Baku–Kuryk route contracted by 22 per cent and wagon traffic by 10 per cent (Conradi, 2026). Far from being a supplementary variable, the geoecological one belongs at the centre of logistics planning, because any loss of reliability in the maritime crossing pushes cargo onto overland routes and shifts the emission balance with it.

Organizational and regional preconditions, with the evidence that cuts the other way. Whether integration happens is decided by organizational readiness rather than by technology. Converting innovation potential into economic results depends on the quality of management (Abdulhasanova & Aliyeva, 2024), and in logistics that question is tied to labour mobility as well, because a departure of qualified staff slows the pace at which new technology is absorbed (Abdulhasanova, 2024). The sixth pillar insists that differences inside the country be taken into account. Transport costs run higher in the Nakhchivan Autonomous Republic because of its exclave position, and scale economies are correspondingly harder to reach (Ahmadova et al., 2018); a subsidy rate large enough to redirect an investment decision in the central districts therefore fails to cover the additional expense incurred there. The integration thesis is not beyond dispute in any case. Multi-objective models are complex, and that complexity generates additional operating costs wherever institutional capacity is weak, which offsets part of the efficiency gain (MahmoumGonbadi et al., 2021). Social sustainability is likewise thin on theory, given how rarely employment indicators are admitted into the objective function.

Conclusion

Freight decarbonization and the design of closed-loop chains have been treated here as lines of development that condition one another rather than as competing alternatives. Synthesis of 65 sources produced a framework of six pillars, gathering into one analytical scheme the technological layer, the architecture of circular design, the instruments of policy, organizational readiness, geoecological accountability and the regional macroeconomic setting. Three findings deserve emphasis. Joint optimization lowers costs by as much as 31 per cent and cuts emissions by 12 to 40 per cent under modelling assumptions, yet these magnitudes are sensitive to institutional quality. The last three pillars, thinly represented in existing review work, turn out to be exactly the ones that bind in practice.

And fiscal instruments applied in the absence of a carbon price do not hold private green investment over time. Four practical priorities follow for Azerbaijan. An emission criterion should enter the formal appraisal of investment decisions concerning corridor infrastructure. Digitalization of customs and documentation should be treated as an instrument of emission reduction as much as of trade facilitation. Blended finance structures should be built for green logistics assets with long horizons. And geoecological monitoring along corridor routes should be placed on a permanent footing.

The limits of the exercise are plain enough. Review work of this kind depends on selective judgement; the quantified figures are not pooled statistical estimates; the framework still awaits empirical validation; and the country reading was assembled from secondary material. Three directions suggest themselves for further work: turning the framework into a structured survey instrument for use across the South Caucasus and Central Asia; feeding geoecological monitoring data into closed-loop optimization models; and building emission accounts at the level of the corridor, a move that would relocate the unit of analysis from the firm to the corridor itself.

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Some Stylistic Features of Azerbaijani Composer Fikret Amirov׳s Symphonic Mughams

Inara Maharramova

Abstract. *The presented article talks about the symphonic mughams of the famous Azerbaijani composer Fikret Amirov. Symphonic mughams are a new genre of symphonic music that has no analogues to those days in the history of world music culture. The idea of transferring mughams to a new sound was, in fact, to create a new version of mugham, that is, an individual and different version. İn article noted, that symphonic mughams created as a result of combining two types of musical thinking brought Azerbaijani symphony to the world arena. The artist created an unparalleled and hitherto unknown genre style by artistically linking the conflicting music systems. Also F.Amirov's mughams are subject to the laws of ordinary symphony in the symphonic sounding, which is new for national music, but at the same time, they preserve the principles of traditional mugham art. the founder of the new genre, F. Amirov, also created a new genre style and opened wide avenues for its future development. The article analyzes the symphonic mugams "Shur", "Kurd Ovsharı", "Gülistan Bayatı-Shiraz", which occupy an important place in the creativity of F. Amirov and reflect the brilliant creative style of the composer. And some characteristic aspects of the compositional structure, genre, style, harmonic and melodic language of these works are considered.*

Key words: *symphonic mugham, genre, stylistic features, traditional music of Azerbaijan. Azerbaijani mugham*

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Azərbaycan bəstəkarı Fikrət Əmirovun simfonik muğamlarının bəzi üslub xüsusiyyətləri

İnarə Məhərrəmova

Xülasə. *Təqdim olunan məqalədə tanınmış Azərbaycan bəstəkarı Fikrət Əmirovun simfonik muğamlarından bəhs edilir. Simfonik muğamlar dünya musiqi mədəniyyəti tarixində həmin dövrə qədər analoqu olmayan yeni bir simfonik musiqi janrıdır. Muğamları yeni səslənməyə köçürmək ideyası, əslində, muğamın yeni – fərdi və orijinal bir versiyasını yaratmaq məqsədi daşıyırdı. Məqalədə qeyd olunur ki, iki fərqli musiqi təfəkkürü növünün birləşdirilməsi nəticəsində yaranan simfonik muğamlar Azərbaycan simfonizmini dünya arenasına çıxarmışdır. Sənətkar bir-birindən fərqlənən musiqi sistemlərini bədii şəkildə əlaqələndirməklə misilsiz və o vaxta qədər məlum olmayan yeni bir janr üslubu yaratmışdır. Həmçinin F. Əmirovun muğamları milli musiqi üçün yeni olan simfonik səslənmədə klassik simfoniyanın qanunauyğunluqlarına tabe olsa da, eyni zamanda ənənəvi muğam sənətinin prinsiplərini qoruyub saxlayır. Yeni janrın banisi olan F. Əmirov həm də yeni janr üslubu yaratmış və onun gələcək inkişafı üçün geniş imkanlar açmışdır.*

Məqalədə F. Əmirovun yaradıcılığında mühüm yer tutan və bəstəkarın parlaq yaradıcılıq üslubunu əks etdirən "Şur", "Kürd-ovşarı", "Gülüstan-Bayatı-Şiraz" simfonik muğamları təhlil edilir; həmçinin bu əsərlərin kompozisiya quruluşu, janr, üslub, harmonik və melodik dili ilə bağlı bəzi səciyyəvi xüsusiyyətlər nəzərdən keçirilir.

Açar sözlər: *simfonik muğam, janr, üslub xüsusiyyətləri, Azərbaycanın ənənəvi musiqisi, Azərbaycan muğamı*

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Introduction

The outstanding composer Fikret Amirov, one of the most talented representatives of the Azerbaijani school of composition, contributed to the development of our national musical culture.

Fikret Amirov is a composer with a wide range. He is the author of operas, ballets, symphonies and symphonic suites, symphonic mughams, songs and romances, works for the piano, and music written for dramatic plays. The composer's creative style differs from other composers with its own characteristics.

F. Amirov wrote bright pages that are completely new to our music culture in terms of style, theme and quality. He created an artistic, poetic world of Azerbaijani music by applying his own new romantic composer thinking. Researchers have extensively studied his creative journey and artistic craftsmanship (Əhmədova, 2025; Məmmədova, 2022; Qasımova, 2021; Rüstəmova, 2024; Səfərova 2019). People's Artist Sattar Bahlulzadeh said: "Fikret Amirov's music is impressive and enthusiastic. Of course, music is a reflection of the character of this ardent, passionate man who is deeply interested in the destiny of art" **(**Bahlulzadeh, 1973, p. 4).

His works have won the love and sympathy of our and many foreign audiences. The composer's symphonic mughams, "Nizami" symphony, "Azerbaijan suite", "Azerbaijan capriccio" were performed on world concert stages and gained great fame. Amirov's music is still successfully performed in the United States, England, France, Italy, Germany, Egypt, Iran, Turkey and other foreign countries.

Discussion

The composer's appeal to mughams resulted in the creation of new styles and new genres that have no analogues in the history of world music. Amirov created a new kind and a new genre style with his mughams. This new style belonged only to the East. According to musicologist B.Yarustovsky, F.Amirov laid the foundation of "Eastern symphony".

The idea of presenting mugham in a new, hitherto unfamiliar orchestral sound allowed the composer to realize an issue of historical significance – the organic integration of artistic forms of folk music with the principles of European music. This gave impetus to the emergence of symphonic mughams, which laid the foundation for a new, independent field of national symphony, formed on the basis of mugham traditions and rising to the level of world-class works. The symphonic works created by F. Amirov, who did not separate his musical thinking from the genres and forms of folk music, and expressed his ideas, poetic feelings and emotions in these forms, opened one of the impassable paths in the development of Eastern symphonic music. After the performance of symphonic mughams in this country, the French magazine Disk wrote: "Shur" symphonic mugham has aroused great interest among French listeners with its expressiveness and brilliant orchestral skills. Our time is often a reason to complain about the ineffective laboratory-type music tests that are far from life. Therefore, we cannot but rejoice in the creation of a piece of music that is high and beyond abstractions. The mugham "Shur” has the greatness and truth of the art of music, which is of great importance in the true sense, and is inherent in valuable musical works" (Gasimova & Abdullayeva, 2004, p. 65).

F. Amirov's mugams are the most important stage in the application of this genre of oral traditional music to the composer's creativity. F. Amirov has achieved a high artistic synthesis of two types of musical thinking – national mugham and European style. As a result of this synthesis, a new style related to the mugham genre, that is a new genre style, was approved. Thus, in symphonic mughams, a new, independent genre emerged, with specific and general stylistic features adapted and having its own figurative-dramatic concept. This new genre has its own constructive features.

Symphonic mughams created as a result of combining two types of musical thinking brought Azerbaijani symphony to the world arena. The artist created an unparalleled and hitherto unknown genre style by artistically linking the conflicting music systems. F. Amirov's symphonic mugams "Shur" and "Kurd Ovshari" are dulogies. Although both works are independent, certain connections between them unite them in a single series. In this series, "Shur" has the main function, and "Kurd Ovshari" has the auxiliary function. Thus, "Kurd Ovshari" can be a part of another main mugham. In contrast to the lyrical-dramatic images of Shur, "Kurd Ovshari" pays more attention to the enthusiastic images of song and dance. In the duology, F. Amirov tries to combine the two mughams more, and for this he uses traditional methods of mugham, such as returning to the mode-tonal support, as well as to the register where the first expression begins.

In addition, the composer includes in symphonic mughams the principles of organization of material typical of pan-European classical music. These are melodic connections, common themes, connections of mode combinations and leitmotifs. Thus, the beginning of the melody in "Shur" (Introduction) is of special importance. In the composition of "Shur", this turn frames the whole duology, playing the role of a leitembers. Interestingly, the composer entrusts the subject to the bass clarinet and preserves its timbre.

The sections of Shur mugham existing in the practice of folk performance are: "Bardasht", "Maye-Shur", "Shur-Shahnaz", "Bayati-turk", "Shikasteyi-fars", "Simayi-shams", "Saranj", "Hijaz". Mugham begins with "Bardasht", which gives the listener an emotional tone of mode. Then the main "Maya" section, and then all the sections sound in sequence.

Example:

Among the sections mentioned, the tasnif is usually performed by the singer and the accompanying ensemble, or instrumental rangs are played. Amirov presents all this in the orchestra's performance.
F. Amirov's mughams are subject to the laws of ordinary symphony in the symphonic sounding, which is new for national music, but at the same time, they preserve the principles of traditional mugham

art. As it is known, the intonation-melodic structure of mughams in the practice of folk performance is created on the principle of changing the points of support in the sections of mugham. This principle, which reflects the change of mode, is the basis of the whole composition of mugham. In this case, the interpretation of the interconnected images in the form of variants manifests itself. In F. Amirov's works, mugham intonations are preserved and subjected to the laws of symphony. This is very important. The composer's symphonic mugham "Shur" consists of "Maye-Shur", "Shur-Shahnaz" and "Bayati" sections. Amirov uses several intonation components of Bayati (for example, Iraq, Simayi-Shams) after the improvisation sections (except for the "Iraq" section) in the "Bayati" section.

F. Amirov significantly deepens and enriches the content of symphonic mugham. Compared to the original source, F. Amirov's symphonic mugham sounds more dramatic and magnificent. In addition, the composer composes the original theme, and the Introduction section of the mugham begins with this theme. This small subject, which arises from the characteristic turns of the first source (mugham), is in three parts, that is, it has become a typical homophonic-style subject; so that the return of the main topic (Part III) has a complementary function and thus separates the Introduction from the subsequent material.

The two intonations that serve the unity of the series should also be noted. Here the first, that is, the initial intonation and the intonation included in the cadence rotation, are of great importance. Thanks to the chain of intonation, the composer achieves completeness and integrity in the work. Such chain of intonation is clearly felt even at a distance. For example, the "Maye" section begins at the culmination of the introduction. Many aspects of F. Amirov's symphonic mughams are reminiscent of folk mughams: for example, the beginning of "Maye" from the culmination, the singer's solo performance after the instrumental prelude, etc. Thus, from the beginning of "Shur", the composer highlights two contrasting types of texture: homophonic (metric) and improvised. Both of them are summarized and generalized in the complementary section of the Introduction to the "Shur".

Thus, in the practice of folk performance, F. Amirov combines the phase feature of mugham with the traditional classical three-part. One of the main features is the symmetry of the parts. This use of mugham material, of course, stems from F. Amirov's innovative approach to mugham. Another factor also is important: the next stage is already being prepared in Maye–Shur in terms of intonation, metric, melodic, the main direction is the direction of development to another section (tasnif). All this, no doubt, is a manifestation of the composer's symphonic thinking.

The first part of the symphonic mugam is completed by "Tasnif". "Tasnif" is a song and dance. This fragment contrasts with the sections before and after it. As in the practice of the people, using the principle of verse-refrain, F. Amirov gives the tasnif in two parts.

Example:

The next section is "Shur-Shahnaz". As in the practice of folk performance, this is the largest section in F. Amirov's mugham and has a three-part structure. The outer parts are improvised, and the middle part of the folk song ("Ay qadasi") ("Oh, My Lovely") is marked by the composer under the name "Rang".

Example:

The structure of Shur-Shahnaz can be considered as a coded two-part form, but it can also be interpreted as a two-part form with an open (*si)* tonic to make it easier to return to Rang. "Shur-Shahnaz" is distinguished by its internal modulation, that is in addition to the lyrical episode based on the tonic, there is also an original author's section that more clearly shows the lyrical code. However, it should be noted that this lyrical episode is a variation of the previous section in terms of intonation.

"Bayati" directs the style of music in another direction. Images and intonation change. The music takes the listener from the lyrics to the epic. The three major sections of the bayati focus the expression on the subdominant area. The beginning of recitative recitation in the "Iraq" section is noteworthy. The lyrics of the previous section are replaced by epic, brave characters in "Iraq". Here, when the register reaches its maximum, the music material includes elements of "Rast" mugham.

There is an intonation connection between the "Iraq" and "Bayati" sections. This connection is made through tasnif (“Evləri var xanə-xanə”) ("They have houses in cells"). He also prepares a reprise of the whole mugham in terms of mode. Signs of this reprisal can be found even before tasnif. Of course, all this proves the depth of the author's symphonic thinking in "Shur".

The "Simai-Shams" section, which sounds after "Iraq", replaces rang and tasnif. In symphonic mugham, it sounds one octave above the Maye. Simai-Shams' music is based on a precise rhythm. The author takes a two-dimensional motif from "Maye-Shur" and plays it in the form of ostinato on bass throughout the department. Thus, the sound of the percussion instruments, which is characteristic of folk performance, gives the impression that it also clearly shows the stage of the mode. This ostinato motif first sounds like a background in "Simai-Shams", and at the climax it takes place in the orchestra's Tuttis.

Thus, the basis of "Simai-Shams" is a canon on the theme of mugham, performed by bells and xylophones. This canon is heard at the beginning, middle and end of Simai-Shams. Later, it is performed in "Kurd Ovshari" and establishes a connection between the two mughams. F. Amirov widely uses polyphonic methods in symphonic mugham. An example of this is the dialogue between a separate instrument group and the orchestra Tutti. In this way, the composer often celebrates the beginning of a new section.

The code of the symphonic mugham "frames" the mugham based on the theme taken from the introductory part. Thus, F. Amirov creates a synthesis in the code, both in terms of mode and theme. All this brings integrity and artistic completeness to the work. "Shur" symphonic mugham is a suite. Its parts are divided into separate, smaller sections. Fikret Amirov significantly increases the functions of precisely sized sections in symphonic mugham. These precisely sized departments (tasnifs, rangs) carry the main dramatic burden. Tasnifs and rangs either complete departments or create a transition to new departments. They serve the mode of intonation by generalizing the music in terms of mode-intonation. As a result of the change of mode, the melody always refers to a new tonic. Thus, they are presented as new parts. It is felt here that F. Amirov attempts to symphonize mugham.

"Kurd Ovshari" mugham is based on the musical material of percussion mughams. The percussion mughams are the second part of the duology, combining precise sized musical accompaniment and free improvisation. Of the four sections of "Kurd Ovshari" ("Ovshari", "Shahnaz", "Kurdi", "Mani"), three are percussion-mugham and one ("Shahnaz") is a mugham section. There is only one tasnif here. The introduction begins with a lyrical melody based on a folk song, accompanied by a solo clarinet.

Example:

The clarinet solo introduces the entrance, as if "framing" it into a unique three-part form. The precise rhythmic accompaniment of trumpets and stringed instruments clearly shows the character of the percussion-mugham. In the "Ovshari" department, the refrain is performed by the orchestra Tutti.

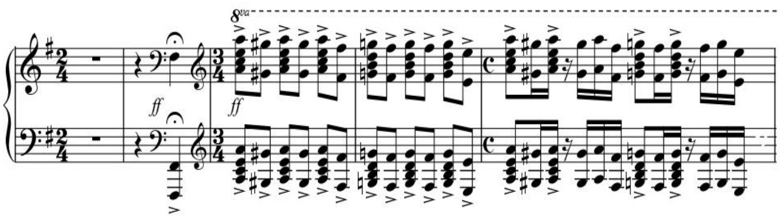
Example:

Here, the composer used the ancient ashug song "Ovshari" as a daramad, and also added a version of the "Simayi-Shams" section of the "Shur" mugham in this darama. Thus, on the one hand, the repetition of the material creates a certain connection between the two parts of the duology. On the other hand, a new sound of a familiar theme, of course, enriches the work. There are two episodes in "Kurd Ovshari". One of them is a mugham episode and the melody is taken from "Shur". The second is based on folk instrumental themes and takes place on the clarinet solo. These two episodes complete the rondo form of "Ovshari". Tasnif, which comes after "Ovshari", is based on a lyrical folk song. The tasnif has an exact three-part form.

Example:

In "Kurd Ovshari" the "Shahnaz" section, which is also known as mugham in the practice of folk performance, is heard. "Shahnaz" again gives improvised dynamic images with the new timbre of the piano.

Example:



The lyrical theme is included in the dynamic section, and a new mode center (the quintet) emerges. The culmination of the Shahnaz section is based on the material of the Shur mugham (the first part of the duology, but in a slightly updated form). The section is completed with improvisation of oboe.

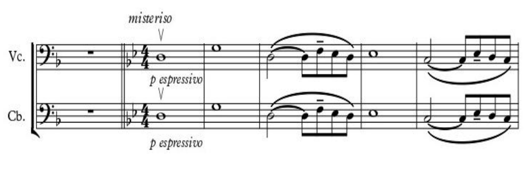
The "Kurdi" section is based on the wedding melody.
The complementary section, "Mani", also features the refrain's bright, cheerful music. Through the repeated canon in "Simayi-Shams", the composer enriches the expression with additional mugham-improvised melodic lines.

Code-repriza summarizes the image-content and development of the whole duology.
The constant search for new means of expression and new timbres, the attempt to synthesize different areas of folk art, as well as their combination with the classics leads to the creation of the symphonic mugham "Gulustan Bayati-Shiraz". Here he combines orchestral and vocal sounds in his colorful palette. Thus, as in previous symphonic mughams, in the new work, the composer's orchestral palette attracts attention with its elegance and tone. Folk melody is enriched with various polyphonic methods and colorful harmonies. However, in this work, the sound of mugham is combined with the melodies of ashugs.

The composer's attempt to synthesize different genres of folk music significantly enriched the "Bayati-Shiraz" mugham and brought it bright concert lines. Unlike previous examples, the structure of mugham here is more organically connected with the classical form and compositional features. F.Amirov's symphonic mugham, which opened wider ways for the development of symphony on the basis of national oriental music, with its new timbre (orchestra and sound) has already laid the foundation for the emergence of a synthetic genre in world art. In 1973, the symphonic mugham "Gulustan Bayati-Shiraz" was performed at the VII International Music Congress in Moscow and was greeted with enthusiasm by the audience (with the vocal part performed at the congress by Elena Obraztsova). "Bayati-Shiraz" is the most lyrical mugham among Azerbaijani mughams. Among F. Amirov's symphonic mugams, "Gulustan Bayati-Shiraz" is distinguished by its lyrical content. In this work, the composer reflected the rich world of lyrical images - from objectivity to subjectivity, from "transparent" lyricism to epic drama. "Gulustan", based on the images of the great poets of the East Sadi and Hafiz, sounds like a great poem about love, as well as a symbol of the eternity of art, which is close to the secret program of folk mugham.

The emotional concept of "Gulustan" is consistent with the epigraph in the works of Sadi and Hafiz:
Why do you need a plate of flowers,
Come, take a page from my "Gulustan".

Example:



"Gülüstan Bayatı-Şiraz" is a more independent work than previous mughams. Here, the composer uses the richness of mode-intonation of the mugham very freely, revealing only its emotional mood. This small poetic introduction acts as a program and takes the listener to the world of mugham, to his emotional mood. The vocal part (metso-soprano sounds in the middle part) introduced by F. Amirov, as if it creates the emotional-image effect of folk mugam in the listener. Here the vocal part is in the form of a monologue. And this vocalization, in turn, "recreates" the monologue inherent in folk mugham, strengthens the subjectivity of the lyrical image.

Example:

The composer does not lose touch with the original source in "Gulustan", but he uses the typical symphonic means of drama more firmly and freely. This applies, above all, to the field of modes. For the first time, different tones were widely used in symphonic mugham. In connection with a certain emotional image and aesthetic meaning, in the process of development of musical material, the score of "Gulustan" includes melodic pieces from "Humayun", "Segah", "Shur", "Chahargah" mughams. In addition, in one of the episodes, the traditional rang is replaced by the atmosphere of ashug dance. The author's creative approach to mugham is observed, first of all, as a result of the inclusion of new material in "Gulustan" in terms of intonation and genre. Thus, in vocals, humayun mode, in tasnif, ancient Persian song, and instead of rang, ashug music is played (here 5/8 size is replaced by 7/8, 8/8).

Like the previous mughams, F. Amirov's "Gulustan" was orchestrated in a bright and colorful way, and the emotional fullness and expressiveness of the images were marked by the freshness of the timbres.

The flower turns yellow in five or six days,
My Gulustan will always be pleasant.

Sadi Shirazi

Known among the people as a lyrical mugham, "Bayati-Shiraz" has preserved its sadness, lyrical character, lyrical-story, lyrical-dramatic feelings and all shades of emotional imagery in the music of F. Amirov. At the same time, he demonstrated another creative way to embody the spirit and content of mugham. Summarizing the observations on symphonic mughams, it is necessary to note a number of features. Changes are inevitable if a work with a certain style or its elements are transferred to another style. The nature of the change in the main material during the interaction of two genre systems, such as national-folk and professional composition, is determined primarily by the aesthetic stylistic direction of this relationship. This creative method involves the preservation of the content of the primary source or its characteristic elements within the system.

In order to create a mugham, it is necessary to generalize the laws of art, to create its individual model and to adapt its idea and technique to this model. The level of generalization of the law is high in "Gulustan", where the material of several mughams was used. Fikret Amirov said: "This is not just a symphonic version of traditional mugham. This is my author's narration about the world of mugham, and this narration is as inexhaustible as the atom and the electron" (Amirov, 1983, p. 17). As it is known, mugham reflects the wide secular artistic and philosophical concept of the East, which is typical for professional genres.

The symphonic mugham presented by Amirov is a synthesis of two musical logics, the interaction of two types of perception. It determines the author's aesthetic position. If the figurative structure of the symphonic duology is more in line with the content of the work, the content of "Gulustan" is, above all, associated with high poetic images. From the point of view of connection with other arts, which direct these connections to the poetic direction, the programming is more specific here. The nature of "Gulustan"s programming opens up prospects for the symphonic mugham genre. This is typical of mugham symphony in terms of modern interpretation of the images of classical oriental poetry and oriental music, as well as in terms of the synthesis of national symphonic and poetic genres.

Stylistically, symphonic mughams demonstrate the connection between the European polyphony and the traditional Eastern monody as a temporal space. In terms of thematism, the quotations in symphonic mughams refer to the canonical improvisation of the mugham tradition. The quote reflects mugham improvisation, but is not traditional, but generalized, individualized by the composer's thinking of the thematic model of the original source. In symphonic mughams, the quotation is not mentioned as a symbolic addition. Mugham style becomes an integral component of the author's thinking.

The composer added many options to the quote. The thematics of symphonic mughams and improvisation sections are, in essence, masterfully developed. This is the realization of rhythm, intonation, other themes and motives of the original source, thematic development of its principles within the framework of the composer's thinking. The development of improvisational thematics is manifested in its spatial and temporal density and in some of its external features. The pace of development in thematics is consistent with contrast, and manifests itself within space (in horizontal dimensions) and in some external features.

Improvisations in symphonic mughams have a certain structure compared to the first source, they cover a wide range. This is mainly due to the reduction in the size of the delay moments in the theme, the reduction in the number of repetitions and the reduction in options, phrases and motives. As a result, thematic development within the department is accelerating. This acceleration is not gradual, as in mugham, but requires the renewal of different intonations in each new mugham period. In addition, the laws of symphonic development also accept the contradictions of the thematic structure. For example, in the "Shur-Shahnaz" section ("Shur"), six mugham periods are selected, which form a thematic whole, and sometimes there is a contradiction between themes. This situation is also observed in many other improvisational sections of symphonic mughams: in tematism, the acceleration and contrast of development are consistent.

In general, the rhythmic simplification of thematics is closely related to the spatial-temporal features of the polyphonic style; The use of extremely small sizes, the abandonment of intricate figures facilitates ornamentation - all this is one of the necessary aesthetic norms of mugham melody. The episode "Allegro" is connected through a sequence given in the developmental part of the eponymous section of traditional mugham, while "Andante" notes its connection with the end of the cadence, which creates a thematic framework. However, only the "skeleton" remains of the cadence part, which clearly reflects the purposefulness of the melodic image.

The thematicism of the departments of improvisation is condensed according to its structure and simplified in terms of rhythm and ornament, it becomes a quintessence of one or another department of the original source. It concisely reflects the mode-intonation and rhythmic features, which are the most important qualities for the department. The improvised themes of symphonic mughams are adorned with large volumes of sudden cadences. They are reminiscent of short phrases that appear "suddenly" in the corners of a mugham (during the transition from one section of the mugham to another). F. Amirov accepts such phrases as an integral part of oriental symphony.

Thus, referring to the means of expression that exist in mugham improvisation and have already become important methods, Amirov combines them with the characteristic qualities of polyphony and symphony, as well as identifies the natural connection of symphonic beginning with mugham improvisation in thematism. In the improvisation departments, the citation material retains its structure, often even expanding due to the repetitions introduced by F. Amirov himself. The material in the improvisation sections of the works is given in the form of large quotations. The thematics of these sections broadly and freely reflect folk songs, dances, tasnifs and melodies of rangs. Stylistically, the author's "replicas" unite with them. The attitude to polyphonic quotes in these episodes is slightly different than in the mugham sections; here the citation material does not decrease in volume, only its structure is reduced and often expanded due to variable repetitions.

Conclusion

As a result of a detailed study of symphonic mughams, we can note the following:
New branches of the national symphony were created in the work of F. Amirov. In the symphonic mughams created by the composer, a unique type of symphony has become one of the bright directions of our national culture, laying the foundation of a new oriental symphony in world literature with its unique genre style.

Symphonic mugams, which are a unique type of genre symphony, form a branch of our national symphonic culture with their genre style. Of course, many stylistic features of Amirov's symphonic mughams are determined by a whole composition, including the regularities of the existing mugham genre, as well as the melodic, modal-tonal principles of its development. Amirov's individual approach to known genres has led to the fact that the elements of his works that are more specific to the content and form of the original source are preserved within a certain system. At the same time, the composer enriched them with new features due to the creative application of mughams, the artistic generalization of regularities, the creation of a personalized model, and the adaptation of ideas and techniques to this model. The organic synthesis of the ancient mugham traditions and the world homophonic structural features of the mugham style has led to the symphonic integrity of the works.

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Azərbaycanlı mühacirlərin Almaniyada fəaliyyəti: Süleyman Təkinər

Vüqar Abdullayev

Xülasə. *Məqalədə Süleyman Təkinərin həyatı və yaradıcılığı haqqında məlumat verilmişdir. Azərbaycanlı legionerlərin İkinci Dünya müharibəsi illərində qorunması və müharibədən sonra Almaniyada yaşaması üçün şərait yaradanlardan biri də Süleyman Təkinər olmuşdur. Özü də legioner olan Təkinər legionun yaranmasında məqalələri ilə yaxından iştirak etmişdir. Məqalədə Almaniya Federal Arxivindən əldə edilən məlumatlara əsasən onun 1945–1946-cı illərdə ABŞ hərbi əsirliyində olması da qeyd edilir. Yaşadığı çətinliklərə baxmayaraq, Süleyman Təkinər vətənpərvər bir yazıçı kimi bütün məşəqqətlərə sinə gəlmişdir. Müəllif onun həyatı ilə yanaşı, ədəbi-tənqidi məqalələrindən də bəhs etmişdir. Süleyman Təkinərin Azərbaycan dilinin saflığı uğrunda yazdığı məqalələr və qürbətdə yaşamasına baxmayaraq ana dilinə bağlılığı xüsusi diqqət çəkir. Həmçinin onun Hüseyn Cavid, Cəlil Məmmədquluzadə və Sabir haqqında fikirlərinə yer verilmişdir. Tədqiqatçıların (N. Yaqublu, N. Cabbarlı, A. Tahirli) qeyd etdikləri kimi, Süleyman Təkinərin yaradıcılığı hələ tam tədqiq edilməmişdir. Məqalədə onun məhkumluq həyatı, keçdiyi çətin yol, mühacirlik fəaliyyəti və Azərbaycan ədəbi tənqidindəki rolu araşdırılmışdır.*

Açar sözlər: *Süleyman Təkinər, ədəbi tənqid, ədəbiyyatşünaslıq, Azərbaycanlı mühacirlər, İkinci Dünya müharibəsi*

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The Activities of Azerbaijani Émigrés in Germany: Süleyman Təkinər

Vüqar Abdullayev

Abstract. *This article provides an overview of the life and work of Süleyman Təkinər. Təkinər was instrumental in creating conditions for the protection of Azerbaijani legionnaires during World War II and for their continued residence in Germany after the war. Himself a legionnaire, Təkinər played an active role in the formation of the legion through his writings. Drawing on information from the German Federal Archives, the article also notes his time in US military captivity between 1945 and 1946. Despite the hardships he faced, Təkinər—a patriotic writer—bravely endured all manner of adversity. In addition to his life story, the author discusses Təkinər's literary-critical essays. Particular attention is paid to his articles advocating for the purity of the Azerbaijani language and his enduring attachment to his mother tongue despite living abroad. The article also highlights his views on Huseyn Javid, Jalil Mammadguluzadeh, and Sabir. As noted by researchers (N. Yagublu, N. Jabbarli, A. Tahirli), the body of work of Süleyman Təkinər has not yet been fully explored.*

This article examines his life as a prisoner, the arduous path he traversed, his activities in the diaspora, and his role in Azerbaijani literary criticism.

Keywords: *Süleyman Təkinər, literary criticism, literary studies, Azerbaijani émigrés, World War II*

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Giriş

İkinci Dünya müharibəsi dövründə Almaniyada mühacir həyatı yaşayan azərbaycanlı ziyalılar arasında Fuad Əmircan, Süleyman Təkinər, Fərman Məmmədov, Məcid Musazadə, Murad Muradlı və başqaları olmuşdur. Azərbaycan mühacir mətbuatında onların Almaniyadakı fəaliyyəti haqqında geniş məlumatlar verilmişdir. Bu sahədə N. Yaqublu, M. Əmrahov, B. Əhmədli və V. Abdullayevin tədqiqatları xüsusi əhəmiyyət daşıyır (Əhmədli, 2003; Əmrahov, 2025; Abdullayev, 2024; Yaqublu, 2005, 2013, 2014).

Bu şəxsiyyətlər arasında Süleyman Təkinərin Azərbaycan legionerlərinin həyatında, legionların yaradılmasında və müharibədən sonra Almaniyada yaşayan legioner mühacirlərin taleyində mühüm rolu olmuşdur. Azərbaycan legionerləri haqqında Almaniya Federal Arxivinə göndərilən sorğuya verilən cavabda Süleyman Təkinərlə bağlı sənədlərin mövcudluğu müəyyən edilmişdir. Federal Arxivin B583/49081 imzalı materialında onun haqqında məlumatlar və şəxsi kartotekasının surəti təqdim edilmişdir. Sənədlərə əsasən, Süleyman Təkinər 1943-cü ilin fevralından 1945-ci ilin mayına qədər 25-ci müstəqil batalyonda kiçik zabit kimi xidmət etmiş, 1946–1947-ci illərdə isə Amerika hərbi əsirliyində, son olaraq Piza (İtaliya) düşərgəsində olmuşdur (Federal Arxiv, B583/49081; B563-1 KARTE İ/T–78/541; B578/277-207).

Süleyman Məmmədəli oğlu Təkinər 1916-cı ildə Mərdəkanda anadan olmuş, tarixçi, publisist və Azərbaycan mühacirət ədəbiyyatının tədqiqatçısı kimi fəaliyyət göstərmişdir. 1940-cı ildə Azərbaycan Pedaqoji İnstitutunun Tarix fakültəsini bitirmiş, Gəncə Pedaqoji İnstitutunda çalışmışdır. 1942-ci ildə orduya çağırılmış, 1943-cü ildə əsir düşərək vətəndən didərgin olmuşdur. Müharibədən sonra Avstriya və İtaliyada olmuş, daha sonra Qahirəyə getmiş və Türkiyənin yardımı ilə 1949-cu il yanvarın 8-də Türkiyəyə gəlmişdir. Burada Türkiyə vətəndaşlığını qəbul etmiş və “Təkinər” təxəllüsünü götürmüşdür.

Türkiyədə Məhəmməd Əmin Rəsulzadə ilə görüşən Süleyman Təkinər onun yaxın silahdaşlarından birinə çevrilmişdir. Rəsulzadə ilə bağlı çoxlu xatirə, yazışma, fotoşəkil və digər materialları qoruyub saxlamışdır. 1956-cı ildə Avropada Azadlıq radiosu təsis edildikdən sonra Azərbaycan Milli Mərkəzinin təklifi ilə Almaniyaya köçmüş və radionun yaradıcılarından biri kimi fəaliyyət göstərmişdir. Eyni zamanda “Öyrənmə–araşdırma” İnstitutunda baş mütəxəssis kimi çalışmışdır.

Süleyman Təkinər bu dövrdə 100-dən çox elmi-publisistik və siyasi-ictimai yazı hazırlamış, onların bir hissəsini Türkiyədə nəşr olunan “Türk–Kültür” dərgisində və müxtəlif toplularda çap etdirmişdir. 1956-cı ildə “Azərbaycan türkcəsinin rəsmi dövlət dili elan edilməsi münasibətilə” adlı məqalə ilə çıxış etmiş, “Azərbaycan istiqlal mübarizəsində Rəsulzadəsiz keçən 30 il” məqaləsi isə 1992–1993-cü illərdə “Odlar yurdu” qəzetində çap olunmuşdur. Onun yazılarının bir qismi ABŞ, Yaponiya və digər ölkələrin dövri mətbuatında da nəşr edilmişdir.

Süleyman Təkinərin araşdırmalarında və radio üçün hazırladığı məqalələrdə Azərbaycanın ictimai-siyasi vəziyyəti, Rus imperiyasının müstəmləkəçilik siyasəti, XI Qızıl Ordunun işğalı, milli sərvətlərin talan edilməsi, hüquqsuzluq, milli mənliyin tapdalanması və manqurt psixologiyasının formalaşdırılması kimi məsələlər əsas yer tutmuşdur (Cabbarlı, 2007).

Süleyman Təkinərin əsas məqsədi doğma Vətəni Azərbaycanı azad görmək idi. O, həqiqətləri həmvətənlərinə çatdırmaq üçün qələmi ilə mübarizə aparmışdır. Sovet dövründə isə mühacir azərbaycanlıların ünvanına müxtəlif böhtan və ittihamlar səsləndirilmişdir. Bu xarakterli yazılara 1972-ci ildə "Bakı fəhləsi" qəzetində Aydın Vəlixanov və Vladimir Sinitsinin "İdeoloji təxribatlar", 1973-cü ildə "Ədəbiyyat və incəsənət" qəzetində Musa Qocayevin "Respublika adından", 1979-cu ildə "Nedelya" qəzetində A. Kolosovun "Kommunist" qəzeti – "Bir ağanın iki nökəri" yazılarını göstərmək olar (Yaqublu, 2013).

Qarabağ probleminin meydana çıxmasından sonra Süleyman Təkinər müxtəlif qəzet və jurnallarda bu məsələ ilə bağlı çıxışlar etmişdir. 1992-ci ildə Ermənistanın xarici işlər naziri Raf Ovanisyanın ABŞ-a səfəri zamanı səsləndirdiyi iddialara etiraz edərək ABŞ dövlət katibi Beykerə, Türkiyənin baş naziri Süleyman Dəmirələ və "New York Times" qəzetinə açıq məktublar göndərmişdir. Məktublarında Qarabağ məsələsinin tarixi, ermənilərin Azərbaycana qarşı törətdikləri soyqırımı və Azərbaycan torpaqlarının işğalı haqqında fikirlərini bildirmişdir (Təkinər, 1959).

52 il mühacirət həyatı yaşayan Süleyman Təkinər 1992-ci ildə Azərbaycana qayıtmışdır. Onun ən böyük arzusu Azərbaycanın tam müstəqil, xalqının isə firavan olması idi. Ömrünün son günlərinə qədər yaradıcılıq fəaliyyətini davam etdirən Təkinər Azərbaycana həsr etdiyi əsərini tamamlaya bilməmişdir. 2006-cı ildə Almaniyada vəfat etmiş, nəşi İstanbula gətirilərək "Qaraca Əhməd" məzarlığında dəfn edilmişdir.

Süleyman Təkinərin Məhəmməd Əmin Rəsulzadə ilə yazışmaları da onun mühacirət fəaliyyətinin mühüm məqamlarından biridir. Rəsulzadənin Təkinərə göndərdiyi məktublardan onların ədəbi və milli məsələlər ətrafında fikir mübadiləsi apardıqları görünür. Bu yazışmalarla yanaşı, Təkinərin Rəsulzadə ilə bağlı xatirə, sənəd və fotoşəkilləri də qoruyub saxladığı qeyd olunur (Cabbarlı, 2007). Təkinərin ədəbiyyatşünaslığa verdiyi töhfələrdə Azərbaycan dilinin saflığı, təbliği və Azərbaycan türkcəsinin tədrisi məsələləri mühüm yer tutur (Tahirli, 2023). O, ədəbi tənqiddə haqsızlığa məruz qalan şair və yazıçıların əsərlərinə qərəzli yanaşmaları tənqid etmişdir (Təkinər, 1959; Yaqublu, 2013).

Süleyman Təkinər İkinci Dünya müharibəsi dövründə Almaniyada nəşr olunan legion ədəbiyyatının tanınmış nümayəndələrindən biri olmuşdur. Nikpur Cabbarlı onun müharibədən sonra Münxendə nəşr olunan "Sovetlər Birliyi Öyrənmə İnstitutunun Dərgisi"ndəki fəaliyyətini araşdırmış və Təkinərin Sovet ədəbiyyatında baş verən prosesləri öz yazıları ilə işıqlandırdığını qeyd etmişdir. Tədqiqatçı onun yaradıcılığının hələ tam və ətraflı öyrənilmədiyini də vurğulamışdır (Cabbarlı, 2007; Yaqublu, 2013). S. Təkinərin yaradıcılığını "həqiqətin mübariz əsgərinin yaradıcılığı" kimi qiymətləndirmək olar. Onun Rəsul Rzanın yaradıcılığına həsr etdiyi məqalələrində sovet rejiminin insanlara qarşı terror və təzyiqləri, Stalin dövrünün faciələri və həqiqəti yazan şairlərin təqib olunması məsələləri öz əksini tapmışdır. "Sovet Azərbaycanında tənqidlərə hədəf olan bəzi şeirlər üzərində incələmələr" məqaləsində Rəsul Rzanın "Ölüm" şeiri əsasında sovet quruluşunun insan taleyinə münasibəti təhlil edilmişdir.

Ölüm dedi: "Gedək!"
İnsan demədi: "Yanılmısan, mən deyiləm sənin axtardığın adam",
Qalxdı ayağa...

S. Təkinər məqalələrində sovet ideologiyasının yaratdığı “bəxtiyar insan” mifini dağıtmağa və bu ideologiyanın puçluğunu göstərməyə çalışmışdır. Rəsul Rzanın “Ölüm” şeirini təhlil edərkən insanın həyatdan bezərək ölümü xilas yolu kimi qəbul etməsini sovet quruluşunun yaratdığı faciələrlə əlaqələndirmişdir (Təkinər, 1959). Yazıçı Anar Rəsul Rzanın 2002-ci ildə çap olunmuş şeirlər toplusunun birinci cildinə yazdığı “Çinar ömrü” adlı ön sözdə Süleyman Təkinərin şəxsiyyəti və Azərbaycan ədəbi tənqidindəki rolundan bəhs etmişdir. Anar onun fəaliyyətini XX əsrin ikinci yarısında Azərbaycan ədəbi mühitinin stalinizm ideologiyasının təsirindən xilas olması istiqamətində mühüm addım kimi qiymətləndirmişdir (Anar, 2002). Təkinərin “Stalinin ölümündən 10 il sonra Azərbaycan” (Azərbaycan, 1963, s. 7–15) məqaləsində Stalinin ölümündən sonra belə şəxsiyyətə pərəstişin izlərinin qalması tənqid edilmiş və Hüseyn Cavid yaradıcılığına münasibətin də bu təsirdən azad olmadığı göstərilmişdir.

Onun diqqət çəkən yazılarından biri də Nizami adına Ədəbiyyat İnstitutunun hazırladığı “Azərbaycan Sovet Ədəbiyyatı Tarixi”nin I cildinə (1967) həsr olunmuş rəyidir. “Azərbaycan Sovet ədəbiyyatı tarixi” adlı məqaləsində Təkinər əsəri yüksək qiymətləndirməklə yanaşı, tənqidi fikirlərini də bildirmiş və Hüseyn Cavid kimi böyük sənətkarın əsərdə lazımi şəkildə təqdim olunmamasını təəssüflə qeyd etmişdir (Təkinər, 1969; Cabbarlı, 2007). Süleyman Təkinərin yaradıcılığının tədqiqində Abid Tahirlinin “Milli ədəbiyyatımızın sanballı imzası, Süleyman Təkinərin seçilmiş əsərləri” məqaləsi də mühüm yer tutur (Tahirli, 2023). Məqalədə Təkinərin “Seçilmiş əsərləri”nin nəşrindən və kitaba daxil edilən məqalələrindən, mühacir soydaşlarımızın həyat və fəaliyyətinə dair yazılarından, bacısı qızı Rənaya məktublarından və “İstiqlaliyyətimizin ilk qurbanı – bən” adlı müsahibəsindən bəhs edilir.

Abid Tahirli (2023) S. Təkinərin irsini, əsasən, dörd istiqamətdə təsnif edir: Azərbaycanda ictimai, ədəbi-fəlsəfi fikir tarixi və klassik irsin yaradıcıları; sovet ədəbiyyatının mövzu və ideya istiqamətləri; sovet ədəbiyyatşünaslığının və sosialist realizminin tənqidi; milli hərəkat və istiqlal mübarizəsi qəhrəmanlarının həyat və fəaliyyəti. Süleyman Təkinər qürbətdə yaşamasına baxmayaraq, Azərbaycanı və onun görkəmli şəxsiyyətlərini unutmamış, yaradıcılığında azərbaycançılıq ideyasına xüsusi yer vermişdir. Məqalələrində Mirzə Ələkbər Sabir, Əhməd Cavad, Cəlil Məmmədquluzadə və Hüseyn Cavid kimi ədəbiyyat nümayəndələrinə istinad etmişdir. Onun qərəzsiz və obyektiv mövqeyi ədəbi tənqid sahəsində diqqət çəkmişdir. Təkinərin yaradıcılığı Azərbaycan mühacirət mətbuatında və ədəbi tənqid tarixində özünəməxsus yer tutur.

Metodlar

Məqalənin metodoloji əsasını Süleyman Təkinərin İkinci Dünya müharibəsi illərində Almaniyada baş verən hadisələrə münasibəti təşkil edir. Almaniya Federal Arxivi ilə yazışmalar nəticəsində əldə edilmiş sənədlərin araşdırılması tədqiqatın əsas istiqamətlərindən biridir. Təkinərin yazıçı, publisist, ədəbiyyatşünas və tənqidçi kimi fəaliyyəti də araşdırılmışdır. Məqalədə stalinizmin Azərbaycan ədəbiyyatına təsiri, azad fikrin tənqidi, Hüseyn Cavid yaradıcılığının “Azərbaycan sovet ədəbiyyatı tarixi”nin I cildinə daxil edilməməsinin Təkinər tərəfindən tənqidi, onun “Qondarma Qarabağ problemi”nə münasibəti və Məhəmməd Əmin Rəsulzadə ilə yazışmaları nəzərdən keçirilmişdir.

Nəticə

Süleyman Təkinər Azərbaycan mühacir hərb tarixinin görkəmli simalarından biri olmaqla, İkinci Dünya müharibəsi illərində legionerlərin həyatında mühüm rol oynamışdır. Legioner fəaliyyətindən sonra məhbus həyatı yaşamasına baxmayaraq, bütün ömrünü Azərbaycandan uzaqda azərbaycançılığa, Azərbaycan dilinə və millətin rifahına həsr etmişdir. Azərbaycan dilinin saflığına, şeir və ədəbiyyata verdiyi qiymət, Stalinizmin təsiri altında olan sovet ədəbiyyatına qarşı ədəbi-tənqidi fəaliyyəti mühüm əhəmiyyət daşıyır. Azərbaycan suverenliyi və torpaqlarının bütövlüyü uğrunda mübarizə aparan Təkinərin yaradıcılığında Qarabağ mövzusu da mühüm yer tutmuşdur.

Müzakirə

Tədqiqat göstərir ki, Süleyman Təkinərin çoxşaxəli fəaliyyəti bütövlükdə Azərbaycan və azərbaycançılıq ideyasına xidmət etmişdir. O, vətən fədaisi, legioner, yazıçı, publisist və Azərbaycan dilinin saflığını müdafiə edən tənqidçi kimi fəaliyyət göstərmişdir. Qürbətdə 52 il yaşamasına baxmayaraq, Azərbaycana bağlılığını qorumuşdur. Qarabağ mövzusunda yazdığı məqalələr, həmçinin Azərbaycan mühacirət mətbuatının və legioner-mühacirlərin həyatındakı fəaliyyəti onun irsində mühüm yer tutur.

Nəticə

Süleyman Təkinərin həyatı azərbaycançılıq, Azərbaycan dilinin saflığı və vətənə bağlılıq uğrunda mübarizə nümunəsidir. Müharibədən sonra məhbusluq həyatı və uzunmüddətli mühacirət onun fəaliyyətinə mane olmamış, vətənin problemləri ilə bağlı qələmi ilə mübarizə aparmışdır. Stalinizm ideologiyasını tənqid edən Təkinər Azərbaycan ədəbiyyatının əsas simaları olan H. Cavid, M. Ə. Sabir, C. Məmmədquluzadə və M. F. Axundovun ədəbi irsinə müraciət etmiş, Rəsul Rzanın yaradıcılığına xüsusi diqqət yetirmişdir. Azərbaycan dilinin saflığını əsas vəzifələrindən biri hesab edən ədibin Qarabağla bağlı məqalələri də onun Vətənə bağlılığını və milli mövqeyini əks etdirir.

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Azərbaycanda xristian memarlıq irsinin kulturoloji diskursu və dini turizmin inkişafında identiklik paradiqması

Riad Səfərli

Xülasə. *Məqalənin məqsədi Azərbaycanda xristian memarlıq irsinin kulturoloji diskursda necə mənalandırıldığını və dini turizmin inkişafında identiklik paradiqmasına hansı töhfəni verdiyini müəyyənləşdirməkdir. Tədqiqat keyfiyyət xarakterli sistemli ədəbiyyat icmalı, normativ sənədlərin məzmun təhlili və kulturoloji-semiotik interpretasiya üsullarına əsaslanır. Qafqaz Albaniyasının erkən xristian memarlığı, kollektiv yaddaş, irs diskursu, multikultural identiklik və məsuliyyətli turizmə dair akademik və institusional mənbələr müqayisə edilmişdir. Nəticələr göstərir ki, xristian abidələri yalnız dini tikili deyil; memarlıq forması, daş materialı, ornament, epiqrafika, landşaft və yaşayan icma təcrübəsi birlikdə mədəni mətn yaradır. Bu mətn milli identikliyi monoetnik və monodini çərçivədə deyil, çoxqatlı və müzakirəyə açıq proses kimi təqdim edir. Dini turizm irsin ictimai tanınma dərəcəsini, yerli iqtisadi faydanı və mədəni dialoqu gücləndirə bilər, lakin sakral funksiyanın kommersiyalaşdırılması, elmi atribusiyanın sadələşdirilməsi və ziyarətçi təzyiqi riskləri nəzərə alınmalıdır. Təklif olunan təsnifat tarixi-memarlıq kontinumu, semiotik sistem, multikultural inteqrasiya, identiklik diskursu, idarəetmə və təhsil komponentlərini birləşdirir. Bu çərçivə qoruma, interpretasiya, icma iştirakı və ziyarətçi idarəetməsinin vahid siyasətdə əlaqələndirilməsinə imkan verir.*

Açar sözlər: *xristian memarlıq irsi, kulturoloji diskurs, identiklik paradiqması, dini turizm, multikulturalizm*

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Culturological Discourse of Christian Architectural Heritage in Azerbaijan and the Identity Paradigm in the Development of Religious Tourism

Riad Safarli

Abstract. *This article examines how Christian architectural heritage in Azerbaijan is interpreted within cultural discourse and how it contributes to an identity paradigm for the development of religious tourism. The study applies a qualitative literature review, content analysis of policy documents, and cultural-semiotic interpretation. Academic and institutional sources on the early Christian architecture of Caucasian Albania, collective memory, heritage discourse, multicultural identity, and responsible tourism are compared. The findings indicate that a Christian monument is not merely a religious building: architectural form, stone, ornament, epigraphy, landscape, and living community practices together constitute a cultural text.*

This text presents national identity not as a monoethnic or monoreligious category, but as a layered and negotiable process. Religious tourism can increase the public visibility of heritage, local socioeconomic benefits, and intercultural dialogue; however, the commercialisation of sacred functions, simplified attribution, and visitor pressure must be managed. The proposed analytical classification combines historical-architectural continuity, semiotic systems, multicultural integration, identity discourse, governance, and education. It therefore provides a framework for linking conservation, interpretation, community participation, and visitor management within a coherent cultural heritage policy.

Keywords: *christian architectural heritage, cultural discourse, identity paradigm, religious tourism, multiculturalism*

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Giriş

Azərbaycanda xristian memarlıq irsi erkən orta əsr Qafqaz Albaniyası abidələrindən sonrakı kilsə və dini komplekslərə qədər müxtəlif tarixi mərhələləri əhatə edir. Bu tikililərin planı, hörgü texnikası, daş materialı, ornament və landşaftla əlaqəsi regional mədəni münasibətlər haqqında maddi məlumat verir. Lakin formal oxşarlıq avtomatik etnik və ya siyasi atribusiya yaratmır; memarlıq məlumatı yazılı, arxeoloji və epiqrafik sübutlarla birlikdə şərh edilməlidir (Plontke–Lüning, 2007; Gippert və Dum–Tragut, 2023).

Kulturoloji baxımdan abidə keçmişin dəyişməz təsviri deyil, müxtəlif dövrlərdə yenidən oxunan mədəni mətndir. İdentiklik də hazır və sabit mahiyyət kimi deyil, yaddaş, seçmə, təmsil və sosial münasibətlər vasitəsilə qurulan proses kimi anlaşılır (Hall, 1996). İrsin hansı elementlərinin qorunması və ictimaiyyətə necə təqdim edilməsi kollektiv yaddaşa təsir etdiyinə görə interpretasiya çoxsaylı mövqeləri görünən etməlidir (Smith, 2006; Ashworth et al., 2007). Dini turizm bu irsi ziyarət, öyrənmə və mədəni dialoq məkanına çevirə bilər. Azərbaycanın rəsmi turizm təqdimatında Nic kəndi, Udi mədəniyyəti və müxtəlif xristian dini məkanları mədəni marşrutlarla əlaqələndirilir (Azərbaycan Turizm Bürosu, t.g.). Məqalənin tədqiqat sualı belədir: xristian memarlıq irsi hansı kulturoloji və idarəetmə prinsipləri əsasında təqdim edilməlidir ki, identikliyin çoxqatlılığı, sakral funksiya və dayanıqlı turizm arasında tarazlıq qorunsun?

Metodlar

Tədqiqat keyfiyyət xarakterli sistemli ədəbiyyat icmalı və sənəd təhlili əsasında aparılmışdır. Mənbə korpusuna Qafqaz Albaniyası və erkən xristian memarlığı üzrə akademik nəşrlər, identiklik və irs nəzəriyyəsi, dini turizm tədqiqatları, Azərbaycan Respublikasının hüquqi sənədləri, UNESCO, ICOMOS, Avropa Şurası, BMT Turizm və yerli institusional materiallar daxil edilmişdir. Mətnlər altı kateqoriya üzrə kodlaşdırılmışdır: tarixi-memarlıq kontinuumu, semiotik-estetik sistem, multikultural inteqrasiya, identiklik diskursu, mədəni siyasət və təhsil-tədqiqat. Cədvəl 1 bu kateqoriyaların müqayisəli sintezidir. Sahə müşahidəsi və ziyarətçi sorğusu aparılmadığından nəticələr statistik təsir ölçməsi deyil, nəzəri-analitik çərçivə kimi təqdim olunur.

Nəticələr

Xristian memarlıq irsi mədəni mətn kimi
Təhlil göstərir ki, memarlıq irsinin kulturoloji dəyəri üç səviyyədə yaranır. Birinci səviyyə sənəd dəyəridir: tikilinin planı, materialı və dəyişiklikləri tarixi proses haqqında məlumat verir. İkinci səviyyə semiotik dəyərdir: xaç, ornament, yazı, işıq və məkan ardıcıllığı dini məna ilə estetik təcrübəni birləşdirir. Üçüncü səviyyə sosial yaddaşdır: yerli icmanın məkanla bağlı hekayələri və istifadə təcrübəsi abidənin müasir mənasını formalaşdırır.

Bu səviyyələr birlikdə oxunmadıqda turizm təqdimatı yalnız vizual formaya çevrilir. Ziyarətçiyə orijinal hissə ilə sonrakı bərpa, elmi faktla ehtimal, tarixi funksiya ilə müasir istifadə arasındakı fərq aydın göstərilməlidir. Belə şəffaflıq abidənin simvolik gücünü azaltmır; əksinə, mədəni mətni daha etibarlı və öyrədici edir (Smith, 2006; ICOMOS, 2022).

İdentiklik paradiqması və multikultural diskurs. Xristian irsinin milli identikliklə əlaqəsi monoetnik və monodini təsvir üzərində qurulmamalıdır. Memarlıq abidələri müxtəlif dini icmaların, siyasi mərhələlərin və regional əlaqələrin izlərini daşıyır. Buna görə identiklik paradiqması vahid mənşə iddiasından çox, müxtəlifliyin tarixi iştirakını və müasir cəmiyyətdə birgə mənalandırılmasını ifadə etməlidir (Hall, 1996; Council of Europe, 2005). Multikultural diskurs yalnız tolerantlıq haqqında normativ bəyanatla məhdudlaşdıqda elmi dərinliyini itirir. Abidənin tarixində fasilələr, mübahisəli atribusiyalar və dəyişən istifadə formaları gizlədilməməlidir. Bakı Beynəlxalq Multikulturalizm Mərkəzinin (2019) materialları Azərbaycandakı xristian ənənəsinin ictimai təqdimatını göstərir; akademik interpretasiya isə bu təqdimatı müqayisəli mənbələr və açıq terminologiya ilə tamamlamalıdır.

Cədvəl 1
Azərbaycanda xristian memarlıq irsinin kulturoloji diskursda identiklik paradiqması və dini turizm kontekstində elmi-analitik təsnifatı

Tədqiqat komponenti	Kulturoloji məzmun və nəzəri çərçivə	Sosial-fəlsəfi və identiklik aspektləri	Dini turizm və mədəni inkişaf potensialı
Tarixi-memarlıq kontinuumu	Qafqaz Albaniyası dövründən sonrakı mərhələlərə transformasiya; regional üslubların sintezi	Tarixi yaddaşın maddi ifadəsi və sivilizasion ardıcıllığın göstəricisi	Tarixi marşrutlar, ziyarət turizmi və irs əsaslı regional brend
Semiotik və estetik sistem	Memarlıq forması, dini məna qatları, ornament və epiqrafikanın kulturoloji interpretasiyası	Mədəni simvolun kollektiv yaddaşda identiklik nişanına çevrilməsi	Dini məkanın mənəvi, estetik və öyrədici ziyarət təcrübəsi kimi təqdimatı
Multikultural inteqrasiya	Müxtəlif dini-mədəni ənənələrin qarşılıqlı təsiri və tarixi birgəyaşayış təcrübəsi	Dini qruplar arasında mədəni dialoq və sosial iştirak	Turizm vasitəsilə qarşılıqlı anlayışın və konfessional həssaslığın təşviqi
Kulturoloji diskurs və identiklik	İrsin elmi və ictimai narrativlərdə təqdimatı; memarlığın mədəni mətn kimi oxunması	Milli identiklikdə çoxmədəni komponentlərin görünən və müzakirəyə açıq təqdimatı	Dini turizmin identiklik siyasətində kommunikativ vasitə kimi rolu

Tədqiqat komponenti	Kulturoloji məzmun və nəzəri çərçivə	Sosial-fəlsəfi və identiklik aspektləri	Dini turizm və mədəni inkişaf potensialı
Mədəni siyasət və idarəetmə modeli	Qoruma, bərpa, interpretasiya və sosial funksiyanın institusional əlaqələndirilməsi	İrs siyasətində inklüzivlik, məsuliyyət və davamlılıq prinsipləri	Mədəni resursların etik, ekoloji və icma yönümlü idarə olunması
Təhsil və elmi tədqiqat	Kulturoloji irsin interdisiplinar tədqiqi, sənədləşdirilməsi və tədrisi	Tarixi məsuliyyət və tənqidi mədəni şüurun formalaşdırılması	Turizm menecmentində irs dəyərləri və identiklik konsepsiyalarının tətbiqi

Mənbə. Bakı Beynəlxalq Multikulturalizm Mərkəzinin (2019) materialı və seçilmiş akademik mənbələr əsasında müəllifin analitik təsnifatı

Cədvəl göstərir ki, irsin turizm potensialı onun kulturoloji məzmunundan ayrılıqda qiymətləndirilə bilməz. Tarixi sənədlilik, simvolik məna və sosial yaddaş interpretasiyanın əsasını; idarəetmə, təhsil və icma iştirakı isə uzunmüddətli istifadənin institusional dayağını yaradır. Bu komponentlərdən biri zəiflədikdə turizm məhsulu elmi dəyəri sadələşdirə və sakral məkanı istehlak obyektinə çevirə bilər.

Dini turizm və idarəetmə

Dini turizm ziyarət motivlərinin müxtəlifliyini nəzərə almalıdır: eyni məkana ibadət, ailə yaddaşı, tarix, memarlıq və ümumi maraq səbəbi ilə gələn şəxslərin ehtiyacları fərqlidir. Sakral məkanlarda mərasim vaxtı, geyim və davranış qaydası, fotoqrafiya, səs və qrup ölçüsü üzrə aydın protokol hazırlanmalıdır. İbadət edən icmanın hüququ turizm rahatlığından üstün tutulmalı, bələdçi mətni isə konfessional həssaslığı qorumalıdır (Shackley, 2001; Olsen və Timothy, 2006).

Marşrutlaşdırma ayrı-ayrı abidələri kənd landşaftı, yaşayan icmalar, muzeylər və yerli sənətkarlıqla əlaqələndirdikdə ziyarətçi təcrübəsi dərinləşir və iqtisadi fayda əraziyə daha geniş yayılır. Bununla belə, uğur yalnız ziyarətçi sayı ilə ölçülməməlidir; fiziki aşınma, icma məmnunluğu, yerli xidmət payı və konservasiya üçün ayrılan gəlir də monitorinq edilməlidir (Richards, 2018; UNWTO, 2018).

Müzakirə

Nəticələr göstərir ki, xristian memarlıq irsi Azərbaycanda identikliyin çoxqatlılığını izah etmək üçün güclü resursdur, lakin abidənin mövcudluğu öz-özlüyündə tarixi harmoniyanın tam sübutu sayıla bilməz. Kulturoloji diskurs həm qarşılıqlı təsiri, həm də fasilə, dəyişmə və mübahisəni göstərməlidir. Bu yanaşma mədəni dialoqu ideallaşdırmadan, mənbəyə əsaslanan şəkildə qurmağa imkan verir. İdarəetmə baxımından qoruma və turizm eyni plan daxilində əlaqələndirilməlidir. Tarix və mədəniyyət abidələrinin qorunması haqqında Azərbaycan Respublikasının qanunu (1998) tarix və mədəniyyət abidələrinin mühafizəsini əsas öhdəlik kimi müəyyən edir; turizm istifadəsi bu statusu dəyişmir. Hər obyekt üçün fiziki vəziyyət hesabatı, interpretasiya konsepsiyası, ziyarətçi rejimi, icma məsləhətləşməsi və maliyyə məsuliyyəti əvvəlcədən təsdiqlənməlidir. Mədəni diplomatiya potensialı da ehtiyatla qiymətləndirilməlidir. Beynəlxalq təqdimat yalnız tolerantlıq mesajına deyil, yoxlanılan tarixə, memarlıq xüsusiyyətlərinə və yaşayan icmaların səsinə əsaslandıqda etibarlı olur. ICOMOS-un məsuliyyətli turizm yanaşması irsin qorunmasını, yerli iştirakçılığı və monitorinqi turizm qərarlarının mərkəzinə yerləşdirir (ICOMOS, 2022).

Nəticə və tövsiyələr

Azərbaycanda xristian memarlıq irsi tarixi sənəd, simvolik sistem və yaşayan sosial yaddaş kimi birlikdə qiymətləndirilməlidir. Dini turizm bu irsin görünürlüğünü və yerli faydanı artıra bilər, lakin elmi interpretasiya, sakral funksiyanın qorunması, icma iştirakı və daimi monitorinq olmadan dayanıqlı nəticə yaratmır. Təklif olunan kulturoloji təsnifat identiklik, qoruma və turizm qərarlarını vahid çərçivədə əlaqələndirməyə imkan verir.

1. Hər abidə üçün tarixi mənbələri, bərpa mərhələlərini və mübahisəli atribusiyaları göstərən elmi pasport hazırlanmalıdır.
2. Sakral funksiya, icma ehtiyacı və fiziki daşıma qabiliyyəti əsasında fərqli ziyarət rejimləri tətbiq edilməlidir.
3. Bələdçi və rəqəmsal məzmun faktı, interpretasiyanı və ehtimalı aydın şəkildə fərqləndirməlidir.
4. Ziyarətçi axını, fiziki aşınma, icma məmnunluğu, yerli fayda və konservasiya xərcləri illik ölçülməlidir.

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Şəxsiyyətin adaptiv və dezadaptiv davranış dinamikası: kontingentlik və subyektiv reallığın qarşılıqlı təsirinin psixofəlsəfi aspektləri

Dilqəm Məmmədov

Xülasə. *Məqalədə şəxsiyyətin adaptiv və dezadaptiv davranışları arasındakı sərhədin ənənəvi kateqorial qurulmasının nəzəri məhdudiyyətləri təhlil olunur. Müasir şəxsiyyət psixologiyasında davranışın situasiyalararası dəyişkənliyinə dair empirik məlumatlar göstərir ki, eyni davranış aktı müxtəlif kontekstlərdə həm adaptiv, həm də dezadaptiv funksiya daşıya bilər. Bu isə adaptivliyin aktın özünə deyil, akt, situasiya və zaman miqyası arasındakı münasibətə aid xüsusiyyət olduğunu göstərir. Tədqiqatın mərkəzi anlayışı olan kontingentlik davranış dəyişkənliyinin situasiyaya sistemli şəkildə bağlı olub-olmamasını ifadə edir və bu anlayış həm sadə dəyişkənlikdən, həm də çeviklik anlayışından fərqləndirilir. Məqalənin əsas müddəası ondan ibarətdir ki, kontingentlik obyektiv situasiyaya deyil, subyektin situasiyanı necə mənalandırmasına, yəni subyektiv reallığa bağlıdır. Bu mövqe iki ölçülü qiymətləndirmə modelini zəruri edir: davranışın daxili ardıcıllığı və subyektiv modelin xarici gerçəkliyə uyğunluğu. Həmçinin adaptiv tələ fenomeni, qısamüddətli tənzimləmə ilə uzunmüddətli inkişaf arasındakı zaman asimmetriyası və qeyri-müəyyənliyin idarə olunması məsələsi nəzərdən keçirilir. Nəzəri təhlil və konseptual sintez metodları ilə aparılan araşdırma adaptivlik normasının substansial deyil, münasibətə əsaslanan xarakter daşıdığını əsaslandırır, sonda isə həmin çərçivənin empirik ölçülmə imkanları və yoxlanıla bilən nəticələri müzakirə olunur.*

Açar sözlər: *adaptiv davranış, dezadaptiv davranış, kontingentlik, subyektiv reallıq, şəxsiyyət dinamikası, özünütənzimləmə, situasiyanın qavranılması*

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Adaptive and Maladaptive Behavioral Dynamics of Personality: Psycho-Philosophical Aspects of the Interaction Between Contingency and Subjective Reality

Dilqam Mammadov

Abstract. *The article examines the theoretical limitations of the conventional categorical division between adaptive and maladaptive behavior in personality psychology. Empirical evidence on within-person behavioral variability indicates that the same behavioral act may serve either a regulatory or a disruptive function depending on the context in which it occurs. Adaptivity therefore appears to be a property not of the act itself, but of the relation among act, situation and time horizon. The central construct of the study, contingency, refers to whether behavioral variability is systematically linked to situational input; it is distinguished here both from mere variability and from the broader notion* *of flexibility. The principal claim advanced in the paper is that contingency operates on the subject's construal of the situation rather than on the objective situation, which places subjective reality at the centre of the adaptive-maladaptive distinction. This position requires a two-criterion evaluative model combining the internal coherence of behavior with the correspondence of the subjective model to external reality. The paper further considers the phenomenon of the adaptive trap, the temporal asymmetry between short-term regulation and long-term development, and the management of uncertainty. Conducted through conceptual analysis and theoretical synthesis, the study argues that the norm of adaptivity is relational rather than substantive, and discusses the empirical operationalization and falsifiability of the proposed framework.*

Keywords: *adaptive behavior, maladaptive behavior, contingency, subjective reality, personality dynamics, self-regulation, situation perception*

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Giriş

Şəxsiyyət psixologiyasında adaptiv və dezadaptiv davranışlar uzun müddət bir-birini qarşılıqlı istisna edən iki kateqoriya kimi təsvir edilmişdir. Bu bölgü praktik baxımdan əlverişli olsa da, altında yatan nəzəri fərziyyə nadir hallarda açıq müzakirəyə çıxarılır: ehtimal edilir ki, davranışın adaptiv və dezadaptiv keyfiyyəti aktın öz daxilində yerləşən, kontekstdən asılı olmayan xassədir. Məhz bu fərziyyə həm empirik, həm də fəlsəfi baxımdan mübahisəlidir. Son onilliyin tədqiqatları göstərir ki, eyni şəxsin eyni davranış forması bir şəraitdə funksional, digərində isə dağıdıcı nəticə verə bilər (Sherman et al., 2015). Belə olduqda adaptivlik aktın atributu olmaqdan çıxır və akt ilə onun baş verdiyi şərait arasındakı münasibətin xarakteristikasına çevrilir.

Bu dəyişikliyin arxasında şəxsiyyət fenomenində baş vermiş daha geniş metodoloji yerdəyişmə dayanır. Əlamətlərin statik struktur kimi deyil, dinamik proseslərin nəticəsi kimi öyrənilməsi, ölçmənin isə fərdlərarası müqayisədən fərdin öz daxilindəki dəyişmələrin izlənməsinə doğru yönəlməsi davranışın təsvir dilini yenidən qurmuşdur (Roberts & Yoon, 2022). Şəxsiyyətin struktur, proses və inkişaf səviyyələrinin vahid çərçivədə birləşdirilməsi zərurəti artıq sahənin əsas gündəliyinə daxildir (Baumert et al., 2017). Bu kontekstdə adaptivlik anlayışının da statik təsnifat vasitəsindən proses göstəricisinə çevrilməsi məntiqi addımdır.

Bununla belə, dəyişkənliyin özü hələ heç nəyi izah etmir. Şəxsin davranışının situasiyadan situasiyaya dəyişməsi faktı onun uyğunlaşma qabiliyyətinin göstəricisi sayıla bilməz, çünki dəyişkənlik həm mütəşəkkil, həm də xaotik ola bilər. Affektiv dəyişkənliyin patoloji əlamət kimi birbaşa oxunmasının nə qədər problemli olduğunu emosional tərəddüdlərin ölçülməsinə dair araşdırmalar açıq şəkildə göstərmişdir: dəyişkənliyin miqdarı çox vaxt orta səviyyənin artefaktı kimi çıxış edir və müstəqil məna daşımır (Kalokerinos et al., 2020). Deməli, məsələ dəyişkənliyin həcmində deyil, onun nə ilə əlaqələndiyindədir.

Bu araşdırmada həmin əlaqə kontingentlik anlayışı ilə ifadə olunur. Kontingentlik davranışın situasiya girişinə sistemli şəkildə cavab verib-verməməsini, yəni davranış dəyişmələrinin şəraitin dəyişməsi ilə qanunauyğun surətdə bağlanıb-bağlanmamasını göstərir. Yüksək kontingentlik davranışın şəraitə həssas olduğunu, aşağı kontingentlik isə ya şəraitə baxmayaraq eyni cavabın təkrarlandığını, ya da cavabların şəraitlə heç bir əlaqəsi olmadan dəyişdiyini bildirir. Bu formada qoyuluşda kontingentlik davranışın məzmununa deyil, onun təşkilinə aid formal xüsusiyyət kimi çıxış edir. Lakin burada həlledici sual ortaya çıxır. Davranış hansı situasiyaya cavab verir: müşahidəçinin qeyd etdiyi obyektiv şəraitə, yoxsa subyektin həmin şəraiti necə mənalandırdığına? Koqnitiv-affektiv sistem nəzəriyyəsi bu suala birmənalı cavab vermişdir: davranışı hərəkətə gətirən vahid fiziki situasiya deyil, psixoloji situasiya, yəni onun subyekt üçün daşıdığı məna konfiqurasiyasıdır (Mischel & Shoda, 1995). Situasiyaların ölçülməsinə dair müasir taksonomiyalar da eyni məntiqi əsas götürür və situasiyanın obyektiv tərkibi ilə onun qavranılan xarakteristikalarını fərqləndirir (Rauthmann et al., 2014).

Bu fərqləndirmə adaptivlik probleminin ağırlıq mərkəzini davranışdan subyektiv reallığa köçürür. Əgər kontingentlik obyektiv şəraitə deyil, onun mənalandırılmasına bağlıdırsa, o zaman tam mütəşəkkil, daxilən ardıcıl və öz daxili məntiqi baxımından qüsursuz davranış sistemi kənar reallıqla uyğunsuz ola bilər. Belə hal nə sırf uyğunlaşma, nə də sırf pozulma kimi təsnif edilə bilməz və mövcud ikili sxemə sığmır. Məhz bu nöqtədə məsələ psixoloji olmaqdan çıxıb psixofəlsəfi müstəviyə keçir, çünki söhbət artıq normanın harada yerləşdiyi barədə gedir.

Məqalənin məqsədi adaptiv və dezadaptiv davranışlar arasındakı münasibəti kontingentlik və subyektiv reallıq anlayışlarının qarşılıqlı təsiri əsasında nəzəri cəhətdən yenidən qurmaqdır. Qarşıya qoyulan əsas suallar bunlardır: adaptivlik hansı münasibətin xassəsidir; kontingentlik hansı reallığa nisbətdə ölçülməlidir; daxili ardıcıllıq ilə xarici uyğunluq bir-birindən ayrıldıqda qiymətləndirmə meyarı necə qurulmalıdır. Təqdim olunan yanaşmanın yeniliyi ondan ibarətdir ki, o, adaptivliyi nə tamamilə nisbi, nə də mütləq kateqoriya kimi götürür, əvəzində iki müstəqil ölçünün kəsişməsi kimi təsvir edir və bu təsviri empirik yoxlamaya açıq saxlayır.

Metodlar

Tədqiqat xarakterinə görə nəzəri-konseptual araşdırmadır və ilkin empirik məlumat toplanmasını nəzərdə tutmur. Əsas metod konseptual təhlildir: adaptivlik, dezadaptivlik, dəyişkənlik, çeviklik və kontingentlik anlayışları tərkib hissələrinə ayrılmış, hər birinin hansı nəzəri fərziyyələri gizli şəkildə daşıdığı müəyyənləşdirilmiş, sonra isə aralarındakı məntiqi uyğunsuzluqlar aşkara çıxarılmışdır. İkinci metod nəzəri sintezdir və o, müxtəlif izahat səviyyələrinə aid müddəaların vahid çərçivədə birləşdirilməsinə yönəlib. Üçüncü metod müqayisəli-tənqidi təhlildir: rəqib yanaşmaların eyni fenomeni necə izah etdiyi qarşılaşdırılmış və hansının daha az əlavə fərziyyə tələb etdiyi qiymətləndirilmişdir.

Nəzəri təhlil yeni empirik fakt yaratmır; o yalnız mövcud faktların daha ardıcıl izahını təklif edə bilər. Konseptual araşdırmada seçilmiş nəzəri mövqe təhlilin nəticələrinə təsir göstərir və bu təsir tamamilə neytrallaşdırıla bilməz. Bu səbəbdən, aşağıdakı müddəalar sübut edilmiş nəticələr deyil, empirik yoxlamaya təqdim olunan dəqiqləşdirilmiş fərziyyələrdir.

Nəticələr

Adaptivlik davranış aktının predikatı deyil, ən azı üç üzvlü münasibətin xassəsidir. Bu münasibətə aktın özü, onun baş verdiyi situasiya və qiymətləndirmənin aparıldığı zaman miqyası daxildir. Üç üzvdən hər hansı biri dəyişdikdə qiymət də dəyişir. Real vaxt rejimində aparılan müşahidələr göstərir ki, davranışın forması ilə situasiyanın xüsusiyyətləri müstəqil, lakin qarşılıqlı əlaqəli töhfələr verir və heç biri digərinə tam reduksiya olunmur (Sherman et al., 2015). Deməli, aktı kontekstdən ayırıb ona sabit qiymət vermək metodoloji səhvdir.

Şəxsiyyətlə bağlı ədəbiyyatda tez-tez qarışdırılan üç anlayış bir-birindən ayrılmalıdır. Dəyişkənlik davranışın nə qədər fərqləndiyini göstərən kəmiyyət ölçüsüdür. Çeviklik müxtəlif tənzimləmə strategiyalarından istifadə repertuarının genişliyini ifadə edir. Kontingentlik isə bu dəyişmələrin situasiya girişi ilə əlaqəsinin sistemliliyini bildirir. Üçü arasındakı fərq təsadüfi terminoloji incəlik deyil: tənzimləmə çevikliyinin özü də strategiya seçiminin kontekstə uyğunluğunu tələb edir və uyğunsuz seçim geniş repertuara baxmayaraq səmərəsiz qalır (Aldao et al., 2015).

Bu fərqləndirmədən görünür ki, aşağı kontingentliyin bir deyil, iki müxtəlif forması var və onlar əks mexanizmlərə söykənir. Birinci forma rigidlikdir; burada situasiya dəyişsə də cavab dəyişmir, davranış öz mənbəyini kənar informasiyadan deyil, daxili avtomatizmdən alır. İkinci forma xaotik dəyişkənlikdir; burada cavab dəyişir, lakin dəyişmə situasiya ilə əlaqəli deyil, yəni davranış səs-küy xarakteri daşıyır. Hər ikisi dezadaptiv sayıla bilər, lakin onların psixoloji mənşəyi, korreksiya məntiqi və proqnostik dəyəri fərqlidir. Emosional dinamikanın öyrənilməsi bu iki nümunənin zaman sıraları səviyyəsində fərqləndirilməsinin mümkün olduğunu göstərir (Kuppens & Verduyn, 2017).

Tədqiqatın mərkəzi müddəası budur: kontingentlik obyektiv situasiyaya deyil, situasiyanın subyektiv mənalandırılmasına nisbətdə mövcuddur. Koqnitiv-affektiv vahidlərin şəbəkəsi kənar stimulu birbaşa cavaba çevirmir; stimul əvvəlcə şəxsin təfsir strukturundan keçir və yalnız bundan sonra davranış generasiya olunur (Mischel & Shoda, 1995). Buna görə də iki adam eyni obyektiv şəraitdə tamamilə fərqli, lakin hər biri öz daxili modelinə görə tam məntiqli davranış nümayiş etdirə bilər. Əlamətlərin situasiya siqnalları ilə aktivləşməsinə dair nəzəri izahlar da eyni mexanizmi təsdiqləyir: aktivləşdirici olan siqnalın fiziki mövcudluğu deyil, onun müəyyən əlamət üçün relevant kimi oxunmasıdır (Tett et al., 2021).

Buradan paradoks çıxır. Əgər kontingentlik təfsirə bağlıdırsa, subyekt təhrif olunmuş bir mənzərəyə qarşı da mükəmməl dərəcədə kontingent ola bilər. Təhlükə gözləyən adam təhlükə əlamətlərinə dəqiq, seçici və ardıcıl şəkildə reaksiya verir; onun davranışı daxili baxımdan səmərəli, xarici baxımdan isə yersizdir. Bu hal göstərir ki, tək meyar üzərində qurulan qiymətləndirmə sistemi qeyri-adekvatdır. Buna görə də iki müstəqil ölçü təklif olunur: davranışın daxili ardıcıllığı, yəni subyektiv modelə uyğunluğu, və subyektiv modelin özünün xarici gerçəkliyə uyğunluğu.

Bu iki ölçünün kəsişməsindən dörd mövqe alınır. Daxili ardıcıllıq və xarici uyğunluq eyni vaxtda yüksək olduqda davranış tam mənada adaptivdir. Daxili ardıcıllıq yüksək, xarici uyğunluq aşağı olduqda sistemli, lakin gerçəklikdən qopmuş uyğunlaşma alınır. Daxili ardıcıllıq aşağı, xarici uyğunluq nisbətən qorunduqda situasiya təzyiqi ilə idarə olunan, öz daxili nüvəsi zəif davranış meydana çıxır. Hər ikisi aşağı olduqda isə davranış nə mənbəyə, nə də hədəfə bağlanır. Bu sxem ikili bölgünü əvəz edir və eyni zamanda normanın tamamilə nisbiləşdirilməsinin qarşısını alır.

Adaptiv tələ adlandırıla bilən fenomen ayrıca diqqət tələb edir. Bir çox dezadaptiv nümunə mənşəyinə görə vaxtilə tam uyğunlaşdırıcı olmuş cavablardır. Formalaşdığı şəraitdə həmin cavab zərəri azaldıb, proqnozu artırıb və sabitlik təmin edib. Problem şərait dəyişdikdən sonra başlayır: cavabın özü qalır, çünki onu doğuran təfsir çərçivəsi yenilənmir. Şəxsiyyət inkişafının gündəlik təcrübə epizodlarından uzunmüddətli dəyişikliyə keçid mexanizmlərini təsvir edən modellər göstərir ki, davamlı dəyişiklik yalnız təkrarlanan epizodlarda təfsirin yenidən qurulması halında baş verir (Wrzus & Roberts, 2017). Təfsir sabit qaldıqda təkrar davranış dəyişikliyə yox, möhkəmlənməyə xidmət edir.

Zaman asimmetriyası da eyni məntiqə tabedir. Qısamüddətli tənzimləmə baxımından səmərəli olan strategiya uzunmüddətli inkişaf baxımından ziyanlı ola bilər və əksinə. Qaçınma gərginliyi dərhal azaldır, lakin təcrübə əldə etmə imkanını bağlayır. Emosional cavabın modifikasiyasına dair proses modelləri strategiyaların qiymətləndirilməsinin hansı mərhələdə və hansı zaman miqyasında aparıldığından asılı olduğunu aydın şəkildə ortaya qoyur (Gross, 2015). Affektiv çevikliyin zaman miqyasları üzrə təhlili isə eyni davranışın qısa və uzun intervalda əks işarə alması halının qanunauyğun olduğunu göstərir (Hollenstein, 2015). Deməli, zaman miqyasını göstərmədən adaptivlik hökmü natamamdır.

Tənzimləmə çevikliyi çərçivəsində kontekstin oxunması, repertuarın genişliyi və geribildirimə əsasən strategiyanın dəyişdirilməsi ayrı-ayrı komponentlər kimi təqdim olunur (Bonanno & Burton, 2013). Emosional tənzimləmə çevikliyinin komponentləri üzrə aparılan profil təhlilləri isə həmin komponentlərin müstəqil şəkildə fərqli nəticələrlə əlaqələndiyini göstərmişdir (Chen & Bonanno, 2021). Kontingentlik bu sxemdə ayrıca element deyil, komponentlərin bir-birinə bağlanma keyfiyyətidir: repertuar geniş ola bilər, lakin seçim kontekstlə əlaqələnmirsə, çeviklik formal qalır. Qeyri-müəyyənliyin idarə olunması ayrı bir müstəvi açır. Şəxsin davranış təşkilinə informasiya baxımından yanaşdıqda həm rigidlik, həm də xaotik dəyişkənlik qeyri-müəyyənliyin idarəsindəki uğursuzluğun iki fərqli forması kimi görünür. Psixoloji entropiya çərçivəsi məqsədlərin və gözləntilərin pozulduğu zaman yaranan qeyri-müəyyənlik artımının narahatlıq şəklində təzahür etdiyini və davranış təşkilinin əsas funksiyalarından birinin məhz bu artımın cilovlanması olduğunu əsaslandırır (Hirsh et al., 2012). Rigidlik qeyri-müəyyənliyi süni şəkildə sıfıra endirmə, xaotik dəyişkənlik isə onu tənzimləyə bilməmə cəhdidir; kontingentlik isə bu iki uc arasındakı işlək orta vəziyyəti təsvir edir.

Təqdim olunan çərçivənin şəxsiyyət nəzəriyyəsindəki yeri də aydındır. Bütöv əlamət nəzəriyyəsi əlamətin təsviri və izahedici tərəflərini ayırır: birincisi davranış paylanmasının statistik xülasəsi, ikincisi həmin paylanmanı yaradan mexanizmlər toplusudur (Fleeson & Jayawickreme, 2015). Kontingentlik təsviri tərəfə deyil, izahedici tərəfə aiddir, çünki o, davranışın orta səviyyəsi barədə deyil, onun necə istehsal olunduğu barədə məlumat verir. Bu bölgünün sonrakı işlənməsi göstərmişdir ki, struktur və proses məhz bu nöqtədə birləşir (Jayawickreme et al., 2019). Fərdi səviyyədə aparılan uzunmüddətli təcrübə seçmələri isə hər bir şəxs üçün ayrıca davranış-situasiya əlaqə profilinin qurula bildiyini empirik şəkildə nümayiş etdirmişdir (Beck & Jackson, 2020).

Müzakirə və nəticə

Adaptiv və dezadaptiv arasındakı bölgü ləğv edilmir, yerini dəyişir. Bölgü aktın məzmunundan davranışın təşkil üsuluna keçirilir. Bu yerdəyişmə sahənin köhnə çətinliklərindən birini yüngülləşdirir: eyni davranışın müxtəlif hallarda əks qiymət alması artıq nəzəriyyə üçün istisna deyil, gözlənilən haldır. Eyni zamanda yanaşma normadan tamamilə imtina etmir. Daxili ardıcıllıq və xarici uyğunluq ölçüləri qiymətləndirmə üçün kifayət qədər möhkəm dayaq verir və qiymətin özbaşına olmasının qarşısını alır.

Məsələnin fəlsəfi tərəfində təqdim olunan mövqe iki uc arasında yerləşir. Sadəlövh realizm subyektiv reallığı obyektiv şəraitin sadə əksi sayır və təfsirin müstəqil təsirini nəzərə almır; bu halda davranışın niyə fərqləndiyini izah etmək çətinləşir. Radikal nisbilik isə hər təfsiri bərabər səviyyəli hesab edir və bununla qiymətləndirmə imkanını tamamilə itirir. İki ölçülü model hər iki ucdan yayınır: təfsirin müstəqil rolunu tanıyır, lakin onun gerçəkliklə əlaqəsini yoxlanıla bilən meyar kimi saxlayır.

Təklif olunan sxem diaqnostik alət deyil və klinik təsnifatı əvəzləmək iddiasında deyil. Onun predmeti sağlam əhali daxilində davranış təşkilinin fərdi fərqləridir. Aşağı kontingentlik göstəricisi pozuntu əlaməti kimi deyil, davranışın situasiya girişindən nə dərəcədə asılı olduğunu bildirən təsviri ölçü kimi başa düşülməlidir. Bu məhdudiyyət təsadüfi ehtiyat deyil: şəxsiyyət ölçülərinin klinik qiymətə çevrilməsi sahənin ən tez-tez rast gəlinən metodoloji səhvlərindəndir.

Çərçivə birbaşa ölçmə proqramına çevrilə bilər. Əlamət səviyyəsinin ölçülməsi üçün iyerarxik struktura malik müasir şəxsiyyət inventarları uyğun gəlir (Soto & John, 2017). Gündəlik təcrübə seçməsi metodu ilə eyni şəxsdən çoxsaylı müşahidə toplanaraq davranış cavabları qavranılan situasiya xüsusiyyətləri ilə eyni zaman nöqtəsində qeydə alına bilər; situasiyanın kodlaşdırılması üçün qavranılan xüsusiyyətlərə əsaslanan taksonomiyalar hazır alət verir (Rauthmann et al., 2014). İyerarxik xətti modelləşdirmə vasitəsilə hər iştirakçı üçün fərdi əlaqə əmsalı çıxarıla bilər və bu əmsal kontingentliyin operasional göstəricisi kimi çıxış edir.

Təkzib şərtləri də göstərilməlidir, çünki yoxlanıla bilməyən müddəa elmi dəyər daşımır. Təqdim olunan mövqe iki halda zəifləyər. Birincisi, əgər fərdi kontingentlik əmsalları psixoloji rifah və funksionallıq göstəriciləri ilə heç bir əlaqə göstərməsə və bu əlaqə orta səviyyələrə nəzarət edildikdən sonra tamamilə itsə, kontingentliyin müstəqil məna daşıdığı iddiası əsassız qalar. İkincisi, əgər obyektiv situasiya kodlaşdırması ilə qurulan model subyektiv qavrayış kodlaşdırması ilə qurulan modeldən daha yaxşı proqnoz versə, subyektiv reallığın mərkəzi rolu barədə müddəa zəifləyər. Hər iki şərt mövcud metodoloji vasitələrlə yoxlanıla bilər.

Məhdudiyyətlərə gəldikdə, araşdırma nəzəri xarakter daşıyır və burada irəli sürülən müddəalar hələ birbaşa empirik sınaqdan keçməmişdir. İstifadə olunan mənbələrin böyük hissəsi Qərb nümunələri üzərində aparılmış tədqiqatlara əsaslanır, halbuki situasiyaların mənalandırılması mədəni kontekstdən əhəmiyyətli dərəcədə asılıdır və bu, nəticələrin universallığını məhdudlaşdırır. Bundan əlavə, xarici uyğunluq meyarının özü qiymətləndirici mövqe tələb edir və bu mövqenin kim tərəfindən müəyyən edilməsi ayrıca nəzəri problemdir. Bu məsələnin həlli gələcək işlərin predmetidir.

Yekun olaraq aşağıdakıları qeyd etmək olar. Adaptivlik davranış aktının daxilində yerləşən sabit keyfiyyət deyil; o, akt, situasiya və zaman miqyası arasındakı münasibətdən doğur. Kontingentlik həmin münasibətin ölçülə bilən ifadəsi kimi çıxış edir və davranış dəyişkənliyinin sistemli olub-olmamasını göstərir. Kontingentliyin istinad nöqtəsi obyektiv şərait deyil, subyektiv reallıqdır və bu, adaptivliyin qiymətləndirilməsini iki müstəqil ölçünün, yəni daxili ardıcıllıq ilə xarici uyğunluğun kəsişməsinə çevirir. Belə yanaşma adaptiv və dezadaptiv arasındakı ikili bölgünü davamlı dinamik sxem ilə əvəz edir, adaptiv tələ fenomenini və zaman asimmetriyasını vahid çərçivədə izah edir, eyni zamanda, normativ meyarı tamamilə itirmir. Nəhayət, təklif olunan model gündəlik təcrübə seçməsi və iyerarxik modelləşdirmə vasitəsilə empirik yoxlamaya açıqdır və bu, onun sonrakı inkişafının əsas istiqamətini müəyyənləşdirir.

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Environmental Planning in Algeria as a Strategy for Environmental Protection

Chinar Saadane

Abstract. *The environment in Algeria, mirroring global contexts, faces escalating challenges stemming from rapid urbanization, industrial expansion, and natural resource degradation. This article examines the concept of environmental planning in Algeria as a fundamental strategic mechanism for countering these threats and ensuring ecological security. Environmental planning plays a crucial role in harmonizing economic development with the sustainable conservation of natural resources, grounded in core principles such as prevention, integration, and environmental impact assessment. Through a qualitative analysis of the Algerian legislative framework including Law 03–10 on environmental protection and various sectoral mandates the study explores the multifaceted dimensions of environmental planning across comprehensive, sectoral, local, and regional levels. Despite the establishment of robust legal structures like the National Action Plan for the Environment and local Agenda 21 initiatives, the implementation of these strategies encounters significant obstacles. Primary challenges include a deficit in funding, a lack of advanced technological infrastructure, a shortage of qualified personnel, and horizontal administrative fragmentation affecting regional ecosystems. To achieve sustainable development, it is imperative to enhance community awareness, strictly enforce environmental legislation, and foster cohesive cooperation between governmental bodies and civil society. The study highlights the urgent need for continued scientific research and technological innovation to support Algeria's transition toward a sustainable environmental future.*

Keywords: *environmental planning, sustainable development, environmental challenges, Algeria, cooperation*

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Əlcəzairdə ətraf mühitin mühafizəsi strategiyası kimi ekoloji planlaşdırma

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Xülasə. *Əlcəzairdə ətraf mühit qlobal kontekstlərə bənzər olaraq, sürətli urbanizasiya, sənayenin genişlənməsi və təbii sərvətlərin deqradasiyasından irəli gələn artan çətinliklərlə üzləşir. Bu məqalə həmin təhlükələrə qarşı mübarizə və ekoloji təhlükəsizliyin təmin edilməsi üçün əsas strateji mexanizm kimi Əlcəzairdə ekoloji planlaşdırma konsepsiyasını araşdırır. Ekoloji planlaşdırma profilaktika, inteqrasiya və ətraf mühitə təsirin qiymətləndirilməsi kimi əsas prinsiplərə əsaslanaraq, iqtisadi inkişafın təbii sərvətlərin davamlı qorunması ilə uzlaşdırılmasında mühüm rol oynayır.*

Əlcəzairin qanunvericilik bazasının – o cümlədən ətraf mühitin mühafizəsi haqqında 03-10 saylı qanunun və müxtəlif sahə mandatlarının keyfiyyət təhlili vasitəsilə, bu tədqiqat kompleks, sahəvi, yerli və regional səviyyələrdə ekoloji planlaşdırmanın çoxşaxəli ölçülərini öyrənir. Ətraf Mühit üzrə Milli Fəaliyyət Planı və yerli Gündəlik 21 (Agenda 21) təşəbbüsləri kimi möhkəm hüquqi strukturların yaradılmasına baxmayaraq, bu strategiyaların həyata keçirilməsi ciddi maneələrlə üzləşir. Əsas problemlərə maliyyə çatışmazlığı, qabaqcıl texnoloji infrastrukturun olmaması, ixtisaslı kadr çatışmazlığı və regional ekosistemlərə təsir edən üfüqi inzibati parçalanma daxildir. Davamlı inkişafa nail olmaq üçün ictimai maarifləndirməni artırmaq, ekoloji qanunvericiliyi ciddi şəkildə tətbiq etmək, dövlət orqanları və vətəndaş cəmiyyəti arasında sıx əməkdaşlığı inkişaf etdirmək zəruridir. Tədqiqat Əlcəzairin davamlı ekoloji gələcəyə keçidini dəstəkləmək üçün davamlı elmi tədqiqatlara və texnoloji innovasiyalara təcili ehtiyac olduğunu vurğulayır.

Açar sözlər: *ətraf mühitin planlaşdırılması, davamlı inkişaf, ekoloji problemlər, Əlcəzair, əməkdaşlıq*

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Introduction

The environment in Algeria, as in many countries around the world, faces increasing environmental challenges as a result of accelerated human activities and urban and industrial expansion. These challenges include land degradation, air and water pollution, and loss of biodiversity, which threaten the environmental stability and health of societies. Under these conditions, environmental planning becomes a vital tool to ensure the sustainable use of natural resources and protect the environment from further degradation.

Environmental planning relies on integrating environmental policies into various development sectors to ensure a balance between economic progress and environmental conservation. However, the success of this process depends on several factors, including the effectiveness of environmental legislation, community awareness of the importance of the environment, and the ability of institutions to implement policies in an integrated manner.

1. What is environmental planning?
Environmental changes have brought about a shift in the environmental policy of countries in a manner consistent with the requirements of sustainable development, realizing the seriousness of the deteriorating environmental reality due to the development taking place, which led to the emergence of some environmental solutions to mitigate the severity of the situation. From this standpoint, what is called environmental planning emerged. As a mechanism to protect the environment.

1.1 Environmental planning concept
Planning is considered environmental as it is one of the most important scientific means of preserving the environment and a leading mechanism in development. Through the latter, it is possible to ensure that society obtains the desired benefits from development, and at the same time that environmental resources are preserved for future use.

1.2 Definition of environmental planning
Environmental policies in the international community have sought to find reasonable solutions that stand as a solid barrier in the face of the environmental deterioration witnessed by the world.

Environmental planning is considered one of the ways to achieve a clean environment or at least reduce the imminent environmental danger (Abdul-Maqsoud, 1982, p. 13).

Environmental planning in general achieves results in the future and has a positive impact on the environment through the goals that are drawn up in advance, as well as having well-studied strategic dimensions (Al-Faqih, 2015, p. 12). Environmental planning is one of the most important preventive means of protecting the environment, as the Stockholm Declaration of 1972 on the nature of the environment enshrined it in its second principle, where it insisted that the environment must be preserved in the present without neglecting the right of future generations to natural resources of air, water, soil, animals and plants, all through planning (Yousfi, 2012, p. 4).

Environmental planning can be defined as an organized scientific method that aims to reach the best means through which the natural resources of the environment can be exploited, as well as human capabilities, in a comprehensive integration and harmony, according to a specific and pre-determined timetable through a set of proposed projects. It is thus a new concept and approach in the various fields of planning, where the environmental dimension plays a fundamental role in evaluating projects, and not relying on it is a flagrant violation of the rules of environmental protection (Al-Faqih, 2015, p. 13). To achieve effective environmental planning, the latter must be characterized by credibility and realism of solutions and transparency of standards, which ensures an environmental balance that guarantees prosperity and well-being for citizens in the present and the future (Damoush, 2010, pp. 39–42).

Environmental planning sometimes precedes environmental damage, but this does not prevent planning from occurring later or after the hazards have occurred. In this case, it aims to reduce and absorb the hazards and their damages. Referring to the Algerian legislator, he did not give a definition of environmental planning, but it can be said that Planning relates to the elements mentioned in Article 04, Paragraph 07 of Law 03/10 on the protection of the environment within the framework of sustainable development, which are the elements that make up the environment from natural resources, both living and non-living, such as air, atmosphere, water, land and its subsoil, plants, animals, cultural heritage, and forms of interaction between these resources, as well as places, landscapes, and natural landmarks. However, some terms were used to express this planning (Abdul-Maqsoud, 1982, p. 13).

In general, it can be said that environmental planning is the optimal, thoughtful and organized use of environmental resources and is the way to achieve human needs and goals (Yousfi, 2012, p. 94).
Despite the efforts made, there are still several problems that need to be addressed, most notably:
Does environmental planning in Algeria have the capacity to meet current and future environmental challenges?

Methods

This study employs a qualitative, descriptive-analytical methodology to evaluate the environmental planning framework in Algeria. The research relies on a comprehensive review of primary legislative texts, including Law 03-10 on Environmental Protection and Sustainable Development (2003), Law No. 01-19 on Waste Management and Control (2001), and associated executive decrees. Secondary sources, including academic literature, national action plans – such as the National Action Plan for the Environment and Sustainable Development (PNEAD, 1996) and Local Agenda 21 – and government reports, were systematically analyzed to assess the structural implementation of environmental planning across comprehensive, sectoral, local, and regional levels.

Results

The Algerian legislation has separated the types of environmental planning that contribute to the consecration of the principle of integrating the environmental dimension in the preparation of plans and programs necessary to protect the environment, from the participatory methods in which the state undertakes to develop these plans in coordination with civil society groups and the private sector, through anticipating and forecasting environmental risks and problems that may occur in the future, and taking precautions and caution regarding them..

1. Comprehensive and sectoral environmental planning

Algeria, like other countries in the world, seeks to promote local development in various ways, while preserving the environment in its various development projects, through environmental development plans that aim to preserve the basic environmental elements related to air, water and soil during the implementation of these projects related to various vital sectors, and also aims to provide good management for them.

1.1 Holistic environmental planning

Environmental planning has emerged as a new method for managing the environment recently, considering planning as a means of future visualization, prediction and guidance that works to achieve preventive-protective intervention for the environment. The issue of protecting economic plans was absent in its early stages in Algeria due to the circumstances accompanying development processes and the difficulty of estimating some negative impacts on the environment and the lack of environmental data and information. In response to the transformations witnessed by environmental policy in Algeria, comprehensive environmental planning was adopted to address the shortcomings of sectoral planning, i.e. each sector separately, forests, water, fishing, etc. (Maafi, 2014, p. 96).

1.1.1 The National Action Plan for the Environment 1996

The National Action Plan for the Environment 1996 included a set of objectives and guidelines to identify environmental problems, determine their causes and address them. Through this, environmental inspectorates were approved at the level of each state (Executive Decree No. 98–276, 1998) and through this, the National Action Plan for Environmental Action and Sustainable Development for the Environment was approved and ended in 2001.

In order to implement the directives of the National Action Plan for the Environment, the National Environmental Action Program has identified two main phases:

- I knew the first stage "At the stage of assessment and diagnosis which was launched in 1997, and the diagnostic report related to it was completed, and this process was undertaken by a group of experts, and covered a group of topics, including developing the institutional and legal aspect of the environment, the topic of health and the environment, and the topic of pollution by liquid flows and waste...."
- The second phase was known as "defining the national environmental strategy", which ended in the second half of 1999, and was accomplished by resorting to international expertise, and ended with a report on the state of the environment in 1998, which became the subject of an annual update.

After completing the diagnosis, study and priority-setting phase, the National Plan for Environmental Action and Sustainable Development was adopted in 2001, to introduce the national environmental policy into its active phase.

The principle of comprehensive environmental planning was enshrined in Law 03-10 (2003), which stipulated that the ministry in charge of the environment should prepare a national plan for environmental activity and its sustainable development on a regular basis, in accordance with Article 14. This is in order to set short, medium and long-term environmental goals in many areas such as health, drinking water, public service, sanitation and waste management.

1.1.2 National Plan for Environment and Sustainable Development 2001-2004

After the presentation of the report on the state of the environment and its future in 2000, which gave justified and actual reasons for the interest in the ecological situation in Algeria, preparations were made to prepare a plan for the environment and sustainable development by attracting attention, especially from the public authorities, in view of the huge costs incurred by the country as a result of environmental problems, which was indicated in the report issued in 2001. In an effort to remedy the situation, Algeria committed itself to preparing a national strategy for the environment and a national plan for the environment and sustainable development (Gadari, 2017, p. 170). This initiative was executed by the Ministry of Territorial Planning and Environment, which opened a national discussion on May 12, 2001, summarizing the environmental situation with the participation of all community actors to encourage environmental protection. This stage was also characterized by the issuance of legislation that treated the environment as an essential element of sustainable development (Ramadan, 2019, p. 80).

1.1.3 The Ten–Year Environment Strategy 2004–2011

Based on the previous plan and the Algerian authorities' efforts to improve health in all parts of the country and their interest in the lives of citizens by reducing dangerous industrial pollutants and reducing industrial waste and in an effort to protect biodiversity by reducing greenhouse gases and removing substances harmful to the ozone layer, the National Action Plan for the Environment and Sustainable Development was adopted to keep pace with the ten-year strategy for environmental protection and depends on allocating each strategic goal to the expected results in the long term (Gadari, 2017, p. 171), without neglecting the short and medium term, while identifying priority objectives (Mahrez & Sayed, n.d., p. 192).

1.2 Section Two: Sectoral Environmental Planning

Environmental planning in Algeria has been limited during the past three decades to sectoral environmental planning only, and has included the water, waste management and urban planning sectors.

1.2.1 Water sector planning: Sectoral planning related to water deals with the national plan for water resources development, and hydrographic basins as a regional tool for managing and protecting water resources. Planning for the mobilization and use of water resources aims to meet water demand and to balance regional and sectoral development, by increasing the quantities of water resources, protecting their quality and rationalizing their use in harmony with the environment and other natural resources (Order No. 96-13 Concerning Water Resources, 1996).

It also supports the national plan for water resources development with the water master plan. In this regard, the government issued Executive Decree No. 10-01 dated January 4, 2010 regarding in the master plan for water resources development, which encourages the valuation of water resources, their economy, their rational use, and the development of non-traditional water resources such as seawater desalination and their use (Wanas, 2007, p. 42).

1.2.2 National plan for the management of special waste: The 1901 law on waste referred to the organization to explain how to prepare a national plan for the management of special waste. Therefore, the task of preparing the national plan for the management of special waste was assigned to a committee headed by the Minister in charge of the Environment or his representative, and composed of representatives of the Ministry in charge of National Defense and Local Authorities, and each of the Ministries of Trade, Energy, Health, Finance, Water Resources, Small and Medium Enterprises, Traditional Industry, Construction, Industry (Law No. 01-19 on Waste Management, 2001).

1.2.3 The extent to which urban planning keeps pace with environmental tasks: Central planning for the planning and sustainable development of the region was severely delayed due to the dire situation that Algeria went through, and attention was paid to it in light of the profound reforms that took place in the subject of environmental protection, and the stipulation that Creating a national plan for regional development based on basic guidelines such as rational use of spaces and conservation of natural resources (Executive Decree No. 03-477, 2003).

2. Local and regional environmental planning

Environmental planning is one of the most important tools that help preserve the environment and improve environmental quality in urban and rural areas. Through it, environmental risks and potential problems are identified in various areas, whether local or regional, through plans and procedures to deal with these problems and future improvements. As well as focusing on adopting clear strategies to improve the quality of air, water and soil in the specified area.

2.1 Local Environmental Planning

Algeria has relied on local planning as a basic means of achieving economic, social, industrial, agricultural and urban development, as it has assigned local councils the task of planning in these areas. As a result of the inability of the two previous systems, namely sectoral planning and comprehensive planning, to fully achieve the specified environmental objectives, local environmental planning was rethought in the form Which allows for the absorption of regional and local environmental protection concerns, to include various mechanisms for local environmental planning, including (Wanas, 2007, p. 53).

2.1.1 Municipal Charter for Environmental Protection and Sustainable Development

The Municipal Charter for the Environment and Sustainable Development was first adopted within the framework of the 2001–2004 Three-Year Economic Recovery Program. Its objectives included defining the actions that municipal authorities must undertake in order to maintain a good quality environment and adopting an effective policy to achieve sustainable development at the municipal level.

2.1.2 Local Agenda 21(2001–2004)

As a result of the great deficit of local intervention in the field of environmental protection, and the increasing interest in the subject of environmental protection, the Algerian planner was convinced of the importance of changing the approach of local intervention to manage and protect the environment by introducing the element of prediction and visualization into local environmental work, through the local plan for environmental work 2001–2004 Agenda 21.

Local Agenda 21 aims to improve the environmental situation and ensure sustainable development of the municipality as approved by the international community in June 1992 in Rio de Janeiro and also urged enriching the local environmental management method by expanding consultation, participation and consultation with all partners, actors and representatives of civil society where it is worth noting that the aim of the local plan is to improve the environmental situation, expand consultation and participation, and prepare industrial areas and urban expansion areas, noting that local environmental planning (The Municipal Charter and Agenda 21) were not subject to a law or decree, but rather came as a result of a discussion opened by the Ministry of Regional Planning and Environment (Maafi, 2014, p. 97).

2.2 Regional Environmental Planning

Local planning has reached a level of maturity that has allowed for the transcendence of traditional local planning methods based on creating local planning according to administrative geographical division, to a planning that is compatible with the specificities of the subject of environmental protection, in view of the natural extension of its elements and systems through homogeneous natural systems and on the basis of confronting environmental pollution that extends and spreads to other administrative borders of local communities.

2.2.1 The crystallization of the idea of regional planning

According to the above, the Blue Plan report prepared by a joint ministerial working group on the pollution of the Chlef Valley, which receives wastewater from 24 urban agglomerations distributed over five states (Medea, Ain Defla, Chlef, Ghlizane and Mostaganem), pointed to the shortcomings of the traditional decentralized policy in confronting the deterioration of ecosystems (Wanas, 2007, p. 151). The same applies to other ecosystems that suffer from horizontal administrative fragmentation, such as the coast, wetlands, basins, and the pastoral steppe region, which has become threatened by desertification and the spread of vegetation cover, as a result of the lack of joint local programmers and plans that provide a way for the local groups concerned with this environment to intervene (Wanas, 2007, pp. 150–151).

2.2.2 Regional symposium on regional planning and development

After much hesitation, the Algerian legislator approved the regional conference system for regional planning and development, which is established at the level of the region’s program for regional planning and development (Wanas, 2007, p. 152) and left its formation, tasks and methods of operation to the organization. The region’s program for preparing the region was defined as "The region consisting of several adjacent states with similar and complementary physical characteristics and development trends" (Law No. 01-20 on Regional Planning, 2001, Art. 5). This program is considered a framework for consultation and coordination between local authorities in order to prepare Regional plan for the development of the region, its implementation and follow-up (Law No. 01-20, 2001). Regional planning aims to eliminate the logic of sectoral confrontation in the field of planning and eliminate the imbalances resulting from inequality in facing regional problems as a result of the lack of Regional geographical and material proportionality and the success of the regional planning method.

The Algeria 2001 Development Program referred to a comprehensive review of the current list of investments before the Central Agency for the Registration of Investments. Central investments must then be classified into two new categories. The first category includes operations of a joint nature between regions or of a national nature that are managed centrally. The second category includes operations of regional interest or between states that belong to the same regional framework and are subject in the future to investments. Decentralization within the framework of development contracts of the state and local authorities (Wanas, 2007, p. 53).

2.2.3 The legal system for regional environmental planning in Algeria

It should be noted that the regional planning symposium is in fact of a technical nature only and is a tool for consultation and prediction only. This is due to the absence of a legal organization that governs it and clarifies its organization and workflow. The regional planning system does not bring about a change in the current administrative structure, which only recognizes the legal personality of the municipality and the state at the local level as a basis for exercising authority. Organizational (Wanas, 2007, p. 156).

Discussion

1. Environmental planning components

The planning method in the environmental field seeks to avoid mistakes before they occur and to address mistakes before they occur. Environmental planning as a trend and approach in environmental management is affected by the credibility of the solutions, the clarity of the adopted standards, and their efficiency in creating environmental balance in a way that ensures the prosperity and well-being of the citizen in the present and the future (Damoush, 2010, p. 42). Environmental planning is based on a set of components and pillars that must be available to ensure the effectiveness and success of planning in the mission of protecting the environment, and they can be accomplished as follows:

1.1 Availability of comprehensive and transparent environmental information: Environmental planning depends primarily on the availability of a set of comprehensive and detailed information about the environmental condition of the area or region to be planned and its absorptive capacities, it also requires the availability of data on the available natural resources and the population census of the region in order to plan and develop mechanisms to ensure the sustainable management of these resources and meet the diverse current and future needs of the population without harming the quality of the environment (Mahrez, n.d., p. 185).

1.2 Environmental plan: An environmental planner is a person who has sufficient experience and knowledge in the field of environmental protection and preservation and relies on his experience and knowledge when planning various projects. The environmental planner is characterized by the following features and characteristics (Al-Rumaidi, 2018, p. 267):

- Natural resources are seen as limited and may run out if they are depleted or misused.
- He has a broad scientific background, experience and knowledge as he always seeks to know everything new in the environmental field.
- High environmental awareness and continuous efforts to preserve the environment and reduce waste and pollutants.

1.3 Environmental control: Environmental monitoring is an important tool to ensure that all parties concerned with environmental protection adhere to the conditions included in the plan. It also provides a corrective feedback mechanism through which the plan can be modified and adapted to changes in the internal and external environment (Mahrez, n.d., p. 186).

1.4 Environmental awareness: Continuous monitoring and follow-up represent one of the sources of success for environmental planning, as it contributes to ensuring that all environmental procedures and obligations contained in the plan are implemented and not ignored. Environmental monitoring also contributes to identifying deviations and violations in the implementation of the plan, and then there is the possibility of taking corrective measures that restore the situation to its natural course and ultimately achieve the targeted objectives (Al-Rumaidi, 2018, p. 268).

1.5 Popular participation: It is a charter that recognizes the participation of the masses, dialogue, setting and implementing policies, with the participation of all residents and official bodies, and following the decentralization approach, due to the role of governments and municipal and village councils in preserving the environment (Mahrez, n.d., p. 186).

2. The role of environmental planning in protecting the environment

2.1 Environmental planning principles

Environmental planning can only be carried out if it is based on a set of principles, including:

2.1.2 Prevention principle: Environmental planning is based on preventive rules, considering that environmental matters require rules that regulate them in advance of the occurrence of pollution and the occurrence of damage, considering that the principle of prevention aims primarily to take the necessary measures to avoid potential damages that may be difficult for society to bear their effects, in accordance with the common proverb that prevention is better than cure. The issue of identifying the source of pollution and proving its negative effects on the environment, as well as imagining how to treat it before it causes damage, is essential in the prevention process, as the principle of prevention seeks primarily to achieve two goals, the first of which is related to avoiding damages that may be difficult to remedy after they occur. The second is related to reducing the economic cost of treating environmental pollution.

Given the importance of this principle, it has been enshrined in many international conventions, including the Rio Declaration of Principles on Environment and Development, which is included in Principle 15 (United Nations Economic and Social Council, 1998, p. 13). The Algerian legislator, in turn, adopted the principle of preventive activity and correcting environmental damages with priority at the source, and this is done by using the best available technologies and at an acceptable economic cost (Law No. 03-10 on Environmental Protection, 2003).

2.1.2 The principle of integration and comprehensiveness: Environmental relationships are characterized by the property of interconnection, which makes them affect each other, and any damage to one element affects the other. This is what environmental planning depends on, as the environment is viewed from a perspective of integration and comprehensiveness when implementing various plans so that the environmental plan is comprehensive for all elements of the environment, which ensures optimal protection for it. For example, combating pollution must be comprehensive for all elements of the environment, from air to land. Neglecting any element of it makes the environmental plan useless (Damoush, 2010, p. 47).

2.1.3 Back to nature principle: Human life has become primarily artificial due to the development that has taken place, thus ignoring everything that is natural. Therefore, environmental planning, when preparing its environmental plans, is keen on natural solutions because they are more effective and less expensive (Abdul-Maqsoud, 1982, p. 37). For example, biological resistance i.e., one of the attempts to restore the natural balance to what it was by encouraging and increasing the natural enemies present in the environment, importing them, trying to acclimatize them, then spreading or releasing them with the aim of reducing agricultural pests to a level that is less than critical (Yusuf, 2024). In addition to its effectiveness, it does not pose any danger to living organisms and their surroundings, and it improves soil properties and encourages sustainable agriculture. In addition to its economic cost, unlike synthetic pesticides that have serious environmental effects in addition to their high cost. The principle of environmental impact assessment: Planning as a new approach and concept that builds projects from an environmental perspective and through it the principle of environmental impact assessment is implemented (meaning studying the potential positive and negative impacts of the project on the environment from all its natural, economic and social aspects, and estimating these impacts with expenses, social benefits and environmental impacts as a criterion for choosing between the proposed alternatives (Maleh, 2015, p. 43); by taking into account the environmental load when proposing development projects. So that these projects and their ambitions do not exceed the limits of the load called the critical ecological limit, which is the limit at which development must stop and not exceed it. Thus, we can say that planning can influence all development decisions by choosing its location, level, type and time (Abdul-Maqsoud, 1982, p. 43).

2.1.4 Integration principle: Environmental planning contributes to the consecration of the principle of integration, as the latter requires the integration of arrangements related to environmental protection and sustainable development when preparing and implementing sectoral plans, which is what environmental planning works on, as it is planning governed primarily by the environmental dimension, which makes it an advanced stage in the consecration of this principle.

2.1.5 The principle of self-reliance: Each community has a set of unique characteristics due to its reality and the nature of its environmental resources. Therefore, we find that the success of environmental planning depends on the extent of its ability to link the community to its environment by finding solutions that suit the local environment (Hassouna, 2013, p. 142).

Since foreign solutions do not conform to the local environment. Therefore, environmental plans must be based on local knowledge and expertise to be in line with local specificities. This does not mean not benefiting from foreign expertise, but rather the benefit must be according to the necessity and needs of the local community (Damoush, 2010, p. 43).

2.2 The importance of environmental planning

Environmental planning is an effective mechanism for using environmental resources efficiently and in a thoughtful manner, without affecting or harming the environment. It also has developmental goals that appear in the short, medium and long term. Over time, all countries of the world have concluded that there is no room to achieve sustainable development without effective environmental planning, as it contributes to achieving a balance between development and preserving the environment at the same time (Al-Rumaidi & Talhi, 2018, p. 262). The importance of environmental planning is evident in various fields, whether economic, social or health, which can be explained as follows: The importance of environmental planning is evident in various fields, whether economic, social or health, which can be explained as follows:

2.2.1 Economic aspect: The advancement of the economy inevitably depends on prior studies and statistics through which the broad policy items that countries and institutions will adopt to achieve an ideal economy are drawn. The latter cannot be achieved unless the environmental aspect is taken as a basic element in drawing its lines, as environmental planning contributes to achieving significant economic growth directly or indirectly (Al-Rumaidi & Talhi, 2018, p. 263).

2.2.2 Social aspect: This is evident from the basic principle of environmental planning, which is the optimal exploitation of natural resources, without prejudice to the rights of future generations on the one hand, and between humans and other creatures on the other hand, through preserving natural resources and limiting the manifestations of their depletion and achieving social justice and the principle of equal opportunities through (Hassouna, 2013, p. 23):

- Eliminate poverty in all its forms;
- Working to solve unemployment problems;
- Finding solutions to population growth problems;
- Achieving a tangible balance between population growth and the exploitation of available resources;
- Eliminate the manifestations of chaotic construction and all social ills.

2.2.3 Health aspect: a healthy and clean environment will inevitably have a positive impact on the health of citizens, and this is what environmental planning has brought about, as it contributes to the following (Gadari, 2017, p. 161):

- Good planning of vehicle traffic and the road network in general reduces pollution and noise levels;
- Purifying the air and reducing pollution rates by increasing green spaces in a thoughtful manner in urban areas and working to preserve and expand agricultural areas;
- Isolating industrial areas away from areas witnessing citizen movement and residential areas;
- Safe disposal of waste, recycling, and the spread and transmission of diseases and health deterioration (Gadari, 2017, p. 162).

Conclusion

In conclusion, environmental planning is an indispensable strategic tool to address the growing environmental challenges facing Algeria and the world in general. Despite the efforts made to develop environmental policies aimed at achieving a balance between economic development and environmental protection, there are still gaps that require greater attention. Providing financial and technical resources, increasing community awareness, and developing environmental legislation are all essential elements for the success of any effective environmental plan. Improving cooperation between various government and private sectors, and enhancing the role of civil society in protecting the environment, are necessary steps towards achieving sustainable development. There remains an urgent need to enhance scientific research and adopt technological innovations that contribute to reducing negative impacts on the environment. Through continuous collective efforts, environmental planning can achieve its goals in building a sustainable environmental future that preserves the country's resources for future generations, and ensures a clean and safe environment for all.

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Incentives for Startups under Investment Law No. 18–22 and Public Procurement Law No. 12–23: A Field Study of a Sample of Startups in Algeria

Adel Benaıssa

Abstract. *This study aims to analyze the impact of legal incentives on the performance of startups in Algeria, focusing on the incentives provided for under Investment Law No. 18-22 and Public Procurement Law No. 12-23. The study adopted a descriptive-analytical approach, using a questionnaire as a data collection tool administered to a sample of 65 respondents. The data were analyzed using SPSS 27, relying on the one-sample Student's t-test and multiple linear regression analysis. The results showed that the level of evaluation of the incentives provided under the Investment Law was high, with a mean of 3.91. The results also indicated that the incentives provided under the Public Procurement Law received a high level of agreement, with a mean of 3.73. The results of the Student's t-test confirmed that the arithmetic means were statistically significantly higher than the hypothetical mean of 3. Furthermore, the regression results revealed a positive and statistically significant effect of legal incentives on the performance of startups. The correlation coefficient was $R = 0.955$, while the adjusted coefficient of determination reached Adjusted $R^2 = 0.893$. The study concludes that legal incentives contribute to supporting the growth of startups and improving their performance, while emphasizing the need to enhance the clarity and simplify the procedures to ensure greater benefit from these incentives.*

Keywords: *startups, legal incentives; Investment Law No. 18-22, Public Procurement Law No. 12-23, firm performance, Algeria*

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18–22 nömrəli İnvestisiya qanunu və 12–23 nömrəli Dövlət satınalmaları qanunu çərçivəsində startaplar üçün stimullar: Əlcəzairdəki startap nümunələri üzrə sahə tədqiqatı

Adel Benaissa

Xülasə. *Bu tədqiqat Əlcəzairdə startapların fəaliyyətinə hüquqi stimulların təsirini, xüsusilə 22-18 nömrəli İnvestisiya qanunu və 23-12 nömrəli Dövlət satınalmaları qanunu çərçivəsində nəzərdə tutulan stimullara diqqət yetirməklə araşdırmağı qarşıya məqsəd qoyur. Tədqiqatda təsviri-analitik yanaşmadan istifadə edilmiş və ilkin məlumatlar 65 respondentdən ibarət seçmə qrupuna tətbiq edilmiş sorğu vasitəsilə toplanmışdır. Məlumatların təhlili SPSS 27 proqramı vasitəsilə aparılmış, bir nümunəli Student t-testindən və çoxsaylı xətti reqressiya analizindən istifadə edilmişdir.*

Nəticələr göstərmişdir ki, 22-18 nömrəli İnvestisiya qanunu çərçivəsində təqdim olunan stimullar respondentlər tərəfindən yüksək səviyyədə qiymətləndirilmiş və orta hesabla 3,91 bal təşkil etmişdir. Eyni şəkildə, 23-12 nömrəli Dövlət satınalmaları qanunu çərçivəsində nəzərdə tutulan stimullar da yüksək razılıq səviyyəsi ilə qiymətləndirilmiş və orta hesabla 3,73 bal əldə etmişdir. Bir nümunəli t-testinin nəticələri göstərmişdir ki, müşahidə olunan orta qiymətlər hipotetik 3 orta qiymətindən statistik cəhətdən əhəmiyyətli dərəcədə yüksəkdir. Bundan əlavə, reqressiya təhlili hüquqi stimulların startapların fəaliyyətinə müsbət və statistik cəhətdən əhəmiyyətli təsir göstərdiyini ortaya qoymuşdur. Korrelyasiya əmsalı R = 0,955, düzəldilmiş determinasiya əmsalı isə Adjusted R^2 = 0,893 olmuşdur. Tədqiqatın nəticələrinə əsasən, hüquqi stimullar startapların inkişafının dəstəklənməsində və onların fəaliyyətinin yaxşılaşdırılmasında mühüm rol oynayır. Bununla yanaşı, bu stimullardan daha səmərəli istifadəni təmin etmək məqsədilə hüquqi çərçivənin aydınlığının artırılması və inzibati prosedurların sadələşdirilməsi zəruridir.

***Açar sözlər**: startaplar, hüquqi stimullar, 22-18 nömrəli İnvestisiya qanunu, 23-12 nömrəli Dövlət satınalmaları qanunu, müəssisələrin fəaliyyəti, Əlcəzair*

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Introduction

Given their significant contribution to economic and social development, start-ups and small and medium-sized enterprises (smes) are among the most important actors in promoting innovation, generating employment, supporting entrepreneurship, and enhancing economic growth, creating employment opportunities, diversifying economic activity, promoting innovation, generating added value, enhancing competitiveness, and supporting the transition towards a knowledge-based economy. However, these enterprises, particularly during their establishment and early growth stages, face a number of challenges related to limited financial resources, difficulties in accessing sources of financing, high operating costs, complex administrative procedures, and limited access to markets and public procurement (Hoekman et al., 2020, pp. 383–402). This makes the provision of a supportive legal and institutional environment essential for ensuring their sustainability and improving their performance (Hoekman, 2020, pp. 383–402).

In this context, the algerian legislator has worked to make the legal system stronger.
Governing investment and supporting start-ups and smes through the adoption of a set of legal instruments aimed at improving the business climate and promoting investment and innovation. Among the most important of these instruments is investment law no. 22-18, which introduced a range of incentives and benefits for investment projects with the aim of encouraging the establishment and expansion of enterprises, reducing the burdens faced by investors, and enhancing the attractiveness of the investment environment. Public procurement law no. 23-12 is also of particular importance, as it provides a legal framework for regulating public demand and opens opportunities for start-ups and smes to participate in the implementation of public projects and benefit from the opportunities offered by this market.

The incentives provided under the investment law and the public procurement law are becoming increasingly important as mechanisms that may contribute to improving the performance of start-ups and smes, whether by reducing burdens and costs, facilitating access to financing and markets, promoting innovation, or strengthening competitiveness, sustainability, and growth. accordingly, the effectiveness of these incentives does not depend merely on their existence in legal texts, but rather on the extent to which enterprises benefit from them and on their actual impact on economic, financial, and competitive performance (Khelifi, 2023, pp. 264–278).

Based on this perspective, this study seeks to analyze the nature of the incentives introduced by the algerian legislator for the benefit of start-ups and smes under investment law no. 22-18 and public procurement law no. 23-12. It also aims to examine the extent to which the enterprises under study are aware of and benefit from these incentives, as well as to measure their impact on enterprise performance. To achieve this objective, the study first tests the existence of statistically significant incentives using the one-sample student's t-test, and then analyzes the impact of these incentives on enterprise performance through a linear regression model.

Accordingly, the research problem is centered on the following main question:
To what extent do the incentives provided under investment law no. 22-18 and public procurement law no. 23-12 contribute to improving the performance of start-ups and smes in Algeria?

This main question gives rise to the following sub-questions:
1. To what extent are statistically significant incentives available to start-ups and smes under ınvestment law no. 22-18?
2. To what extent are statistically significant incentives available to start-ups and smes public procurement law no. 23-12?
3. Do the incentives provided under the investment law and the public procurement law have a statistically significant impact on the performance of start-ups and smes?

Research hypotheses
First hypothesis (h1): The incentives provided under investment law no. 22-18 contribute to improving the performance of start-ups and smes, as the arithmetic mean of the respondents' answers exceeds the hypothesized mean of 3.

Second hypothesis (h2): The incentives provided under public procurement law no. 23-12 contribute to improving the performance of start-ups and smes, as the arithmetic mean of the respondents' answers exceeds the hypothesized mean of 3.

Third hypothesis (h3): There is a statistically significant effect of the legal incentives provided under investment law no. 22-18 and public procurement law no. 23-12 on the performance of start-ups and smes.

Significance of the study
The significance of this study stems from the growing role played by start-ups and smes in supporting economic development, creating employment opportunities, promoting innovation, and diversifying the national economy. In this regard, examining the impact of the incentives provided under investment law no. 22-18 and public procurement law no. 23-12 on the performance of start-ups and smes is of both scientific and practical importance, as follows:

- Scientific significance: The study contributes to enriching the academic literature on investment incentives and public procurement and their role in improving the performance of start-ups and smes.
- Legal and economic significance: The importance of the study lies in analyzing the role played by the provisions and incentives introduced under ınvestment law no. 22-18 and public procurement law no. 23-12 in supporting start-ups and smes and strengthening their capacity for growth and continuity.

- Practical significance: The findings of the study help assess the effectiveness of legal incentives from the perspective of the enterprises benefiting from them by comparing the arithmetic means of the respondents' answers with the hypothesized mean of 3.
- Significance for supporting start-ups: The study highlights the extent to which legal incentives can improve the performance of start-ups, enhance their competitiveness, and facilitate their access to investment opportunities and public procurement contracts.
- Significance for policymaking: The findings of the study may assist government authorities and policymakers in evaluating the effectiveness of existing incentives and identifying shortcomings that may hinder start-ups and smes from benefiting from them.
- Practical ımportance: The study provides findings and recommendations that may be used to develop support and incentive mechanisms and improve the legal and institutional environment in which start-ups and smes operate.

Objectives of the study

- To identify the incentives and benefits provided by public procurement law no. 23-12 for small and medium-sized businesses (smes) and start-ups.
- To measure the extent to which the incentives provided under ınvestment law no. 22-18 contribute to improving the performance of start-ups and smes.
- To measure the extent to which the incentives provided under public procurement law no. 23-12 contribute to improving the performance of start-ups and smes.
- To test whether the mean of the respondents’ answers exceeds the hypothesized mean of 3, thereby determining the level at which start-ups and smes evaluate the effectiveness of legal incentives.
- To provide a set of recommendations that may contribute to enhancing the effectiveness of investment incentives and public procurement incentives and improving the performance of start-ups and smes.

Study methodology

The study employed a descriptive-analytical approach to examine the incentives and benefits granted to start-ups and small and medium-sized enterprises (SMEs) under Investment Law No. 22-18 (2022) and Public Procurement Law No. 23-12 (2023), assessing the extent to which these legal incentives contribute to enhancing enterprise performance. Primary field data were collected through a questionnaire based on a five-point Likert scale (Likert, 1932) administered to a sample of start-ups and SMEs. Data were statistically processed using IBM SPSS Statistics (Version 26): descriptive statistics (arithmetic means and standard deviations) were computed, a one-sample t-test was conducted to compare sample means against the hypothesized test value of 3, and multiple linear regression analysis was applied to test the study hypotheses and evaluate the impact of legal incentives on enterprise performance.

Scope and limitations of the study

The scope of this study focuses on examining the impact of the legal incentives provided under Investment Law No. 22-18 (2022) and Public Procurement Law No. 23-12 (2023) on the performance of start-ups and small and medium-sized enterprises.

The human scope includes owners and managers of start-ups in algeria. the geographical scope covers start-ups operating at the national level in Algeria. the time scope extends from february to may, which represents the period during which the field study was conducted, the questionnaire was distributed, and the data were collected and analyzed.

Theoretical framework of investment law no. 22-18 and public procurement law no. 23-12
Theoretical framework of investment law no. 22-18
İnvestment law no. 22-18, dated july 24, 2022, constitutes the legal framework governing investment in algeria. It was enacted with the aim of enhancing the attractiveness of the investment environment and improving the business climate by establishing a set of principles, guarantees, and incentives designed to encourage investors to establish and expand their projects, including start-ups and smes. The law is based on the principles of investment freedom and equality among investors, the simplification of administrative procedures, and the enhancement of transparency. It also provides a set of tax and customs incentives and benefits that contribute to reducing investment costs and improving the competitiveness of enterprises.

Investment law no. 22-18 also attaches particular importance to supporting investment projects through the adoption of incentive schemes aimed at promoting investment in priority sectors and in areas requiring development, in addition to providing legal guarantees for investors and protecting their investments. These incentives are particularly important for start-ups, which are characterized by a high level of innovation and risk, as well as a strong need for financing and support during their establishment and growth stages.

Accordingly, examining the theoretical framework of investment law no. 22-18 makes it possible to understand the nature of the incentives from which start-ups may benefit and to analyze the extent to which these incentives contribute to improving their performance by strengthening their investment and growth capacity, developing innovative products and services, and enhancing their competitiveness in the market.

Ttheoretical framework of public procurement law no. 23-12 public procurement law no. 23-12 constitutes one of the most important legal frameworks governing public procurement in Algeria. İt aims to regulate the various stages of the preparation, award, and execution of public contracts in a manner that ensures transparency, fair competition, and equality among economic operators, while promoting the efficient and rational use of public funds. the law also seeks to improve the efficiency of public expenditure and enhance the effectiveness of public procurement procedures, while procurement opportunities (Belhamri, 2026, pp. 142–157). The provisions of the public procurement law are particularly important for start-ups, as access to public demand represents a significant opportunity to expand their activities, improve their turnover, and strengthen their competitiveness. Through the simplification of certain procedures, the facilitation of start-ups' participation in competition, and the promotion of innovation and new solutions, public procurement can constitute an important mechanism for supporting the growth of these enterprises and improving their performance.

Therefore, examining the theoretical framework of public procurement law no. 23-12 makes it possible to analyze the various principles, procedures, and incentives from which start-ups may benefit and to assess their contribution to improving enterprise performance, sustainability, and competitiveness in the market (Khattab, 2024, pp. 945–954).

Field study
To address the research problem and test the study hypotheses, a sampling approach was adopted by designing and distributing a questionnaire to a sample of start-up owners in Algeria. The sample included start-ups operating in various sectors, particularly services, industry, and technology, and comprised 65 respondents.

After collecting and tabulating the data, they were subjected to statistical analysis using descriptive and analytical methods, employing a set of statistical techniques appropriate to the nature of the study.

These included frequencies, percentages, arithmetic means, standard deviations, correlation coefficients, and regression analysis, with the aim of measuring the nature of the relationships and effects among the study variables. A five-point likert scale was also used to measure respondents' attitudes and opinions regarding the various dimensions of the questionnaire. Based on the results obtained, the study hypotheses were discussed and tested, and their acceptance or rejection was determined, thereby contributing to addressing the research problem and achieving the objectives of the study.

Field study methodology
The sampling method was adopted to collect primary data through a questionnaire. the questionnaire responses were analyzed using the statistical package for the social sciences (spss), version 27.

Methods

The study adopted the descriptive-analytical approach, as it is one of the most appropriate methods for the nature of the subject. this approach makes it possible to describe and analyze the reality of the incentives granted to start-ups in Algeria under the provisions of investment law no. 22-18 and public procurement law no. 23-12, as well as to assess the extent to which the owners of these enterprises perceive the effectiveness of such incentives and their impact on enterprise performance. The approach also makes it possible to move beyond merely presenting the attitudes and opinions of the respondents towards analyzing the nature of the statistical relationships between the study variables and testing the impact of legal incentives on improving the performance of start-ups.

A purposive sample was selected from the study population, consisting of owners and managers of start-ups in algeria, as they are the individuals most closely connected to the subject of the study and best positioned to assess the extent to which they effectively benefit from the incentives and advantages established under investment law no. 22-18, as well as from the opportunities provided by public demand and public procurement mechanisms established under law no. 23-12.

The questionnaire was distributed electronically during the period extending from february to may. The data collection process resulted in 65 valid responses for statistical analysis. These responses constituted the basis of the field analysis, as they reflect the perceptions of the respondents regarding the effectiveness of legal incentives in supporting the activities of start-ups and improving their performance.

The research instrument consisted of a questionnaire designed based on the research problem, the study objectives, and its hypotheses. It was organized into three main dimensions. The first dimension addressed the incentives provided under investment law no. 22-18 as the first dimension of the independent variable, focusing on the extent to which start-ups benefit from investment advantages and facilities. The second dimension addressed the incentives provided under public procurement law no. 23-12 as the second dimension of the independent variable, by measuring the extent to which opportunities to participate in public demand and related facilities contribute to supporting the activities of start-ups. The third dimension was devoted to measuring the performance of start-ups as the dependent variable, through indicators related to growth, improved competitiveness, business development, and enhanced sustainability. The respondents' answers were measured using a five-point likert scale, allowing attitudes and opinions to be transformed into quantitative data suitable for statistical processing and analysis.

To ensure the quality of the collected data, the research instrument was submitted for evaluation by a group of specialized professors and experts in order to verify the clarity of the items and their relevance to the objectives of the study. This constituted the stage of verifying face validity. Pearson's correlation coefficient was also used to assess the internal validity of the questionnaire items, while cronbach's alpha coefficient was used to measure the reliability and internal consistency of the instrument.

İn addition, frequencies and percentages were used to analyze the general characteristics of the respondents, while arithmetic means and standard deviations were used to determine respondents' attitudes and their degree of agreement with the items and dimensions of the study. The arithmetic means were also compared with the hypothesized mean of 3, which represents the neutral value on the five-point likert scale to test the study hypotheses and analyze the nature of the relationships among the study variables, pearson's correlation coefficient was used to determine the direction and strength of the relationship between the incentives provided under investment law no. 22-18 and those provided under public procurement law no. 23-12, on the one hand, and the performance of start-ups, on the other hand.

Multiple linear regression analysis was also employed to test the joint effect of the two independent variables on the dependent variable. this was achieved by analyzing the regression coefficients, the coefficient of determination (r^2), the statistical significance of the model as a whole, and the statistical significance of each regression coefficient. Multiple linear regression can also be used to test the impact of each type of incentive separately. Based on the statistical results obtained, the acceptance or rejection of the study hypotheses was determined, thereby enabling an assessment of the extent to which the incentives provided under investment law no. 22-18 and public procurement law no. 23-12 contribute to improving the performance of start-ups in Algeria.

Study model

A set of statistical tests was initially employed to determine the nature of the data distribution and assess the validity and reliability of the questionnaire. The one-sample student's t-test was used to test the validity of the first and second hypotheses. As for the third hypothesis, the multiple linear regression model was used to measure the impact of the first and second dimensions, representing the independent variables, on the third dimension, representing the dependent variable. The following figure illustrates.

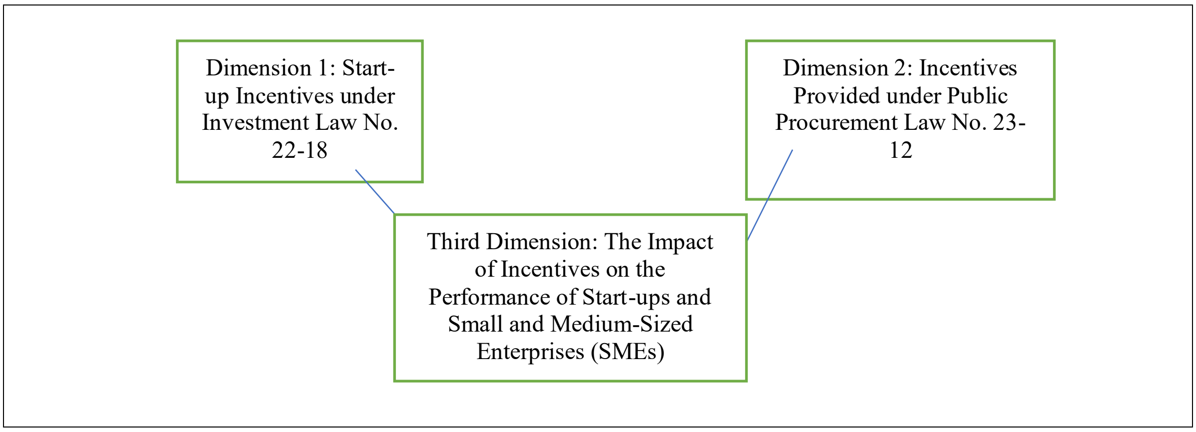

Figure 1

Study model

Source. Prepared by the researcher.

Questionnaire preparation and design

The questionnaire was prepared and designed in accordance with the scientific methods commonly adopted in this field and recognized in the area of economic measurement. This was achieved through the formulation and validation of its items. The first section included the respondents' demographic and organizational characteristics, namely gender, age, the age of the enterprise, the legal nature of the enterprise, educational level, and level of activity. The second section consisted of questions related to the independent variables, namely the first dimension: incentives for start-ups under investment law no. 22-18, and the second dimension: incentives under public procurement law no. 23-12, as well as the dependent variable, namely the impact of incentives on the performance of start-ups and smes. A five-point likert scale was used to measure the respondents' answers to the questionnaire items.

Normality test

Before proceeding with the testing of the study hypotheses, the extent to which the study data followed a normal distribution was examined, given that the fulfillment of this condition constitutes one of the basic assumptions for applying several parametric statistical tests, such as pearson's correlation coefficient and linear regression analysis. for this purpose, the kolmogorov–smirnov test was used, in addition to the shapiro–wilk test**,** where necessary.

The following presents the results of the test used to determine the distribution of the respondents' data in relation to the study variables:

Table 1

Results of the normality distribution test

Questionnaire dimension	Kolmogorov–Smirnov			Shapiro–Wilk			Distribution Type
	Statistical Test Value	Df	Sig.	Statistical Test Value	Df	Sig.	
First Dimension	0.112	61	0.211	0.210	61	0.121	normally distributed
Second Dimension	0.119	61	0.210	0.230	61	0.090	normally distributed
Third dimension	0.111	61	0.212	0.227	61	0.110	normally distributed

Rule: If the sig. value is greater than 0.05 (sig. > 0.05), the respondents' data regarding the content of the questionnaire dimension follow a normal distribution.

Source. Prepared by the researcher based on the outputs of spss version 27.

The results of the normality tests presented in the table indicate that the statistical significance values (sig.) of the kolmogorov–smirnov test were 0.211, 0.210, and 0.212 for the first, second, and third dimensions, respectively. All of these values are greater than the significance level of 0.05. similarly, the results of the shapiro–wilk test showed statistical significance values of 0.121, 0.090, and 0.110, respectively, which are also greater than 0.05. accordingly, the null hypothesis of normal distribution cannot be rejected, indicating that the data relating to the questionnaire dimensions follow a normal distribution. This allows the use of appropriate parametric statistical tests for data analysis and hypothesis testing.

Validity and reliability of the research ınstrument

The reliability of the research instrument was assessed after data collection by calculating cronbach's alpha coefficient**,** which is one of the most widely used measures for determining the degree of internal consistency among the items of a research instrument. Given its high level of accuracy and reliability, it was used to assess the reliability of the questionnaire. The results were as follows:

Table 2
Results of cronbach's alpha reliability test

sample size	cronbach's alpha
65	*0.884*

Source. Prepared by the researcher based on the outputs of the statistical program spss 27.

The results show that the cronbach's alpha coefficient of the questionnaire is 0.884, corresponding to 88.4%, which exceeds the acceptable threshold of 60%. accordingly, the questionnaire is considered reliable and suitable for the purposes of the present study.

Analysis of the results
The study data were analyzed using a set of appropriate statistical methods, in addition to frequency tables and suitable graphical representations to clarify the results obtained.

Analysis of respondents' answers to the questionnaire dimensions
The answers of the research sample regarding the study variables were presented and analyzed in order to determine the respondents' degree of agreement. To achieve this objective, the arithmetic mean and standard deviation were calculated for the questionnaire dimensions, as presented in the following table:

Table 3
Analysis of the research sample's answers by dimension

no.	Items	mean	standard deviation	degree of agreement
First dimension: incentives for start-ups under investment law no. 22-18				
1	Investment Law No. 22-18 Has Provided A Suitable Environment For Establishing Start-Ups.	4.28	0.650	very high
2	Tax Incentives Contribute To Reducing The Financial Burdens Of Start-Ups.	4.00	0.637	high
3	Administrative Procedures Have Become Simpler As A Result Of The Investment Law.	4.18	0.882	very high
4	The Investment Law Contributes To Promoting Innovation And Entrepreneurship.	4.28	0.801	very high
5	The One-Stop-Shop System Facilitates The Investment Process.	4.32	0.651	very high
6	The Incentives Provided Are Sufficient To Support The Growth Of Start-Ups.	3.34	1.326	high
7	There Is Clarity In The Practical Implementation Of The Provisions Of The Investment Law.	3.09	1.234	high
8	The Investment Law Contributes To Attracting New Investors.	3.80	1.148	high
Second Dimension: Incentives Under Public Procurement Law No. 23–12				
9	The Public Procurement Law Provides Real Opportunities For Start-Ups To Participate In Public Procurement Contracts.	4.18	0.610	high
10	Start-Ups Benefit From Certain Facilities Compared With Large Enterprises.	4.05	0.837	high

11	The Qualification Requirements For Public Procurement Contracts Are Appropriate For Start-Ups.	3.98	0.450	high
12	The Public Procurement Law Guarantees The Principle Of Equal Opportunities Among Economic Operators.	3.65	1.071	high
13	The Administrative Procedures For Participatingin Public Procurement Contracts Are Clear.	2.70	1.239	low
14	Public Procurement Contracts Contribute To Developing The Experience Of Start-Ups.	3.48	1.047	very high
15	start-ups do not face difficulties in accessing public procurement contracts.	4.11	0.687	high
16	the public procurement law contributes to supporting the financial growth of enterprises.	3.91	0.701	high
17	the public procurement law provides start-ups with real opportunities to access public demand.	3.91	0.701	high
18	public procurement procedures take into account the specific characteristics of start-ups compared with large enterprises.	3.32	1.324	high
third dimension: the impact of incentives on the performance of start-ups				
19	legal incentives have contributed to improving the financial performance of the enterprise.	4.10	0.569	high
20	legal incentives have helped expand the enterprise's activities.	4.41	0.496	high
21	legal incentives have contributed to increasing the enterprise's competitiveness.	4.00	0.658	high
22	legal incentives have helped create new employment opportunities.	3.90	0.746	high
23	legal incentives have strengthened the enterprise's continuity in the market.	4.10	0.569	high
24	there is consistency between the investment law and the public procurement law.	3.79	0.777	high
25	the current legal incentives provided under the investment law and the public procurement law are sufficient to achieve enterprise sustainability.	3.56	1.177	high
Overall mean and standard deviation		3.85	0.839	high

Source. Prepared by the researcher based on the results of spss version 27.

The results presented in the table show that the overall arithmetic mean was 3.85, with a standard deviation of 0.839, reflecting a high degree of agreement among the respondents with the questionnaire items as a whole. This result indicates a generally positive attitude among start-up owners towards the incentives provided under investment law no. 22-18 and public procurement law no. 23-12, as well as their perception of the role played by these incentives in supporting and improving the performance of their enterprises.

First: Analysis of the first dimension: ıncentives for start-ups under ınvestment law no. 22-18
The results of the first dimension revealed that the respondents held a positive attitude towards most of the incentives provided under investment law no. 22-18. item (5), “the one-stop-shop system facilitates the investment process”, ranked first, with an arithmetic mean of 4.32 and a standard deviation of 0.651, reflecting a very high degree of agreement. This indicates that the one-stop-shop system is perceived as an effective mechanism for simplifying procedures and reducing the complexities associated with the investment process.

Items (1) and (4) recorded an arithmetic mean of 4.28. the respondents indicated that the investment law has provided a suitable environment for establishing start-ups and has contributed to promoting innovation and entrepreneurship. this result highlights the importance of the legal investment framework in creating appropriate conditions for enterprise establishment and encouraging innovative initiatives.

Item (3), relating to the simplification of administrative procedures, recorded a mean of 4.18, while the mean for tax incentives reached 4.00, reflecting the respondents’ agreement that such incentives contribute to reducing the financial burdens faced by start-ups. The item relating to the contribution of the investment law to attracting new investors recorded an arithmetic mean of 3.80, indicating a positive assessment of the role of the law in enhancing investment attractiveness. in contrast, item (7), relating to the clarity of the practical implementation of the law’s provisions, recorded the lowest arithmetic mean in this dimension, at 3.09, followed by item (6), relating to the sufficiency of incentives to support enterprise growth, with a mean of 3.34. These findings reveal certain reservations among the respondents regarding the practical implementation of the law and the adequacy of the available incentives, despite the overall positive trend.

Second: Analysis of the second dimension: ıncentives under public procurement law no. 23-12
The results of the second dimension indicate a generally positive attitude towards the incentives and opportunities provided by the public procurement law for start-ups. item (9), relating to the provision of real opportunities for start-ups to participate in public procurement contracts, recorded an arithmetic mean of 4.18, reflecting the respondents’ recognition of the importance of public procurement as a means of supporting start-up activities and expanding their market opportunities. Item (15), “start-ups do not face difficulties in accessing public procurement contracts,” recorded a mean of 4.11, indicating a positive attitude among the respondents towards access to public demand. the item relating to the existence of facilities for start-ups compared with large enterprises recorded a mean of 4.05, while the mean relating to the appropriateness of qualification requirements reached 3.98.

Items (16) and (17) each recorded an arithmetic mean of 3.91, reflecting the contribution of the public procurement law to supporting enterprise financial growth and providing real opportunities to access public demand. the item relating to equal opportunities recorded a mean of 3.65, indicating a relatively positive assessment of the principle of competition among economic operators.

In contrast, item (13), relating to the clarity of administrative procedures for participating in public procurement contracts, recorded the lowest arithmetic mean in this dimension, at 2.70, reflecting a low degree of agreement and indicating that administrative procedures remain one of the major obstacles facing start-ups. item (18), relating to the consideration of the specific characteristics of start-ups, recorded a mean of 3.32, indicating that this aspect requires further improvement and development.

As for item (14), relating to the contribution of public procurement contracts to developing the experience of start-ups, it recorded an arithmetic mean of 3.48. it should be noted that classifying this value as a "very high degree" is inconsistent with the reported arithmetic mean; therefore, the scale used to interpret the means in the study should be reviewed.

Third: Analysis of the third dimension: the ımpact of legal ıncentives on the performance of start-ups
The results of the third dimension revealed a clear positive attitude towards the impact of legal incentives on the performance of start-ups. item (20), "legal incentives have helped expand the enterprise’s activities", ranked first across the entire questionnaire, with an arithmetic mean of 4.41 and a standard deviation of 0.496, reflecting a very high degree of agreement that legal incentives contribute to expanding the activities of start-ups.

Items (19) and (23) recorded a mean of 4.10, indicating that legal incentives contribute to improving financial performance and strengthening enterprise continuity in the market. The arithmetic mean of the item relating to increased competitiveness reached 4.00, while the mean of the item relating to the creation of new employment opportunities reached 3.90.

Item (24), relating to the existence of consistency between the investment law and the public procurement law, recorded a mean of 3.79, indicating a high degree of agreement regarding the existence of a relative degree of integration between the two legal frameworks. meanwhile, item (25), relating to the sufficiency of legal incentives for achieving sustainability, recorded the lowest mean in this dimension, at 3.56. This suggests that the respondents believe that legal incentives contribute to improving enterprise performance, but may not, on their own, be sufficient to achieve long-term sustainability.

Testing the research hypotheses
Before testing the research hypotheses, the assumptions required for the application of the relevant statistical tests were examined. the first and second hypotheses were tested using the student’s t-test. in addition, the extent to which the study data met the assumptions required for applying linear regression analysis was assessed, beginning with the normality test. the independence of the residuals was also examined using the durbin–watson test.

Testing the first hypothesis
First hypothesis (h1): the incentives provided under investment law no. 22-18 contribute to İmproving the performance of start-ups and smes, as the arithmetic mean of the respondents’ answers exceeds the hypothesized mean of 3.

Accordingly, the null and alternative hypotheses can be formulated as follows:
h_0: the incentives provided under investment law no. 22-18 do not contribute to improving the performance of start-ups and smes, and the arithmetic mean of the respondents’ answers does not significantly exceed the hypothesized mean of 3.
h_1: the incentives provided under investment law no. 22-18 contribute to improving the performance of start-ups and smes, and the arithmetic mean of the respondents’ answers significantly exceeds the hypothesized mean of 3.

To test the first hypothesis, which states that the incentives provided under investment law no. 22-18 contribute to improving the performance of start-ups and smes, the one-sample student’s t-test was employed. this test aims to determine whether the arithmetic mean of the respondents’ answers to the items of the first dimension differs significantly from the neutral value of the five-point likert scale, namely 3**.** The purpose of using this test is to determine whether the respondents’ degree of agreement regarding the contribution of the incentives provided under investment law no. 22–18 to improving the performance of start-ups and smes is statistically significant.

The statistical decision is based on the sig. (2-tailed) value. if the significance value is less than 0.05, the null hypothesis is rejected and the alternative hypothesis is accepted. if the significance value is greater than 0.05, the null hypothesis is not rejected.

Table 6
Results of testing the first hypothesis

Dimension	arithmetic mean	t-value	degrees of freedom (df)	Sig.(2-tailed)	decision
Incentives under investment law no. 22–18 contribute to improving the performance of start-ups and smes, as the arithmetic mean of the respondents' answers exceeds the hypothesized mean (3).	3.91	12.70	64	0.000	rejection of the null hypothesis

Source. Prepared by the researcher based on the outputs of spss 27.

To test the first hypothesis, which states that "the incentives provided under ınvestment law no. 22-18 contribute to improving the performance of start-ups and smes, as the arithmetic mean of the respondents' answers exceeds the hypothesized mean of 3", the one-sample student's t-test was employed to determine whether there was a statistically significant difference between the arithmetic mean of the respondents' answers regarding the incentives provided under ınvestment law no. 22-18 and the hypothesized mean of the five-point likert scale, which is equal to 3. The arithmetic mean of the dimension relating to ınvestment law incentives reached 3.91, which is higher than the hypothesized mean. The t-test value was 12.70 with 64 degrees of freedom, while the sig. (2-tailed) value was 0.000, which is lower than the adopted significance level of 0.05. accordingly, the null hypothesis stating that the arithmetic mean does not exceed the hypothesized mean is rejected and the alternative hypothesis is accepted. This indicates the existence of a statistically significant difference between the arithmetic mean and the hypothesized mean in favor of the higher arithmetic mean. therefore, the results confirm that the incentives provided under ınvestment law no. 22-18 contribute, in a statistically significant manner, to improving the performance of start-ups and smes. Accordingly, the first hypothesis of the study is accepted.

Testing the second hypothesis
Second hypothesis (h2): The incentives provided under public procurement law no. 23-12 contribute to improving the performance of start-ups and smes, as the arithmetic mean of the respondents' answers exceeds the hypothesized mean of 3.

Accordingly, the null and alternative hypotheses are formulated as follows:
h_0: The incentives provided under public procurement law no. 23-12 do not contribute to improving the performance of start-ups and smes, and the arithmetic mean of the respondents' answers does not significantly exceed the hypothesized mean of 3.

h_1: The incentives provided under public procurement law no. 23-12 contribute to improving the performance of start-ups and smes, and the arithmetic mean of the respondents' answers significantly exceeds the hypothesized mean of 3.

To test the second hypothesis, which states that the incentives provided under public procurement law no. 23-12 contribute to improving the performance of start-ups and smes, the one-sample student's t-test was employed. This test aims to determine whether the arithmetic mean of the respondents' answers to the items of the second dimension differs significantly from the neutral value of the five-point likert scale, namely 3. The statistical decision is based on the sig. (2-tailed) value. If the significance value is less than 0.05, the null hypothesis is rejected and the alternative hypothesis is accepted. If the significance value is greater than 0.05, the null hypothesis is not rejected.

Table 7
Results of testing the second hypothesis

Dimension	arithmetic mean	t-value	degrees of freedom (df)	sig. (2-tailed)	decision
Incentives under public procurement law no. 23-12 contribute to improving the performance of start-ups and smes, as the arithmetic mean of the respondents' answers exceeds the hypothesized mean (3).	3.73	13.58	64	0.000	rejection of the null hypothesis

Source. Prepared by the researcher based on the outputs of spss 27.

To test the second hypothesis, which states that "the incentives provided under public procurement law no. 23-12 contribute to improving the performance of start-ups and smes, as the arithmetic mean of the respondents' answers exceeds the hypothesized mean of 3", the one-sample student's t-test was employed to determine whether there was a statistically significant difference between the arithmetic mean of the respondents' answers regarding the incentives provided under public procurement law no. 23-12 and the hypothesized mean of the five-point likert scale, which is equal to 3. The arithmetic mean of the dimension relating to public procurement law incentives reached 3.73, which is higher than the hypothesized mean. The t-test value was 13.58 with 64 degrees of freedom, while the sig. (2-tailed) value was 0.000, which is lower than the adopted significance level of 0.05. Accordingly, the null hypothesis stating that the arithmetic mean does not exceed the hypothesized mean is rejected and the alternative hypothesis is accepted. This indicates the existence of a statistically significant difference between the arithmetic mean and the hypothesized mean in favor of the higher arithmetic mean. Therefore, the results confirm that the incentives provided under public procurement law no. 23-12 contribute, in a statistically significant manner, to improving the performance of start-ups and smes. Accordingly, the second hypothesis of the study is accepted.

Results of testing the third hypothesis
Third hypothesis (h3): There is a statistically significant effect of legal incentives provided under ınvestment law no. 22-18 and public procurement law no. 23-12 on the performance of start-ups.

Accordingly, the null and alternative hypotheses are formulated as follows:
h_0: There is no statistically significant effect of the legal incentives provided under ınvestment law no. 22-18 and public procurement law no. 23–12 on the performance of start-ups.
h_1: There is a statistically significant effect of the legal incentives provided under ınvestment law no. 22-18 and public procurement law no. 23-12 on the performance of start-ups.
Multiple linear regression analysis was employed to determine the extent to which the legal incentives provided under ınvestment law no. 22-18 and public procurement law no. 23-12 affect the performance of start-ups.

Table 8
Results of the multiple linear regression analysis for the third hypothesis model summary

r	adjusted r²	standard error of the estimate	f-value	degrees of freedom	p-value
0.955	0.893	0.15	258.29	64	0.000

Model coefficients

Independent Variable	constant	b coefficient	standard error	standardized beta (β)	t-value	sig.
incentives under investment law no. 22-18	0.125	0.180	0.040	0.226	4.515	0.001
incentives under public procurement law no. 23-12		0.845	0.050	0.800	15.990	0.010

Source. Prepared by the researcher based on the outputs of spss 27.

To test the third hypothesis, which states that "there is a statistically significant effect of legal incentives, represented by the incentives provided under ınvestment law no. 22-18 and public procurement law no. 23–12, on the performance of start-ups", multiple linear regression analysis was employed to measure the contribution of both ınvestment law incentives and public procurement law incentives to explaining variations in start-up performance. The results revealed a very strong correlation between the independent variables and the dependent variable, with a correlation coefficient of $r = 0.955$. The adjusted coefficient of determination reached adjusted $r^2 = 0.893$, indicating that the legal incentives explain 89.3% of the variations in start-up performance. The results of the overall significance test of the model showed that the f-value was 258.29, with a significance level of $p = 0.000$, which is lower than the adopted significance level of 0.05. This confirms the statistical significance of the regression model as a whole. Regarding the individual effects of the independent variables, the incentives provided under ınvestment law no. 22-18 were found to have a positive and statistically significant effect on start-up performance, with a standardized beta coefficient of $\beta = 0.226$ and a significance value of sig. = 0.001. Similarly, the incentives provided under public procurement law no. 23-12 were found to have a positive and statistically significant effect, with a standardized beta coefficient of $\beta = 0.800$ and a significance value of sig. = 0.010. Based on these results, the null hypothesis is rejected and the alternative hypothesis is accepted, confirming the existence of a statistically significant effect of legal incentives on start-up performance. The results also indicate that incentives under public procurement law no. 23-12 make a relatively greater contribution to explaining start-up performance compared with incentives under ınvestment law no. 22-18.

Conclusion

This study concludes that the legal incentives established by the algerian legislator through ınvestment law no. 22-18 and public procurement law no. 23-12 constitute an important mechanism for supporting start-ups and smes and enhancing their ability to grow and remain in the market. The empirical results showed that the respondents evaluated the incentives provided under the ınvestment law at a high level, while the incentives provided under the public procurement law also received a high level of agreement, reflecting a positive perception of the importance of these incentives in creating a supportive environment for start-ups. The results of the student’s t-test further confirmed that the arithmetic means of the two study dimensions were significantly higher than the hypothesized mean of 3, confirming the contribution of both ınvestment law incentives and public procurement law incentives to improving start-up performance. The multiple linear regression analysis demonstrated a positive and statistically significant effect of legal incentives on start-up performance, with the independent variables explaining a high proportion of the variations in performance. The results also showed that the incentives provided under the public procurement law had a relatively greater effect than those provided under the ınvestment law, highlighting the importance of enabling start-ups to access public demand and benefit from the opportunities available in the field of public procurement. Nevertheless, the findings revealed certain challenges related to the clarity of procedures and the practical implementation of incentives, which calls for continued legal and administrative reform efforts, the simplification of procedures, and enhanced coordination among the various relevant authorities. Accordingly, the effectiveness of legal incentives depends not only on the existence of legal provisions but also on their clarity, ease of implementation, and the ability of start-ups to benefit from them effectively, thereby contributing to the promotion of innovation, strengthening competitiveness, and achieving growth and sustainability.

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The Impact of Financial Sustainability on the Environmental Dimension of Sustainable Development: An Econometric Study Using Panel Data Models for Algeria and Selected Arab Countries (2004–2022)

Asma Aribi

Abstract. *This study aims to assess the impact of fiscal sustainability on the environmental dimension of sustainable development in Algeria and a selected group of Arab countries over the period 2004–2022. To analyze the dynamic relationships among the variables, the study employs panel-data econometric models, particularly the Panel ARDL model. To identify the characteristics of the data and select the appropriate model, a series of preliminary econometric tests were conducted. The results revealed the existence of a long-run relationship and cointegration among the study variables. Furthermore, fiscal sustainability was found to have a significant impact on the environmental dimension of sustainable development. The nature of this impact varied between the short and long run, as well as across the countries under investigation. The findings highlight the importance of directing financial resources toward green investments, renewable energy, and environmental protection. The study recommends the implementation of integrated fiscal and environmental policies to ensure a balance between fiscal sustainability and sustainable development.*

Keywords: *fiscal sustainability, sustainable development, environmental dimension, panel data, Panel ARDL model, Algeria, arab countries*

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Maliyyə dayanıqlılığının davamlı inkişafın ətraf mühit ölçüsünə təsiri: Əlcəzair və seçilmiş ərəb ölkələri üçün Panel məlumat modellərindən istifadə edilmiş ekonometrik tədqiqat (2004–2022)

Asma Aribi

Xülasə. *Bu tədqiqatın məqsədi 2004–2022-ci illər ərzində Əlcəzair və seçilmiş ərəb ölkələrində maliyyə dayanıqlığının davamlı inkişafın ekoloji aspektinə təsirini qiymətləndirməkdir. Tədqiqatda dəyişənlər arasındakı dinamik əlaqələri təhlil etmək üçün panel məlumatları ekonometrik modellərindən, xüsusilə Panel ARDL modelindən istifadə edilmişdir. Məlumatların xüsusiyyətlərini müəyyən etmək və uyğun modeli seçmək məqsədilə bir sıra ilkin ekonometrik testlər aparılmışdır. Nəticələr tədqiqat dəyişənləri arasında uzunmüddətli əlaqənin mövcudluğunu və kointeqrasiyanın olduğunu göstərmişdir.*

Həmçinin, maliyyə dayanıqlığının davamlı inkişafın ekoloji aspektinə əhəmiyyətli təsir göstərdiyi müəyyən edilmişdir. Bu təsirin xarakteri qısa və uzunmüddətli dövrlər, eləcə də tədqiq olunan ölkələr arasında fərqlənmişdir. Nəticələr maliyyə resurslarının yaşıl investisiyalara, bərpa olunan enerjiyə və ətraf mühitin mühafizəsinə yönəldilməsinin vacibliyini göstərir. Tədqiqat maliyyə dayanıqlığı ilə davamlı inkişaf arasında tarazlığın təmin edilməsi üçün inteqrasiya olunmuş maliyyə və ekoloji siyasətlərin həyata keçirilməsini tövsiyə edir.

Açar sözlər: *maliyyə dayanıqlığı, davamlı inkişaf, ekoloji aspect, panel məlumatları, Panel ARDL modeli, Əlcəzair, ərəb ölkələri*

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Introduction

Financial sustainability has become one of the fundamental pillars for achieving sustainable development, given its crucial role in enhancing governments' ability to manage financial resources efficiently, ensuring the sustainability of public finances, and maintaining a balance between revenues and expenditures while maintaining the rights of forthcoming generations (Abdelhadi, 2017). The notion of finance sustainability is no longer confined to preserving the stability of financial and economic indicators; instead, it has evolved into a broader concept encompassing the economic, societal, and ecological facets of sustainable development, particularly amid escalating global environmental Obstacles including climate change, rising greenhouse gas emissions, and the exhaustion of natural resources.

Sustainable development incorporates an environmental dimension that seeks to safeguard the environment while ensuring the responsible and sustainable utilization of natural resources. resources, and pollution reduction to ensure the sustainability of ecosystems and promote development for both present and future generations. In this context, sustainable fiscal policies have emerged as a vital instrument for supporting the transition toward a green economy by directing public expenditure toward environmental projects, promoting investment in renewable energy, developing sustainable infrastructure, and adopting fiscal and tax policies that encourage carbon emission reductions and improve resource-use efficiency.

Algeria, like many Arab countries, faces increasing challenges in balancing the requirements of financial sustainability with environmental protection. These challenges are largely driven by heavy dependence on oil revenues, fluctuations in energy prices, rising public debt levels, and growing pressure on public budgets. Consequently, these factors have affected governments' ability to finance environmental policies and implement programs aimed at achieving the Sustainable Development Goals (SDGs). This situation highlights the need to assess the link between financial sustainability and Sustainable development's environmental component, as well as the extent to which sound public financial management can mitigate environmental degradation and promote sustainable economic growth.

In recent years, the relationship between financial sustainability and the environment has attracted growing attention in the economic literature. Numerous studies have found that fiscal discipline, improvements in the structure of public revenues, rationalization of government expenditure, and efficient public debt management can contribute to enhancing environmental quality and reducing carbon dioxide (CO_2) emissions. Conversely, other studies suggest that weak financial sustainability may lead to reduced spending on environmental protection and delays in environmental investments, thereby exacerbating environmental problems and hindering.

In light of this, the current study is to investigate how financial sustainability affects in Algeria and a few other Arab nations between 2004 and 2022. Panel data models are used in the this study investigates the dynamic relationships he interactions among the variables over time and across nations, identify both short-term and long-term effects, and provide empirical evidence to support policy recommendations for promoting environmental policies, bolstering financial sustainability, and advancing the attainment of sustainable development goals (SDGs).

Research Problem

Fiscal sustainability has become one of the fundamental pillars for ensuring macroeconomic stability and promoting sustainable development. It reflects the ability of governments to manage public resources efficiently, maintain the sustainability of public finances, and fulfill their current and future financial obligations without compromising the economic and financial. Concurrently, the environmental dimension of sustainable development represents one of the most pressing contemporary challenges, particularly in light of the increasing emissions of greenhouse gases, Natural resource depletion, and the growing consequences of climate change and environmental degradation.

Algeria and several Arab countries face interconnected challenges in this regard. Many of these economies remain, to varying degrees, dependent on oil revenues and are therefore vulnerable to fluctuations in energy prices. In addition, increasing pressures on public finances and rising government expenditure requirements may constrain the ability of governments to finance environmental policies and green investments. Consequently, fiscal sustainability should not be viewed solely as an economic and financial objective; it may also constitute an important factor influencing countries' capacity to put into practice environmental policies and advance sustainable development.

Despite the growing significance of the interrelationship between fiscal sustainability and environmental performance, the nature of this relationship remains insufficiently explored, particularly in the context of Algeria and selected Arab countries. This is especially relevant given the differences among these countries in terms of their economic structures, dependence on natural resources, fiscal conditions, and environmental and institutional policies. Accordingly, examining the extent to which fiscal sustainability can support the transition toward a more environmentally sustainable development pathway is of considerable academic and policy relevance.

In light of the foregoing, this study aims to examine the following central research question:
What is the impact of fiscal sustainability on the environmental dimension of sustainable development in Algeria and selected Arab countries during the period 2004–2022?

Research Hypotheses

Main Hypothesis

A statistically meaningful correlation exists between fiscal sustainability and the environmental dimension of sustainable development in Algeria and selected Arab countries during the period 2004–2022.

Sub-Hypotheses

- There is a long-term equilibrium relationship between fiscal sustainability and the environmental dimension of sustainable development in Algeria and selected Arab countries during the period 2004–2022.
- Fiscal sustainability has a statistically significant effect on the environmental dimension of sustainable development in both the short run and the long run in Algeria and selected Arab countries during the period 2004–2022.

Importance of the Study

The significance of this study stems from both its scientific and practical dimensions, as follows:

- Enriching the economic literature on the relationship between fiscal sustainability and the environmental dimension of sustainable development, particularly in Arab countries.
- Clarifying the role of fiscal sustainability in improving environmental performance and reducing pollution.
- Providing econometric evidence based on panel data models to analyze the relationship between the study variables.
- Supporting policymakers in designing fiscal policies that take environmental sustainability requirements into account.

Study Objectives:

- Analyze the impact of fiscal sustainability on the environmental dimension of sustainable development in Algeria and selected Arab countries.
- Examine the existence of a long-run equilibrium relationship between the study variables.
- Analyze the nature of the relationship in both the short run and the long run using the Panel ARDL model.
- Provide practical recommendations that contribute to strengthening fiscal sustainability and improving environmental performance in the countries under study.

Methods

- This study adopts a quantitative research methodology to analyze the impact of fiscal sustainability on the environmental dimension of sustainable development in Algeria and a selected group of Arab countries over the period 2004–2022. This approach is appropriate for the nature of the study, as it relies on annual quantitative data that can be measured and analyzed using statistical and econometric techniques. This enables the research hypotheses to be tested objectively and allows the nature, direction.
- Within this framework, the study employs a panel data methodology, which combines the time dimension with the cross-sectional dimension of the countries under investigation. This methodology makes it possible to analyze the evolution of the variables over time while accounting for differences across countries. It also takes advantage of the variation across both the time and cross-sectional dimensions, provides a larger number of observations, and allows for controlling certain unobserved country-specific characteristics. Consequently, it contributes to improving the efficiency of econometric estimates and enhancing the reliability of the empirical findings.

The Right Model for the Research Data

This study relies on time-series cross-sectional data, commonly referred to as panel data. Panel data are characterized by two main dimensions: a time dimension, represented by the number of years covered by the study and generally denoted by T, and a cross-sectional dimension, represented by the group of countries included in the study and generally denoted by N.

The study is based on the development of an econometric model incorporating a set of carefully selected variables. Fiscal sustainability serves as the independent variable and is measured using several indicators, namely the ratio of total public debt to gross domestic product (DEGD), the ratio of the fiscal surplus or deficit to gross domestic product (SUGD), the tax gap (TAG), the ratio of oil revenues to total government revenues (OIPR), and the ratio of total government revenues to total government expenditures (PUPU).

The dependent variable captures the environmental dimension of sustainable development and is measured by per capita carbon dioxide emissions (APCO2). The study covers a sample of eight Arab countries: Iraq, Algeria, the United Arab Emirates, Saudi Arabia, Qatar, Oman, Bahrain, and Kuwait. The panel comprises $N = 8$ countries observed over the period 2004–2022, corresponding to $T = 19$ years, subject to data availability. Accordingly, the theoretical number of observations is calculated as $N \times T = 8 \times 19 = 152$ observations.

The empirical analysis initially employs static panel-data models, followed by the estimation of short-run and long-run relationships using dynamic panel-data techniques. To identify the econometric specification most appropriate for the characteristics of the sample, the analysis begins by examining the dependent variable, namely the environmental dimension of sustainable development, as proxied by per capita carbon dioxide emissions (APCO2).

In the first stage, the three basic static panel data models will be estimated:
These models will subsequently be compared using a set of appropriate statistical tests. First, the presence of individual effects among the cross-sectional units in the study sample will be examined using the Hsiao (1986) test based on the Fisher statistic. The null hypothesis assumes that the fully homogeneous model is the most appropriate specification, indicating the absence of individual effects across the cross-sectional units.

Once the appropriate specification among the static panel data models has been identified, the analysis will proceed to estimate the dynamic relationships among the study variables. This approach will enable the investigation of the nature and magnitude of these relationships in both the short run and the long run through the application of appropriate dynamic panel data models.

The econometric model is specified based on the theoretical foundations of economics and the findings of previous empirical studies, taking into account the research hypotheses and explanatory variables identified in the relevant literature. This approach aims to establish and empirically examine the functional relationship between the dependent variable and its explanatory factors. Accordingly, the present study investigates the impact of fiscal sustainability on the environmental dimension of sustainable development through an econometric analysis using panel data models for Algeria and a selected group of Arab countries over the period 2004–2022.

Hsiao (1986) Homogeneity Test
This test evaluates whether the parameters of the estimated model remain homogeneous across the cross-sectional units, based on a sample containing T time observations for N individual units. The underlying model is specified by the following linear relationship:

(1) $$y_{it} = \alpha_i + \beta_i X_{it} + \varepsilon_{it}$$

- The error term ε_{it} is assumed to be independently and identically distributed, with a zero expected value and a variance of σ_i^2. Furthermore, the model parameters α_i and β_i are allowed to vary across cross-sectional units while remaining invariant over time. Accordingly, the model specified by the preceding equation can be formulated under several alternative specifications, as presented below:
- Homogeneous intercepts α_i and identical parameter vectors β_i, such that $\alpha_i = \alpha$ and $\beta_i = \beta$ for all i $\in [1, N]$. In this case, the panel is considered homogeneous.
- Different intercepts α_i and different parameter vectors β_i across individuals. In this case, there are N different models, and the homogeneous specification is rejected.
- Identical intercepts α_i and different parameter vectors β_i across individuals, such that $\alpha_i = \alpha$ for all i $\in [1, N]$. In this case, all model parameters, except the intercepts, differ across the individual units. Consequently, N different models are obtained.
- Different intercepts α_i and identical parameter vectors β_i across the individual units, such that $\beta_i = \beta$ for all i $\in [1, N]$. In this case, the specification corresponds to an individual-effects model.

From an economic perspective, selecting the appropriate specification makes it possible to determine whether the theoretical model under investigation is homogeneous across all sample units or, conversely, whether each individual unit possesses distinct characteristics and specific features.

Table 1
Results of the hsiao (1986) jomogeneity test

Hypotheses	F-Statistic	P-Value
H1	271.8179	0,00
H2	10.42321	0,00
H3	468.1020	0,00

Source. Author's elaboration based on the empirical results generated using Eviews.

The outcomes of the Hsiao (1986) homogeneity test, reported in the table, indicate that the p-value of the F1 statistic is 0.000, which is lower than the 5% significance threshold. Consequently, the null hypothesis (H_0) is rejected in favor of the alternative hypothesis (H_1), suggesting the existence of significant individual effects across the countries comprising the study sample.

The same conclusion applies to the F2 and F3 statistics, whose p-values are both equal to 0.000 and therefore statistically significant at the 5% level. Accordingly, the associated null hypotheses are rejected, providing further evidence of cross-sectional heterogeneity and confirming that the countries under investigation possess distinct individual characteristics that must be considered in the econometric estimation.

Taken together, these findings indicate that the panel units are not homogeneous and that significant individual effects are present across the countries. Therefore, the empirical analysis should account for unobserved country-specific heterogeneity. Nevertheless, the choice of the most suitable panel-data model requires further specification testing, particularly through the Hausman test, to determine the appropriate estimation framework.

Determining the Study Model
Drawing on the results of the panel data econometric analysis, the following model was specified to examine the determinants of per capita carbon dioxide emissions (APCO2):

$$\mathrm{APCO2} = \mathrm{a} + \beta 1\mathrm{DEGD}_{i,t} + \beta 2\mathrm{SUGD}_{i,t} + \beta 3\mathrm{TAG}_{i,t} + \beta 4\mathrm{OIPR}_{i,t} + \beta 5\mathrm{PUPU}_{i,t} + \mu_i + Y_t\text{?} + \mathcal{E}_{i,t}$$

where:

- APCO2: Per capita carbon dioxide emissions.
- DEGD: Total public debt-to-GDP ratio.
- SUGD: Fiscal surplus or deficit-to-GDP ratio.
- TAG: Tax gap.
- OIPR: Oil revenue-to-total government revenue ratio.
- PUPU: Total government revenue-to-total government expenditure ratio.
- α: Overall intercept parameter of the model.
- β_i: Coefficients of the explanatory variables.
- μ_i: Unobserved cross-sectional effects or differences
- γ_t: Unobserved time effects and differences common to the countries included in the study that vary over time.
- ε_{it}: Random error term.

The model specification appropriate to the characteristics of the sample data depends on how individual effects or unobserved heterogeneity are treated.

The above equation is estimated using the least squares method. Given the panel structure of the study data, three static panel data models can be distinguished. The first two models are estimated using the Ordinary Least Squares (OLS) method, whereas the third model is estimated using the Generalized Least Squares (GLS) method. These models are subsequently compared to determine the most appropriate model for the study data. appropriate specification for the study data (Beiling, 2023).

Table 2

Estimation of the Appropriate model for the study sample data

Per Capita Carbon Dioxide (CO_2) Emissions (ACPO2)			
Time period: 2004–2022; N = 05; T = 34; Number of observations: N × T = 170.			
(REM)	(FEM)	Pooled Model	Explanatory Variables
-0.0009	0.00009	0.004	DEGD
(0.00)	(0.13)	(0.14)	
0.01	0.01	0.21	SUGD
(0.59)	(0.64)	(0,01)	
-0.004	-0.004	-0.02	TAG
(0.42)	(0.44)	(0.22)	
0.07	0.07	-0.15	OIPR
(0.00)	(0.00)	(0.00)	
0.04	0.04	-0.85	PUPU
(0.87)	(0.85)	(0.45)	
12.01	11.82	31.13	C
(0.00)	(0.00)	(0.00)	
0.15	0.95	0.07	R-squared
2.03	2.22	10.42	S.E.of regression
5.20	277.25	2.50	F-statistic
0.00	0.00	0.03	Prob (F-statistic)

Source. Author’s elaboration based on the outputs of EViews 13.

Represents the calculated statistic for the parameter estimates in the Student's t-test
Comparison between the Three Estimated Models:
We initially determine whether or not individual effects exist within the study sample data. For this purpose, we use a *Fisher-type test,* whose null hypothesis assumes that the pooled model is appropriate, that is, there are no individual effects among the units in the studied sample. The statistic of this test is expressed as follows:

- H_0: The pooled regression model is the appropriate model.
- H_1: The fixed-effects or random-effects model is appropriate.

$$F_1 = \frac{(\mathrm{R2MNC} - \mathrm{R2MC}) \big/ (\mathrm{N} - 1)}{1 - \mathrm{R2MNC} \big/ (\mathrm{N} \times \mathrm{T} - \mathrm{n} - \mathrm{k})}$$

Where:
- N: Represents the number of cross-sectional units (in our case, 08 countries**).**
- T: Represents the length of the time series considered in the study (in our case, 19 years**).**
- K: Represents the number of exogenous variables in the model; in our case, there are *five independent variables.*
- R^2FEM: Represents the coefficient of determination under the null hypothesis. In this case, it refers to the model without individual effects, i.e., the pooled homogeneity model (R^2FEM = 0.07).
- R^2PRM: Represents the coefficient of determination of the unrestricted model under the alternative hypothesis. In this case, it refers to the fixed-effects model (R^2PRM = 0.95).

Applying the Fisher formula gives a calculated Fisher statistic of Fc = 333.33**,** while the tabulated Fisher statistic is Ftab (5, 152) = 3.04. Accordingly, the null hypothesis is rejected at the 5% significance level (Gallo & Carfora, 2024), indicating the existence of individual effects within the sample data.

2.4 test for Determining the Type of Effects:
Hausman Test:
After conducting the Fisher test, which confirmed the existence of individual effects, the type of effects is determined using the Hausman test, o choose between the fixed-effects model and the random-effects model, the Hausman (1978) test was conducted, and the results are presented below:

Table 3
Hausman test results

Test	Chi-Square Statistic	(df)	Probability (Prob.)
Croos – section random	15.322343	5	0.0091

Source. Author's elaboration based on the outputs of EViews 13.

Based on the results obtained using EViews 13 and the Hausman test, it can be observed that the calculated Chi-square statistic (χ^2 = 15.32) is greater than the tabulated statistic, which equals 11.07, at the 5% significance level. Accordingly, the null hypothesis is rejected, indicating the existence of individual effects among the explanatory variables. Therefore, the model most appropriate for the study sample data is the fixed-effects model. In addition, the high coefficient of determination supports the suitability of this model. Consequently, each cross-sectional unit has its own specific effect (Masconi & Giannini). The table below presents the fixed-effects estimates of the model for each country:

Table 4
Fixed-Effects estimates of the model for Each Country

Country	Effect
Iraq	-14.96
Algeria	-14.78
United Arab Emirates	5.84
Saudi Arabia	-2.48
Qatar	18.75
Oman	-2.90
Bahrain	3.71
Kuwait	6.81

Source. Author's elaboration based on the outputs of EViews 13.

As shown in the previous table, there are differences in the individual fixed effects among the countries under study, with both positive and negative fixed effects being observed. Positive effects were recorded in Qatar, the United Arab Emirates, Bahrain, and Kuwait, amounting to 18.16, 5.84, 3.71, and 6.81, respectively. Negative individual effects were recorded in Iraq, Algeria, Saudi Arabia, and Oman, amounting to −14.96, −14.78, −2.48, and −2.90, respectively.

Evaluation of the Fixed-Effects Model (FEM)
After establishing, based on the results of the previous tests, that the appropriate model is the fixed-effects model, the model equation can be written as follows:

$$ACPO2 = 31.13 + 0.004DEGD_{it} + 0.21SUGD - 0.02TAG - 0.15OIPR - 0.85PUPU + e_{it}$$

Economic Evaluation
The results of estimating the fixed-effects model presented in the above equation indicate the following:

- The coefficient of the *total public debt-to-GDP ratio (DEGD)* has a positive and statistically insignificant relationship with *per capita carbon dioxide emissions (CO_2)***.** A 1% increase in DEGD leads to a *0.0009% increase* in per capita CO_2 emissions.
- The coefficient of the *surplus or deficit-to-GDP ratio (SUGD)* has a positive and statistically insignificant relationship with per capita CO_2 emissions. A 1% increase in SUGD leads to a *0.01% increase* in per capita CO_2 emissions.
- The coefficient of the *tax gap (TAG)* has a negative and statistically insignificant relationship with per capita CO_2 emissions. A 1% increase in TAG leads to a *0.004% decrease* in per capita CO_2 emissions.
- The coefficient of the *oil revenues-to-total revenues ratio (OIPR)* has a positive and statistically significant relationship with per capita CO_2 emissions. A 1% increase in OIPR leads to a *0.07% increase* in per capita CO_2 emissions.
- The coefficient of the *general revenues-to-general expenditures ratio (PUPU)* has a positive and statistically insignificant relationship with per capita CO_2 emissions. A 1% increase in PUPU leads to a *0.04% increase* in per capita CO_2 emissions.

Statistical Evaluation

- the coefficient of determination (R^2) is equal to 95%, indicating that the explanatory variables incorporated into the model account for 95% of the variation in per capita carbon dioxide emissions (CO_2). The remaining 5% is attributable to other factors not included in the model and to the random error term.

- The Fisher (F) test confirms the overall statistical significance of the model at the 5% level. This indicates that the explanatory variables, when considered jointly, significantly contribute to explaining variations in the dependent variable, namely per capita carbon dioxide emissions (CO_2). In addition, the Student's t-test shows that certain independent variables have statistically significant effects at the 5% significance level.
- The Durbin–Watson (DW) statistic is equal to 0.31, providing evidence of serial correlation in the residuals. The presence of autocorrelation may result in inefficient or unreliable parameter estimates. Consequently, the estimated static panel-data model presents econometric limitations, supporting the use of dynamic panel-data techniques to capture both short-run and long-run relationships.

Estimation of the Dynamic Panel Model in the Short and Long Run
Stationarity of the Time Series:
Before estimating the model and investigating the existence of cointegration among the study variables, it is essential to examine the stationarity properties of the panel data. This preliminary step is necessary because the use of non-stationary series may result in spurious regression relationships and unreliable parameter estimates. Accordingly, several panel-data unit root tests are commonly employed to assess the stationarity of the variables, including (Beltagi, 2021; Ooi, 2023; Guerrouf, 2020).

Table 5
Results of the stationarity test

Test	Level / First Difference	Statistic	PUPU	OIPR	TAG	SUGD	DEGD	ACPO2
LLC (2002)	Level	Test S	1.00	-0.88	-2.43	-2.18	-1.46	-2.11
		P-value	0.84	0.18	0.00	0.01	0.07	0.01
	First Difference	Test S	-5.16	-4.86	-3.96	-7.83	-2.30	-2.20
		P-value	0.00	0.00	0.00	0.00	0.01	0.01
IPS (2003)	Level	Test S	0.05	-1.13	-1.61	-1.52	-2.28	-0.46
		P-value	0.52	0.12	0.05	0.06	0.01	0.32
	First Difference	Test S	-5.26	-4.90	-4.77	-6.55	-2.80	-3.30
		P-value	0.00	0.00	0.00	0.00	0.00	0.00
ADF-Fisher	Level	Test S	17.66	21.83	25.99	27.27	28.67	24.51
		P-value	0.34	0.14	0.05	0.03	0.02	0.07
	First Difference	Test S	55.64	52.07	50.31	66.32	33.99	41.34
		P-value	0.00	0.00	0.00	0.00	0.00	0.00
PP-Fisher	Level	Test S	25.39	40.80	44.98	37.71	66.25	17.60
		P-value	0.06	0.00	0.00	0.00	0.00	0.34
	First Difference	Test S	98.59	111.40	123.31	153.97	46.97	73.87
		P-value	0.00	0.00	0.00	0.00	0.00	0.00
Order of Integration			I(1)	I(1)	I(1)	I(1)	I(1)	I(1)

Source. Outputs of EViews 13.

The results obtained from EViews 13, particularly those of the panel unit root tests, indicate that the independent variables do not exhibit stationarity in levels. Following first differencing, however, all of these variables achieve stationarity, confirming their integration of order one, I(1). The dependent variable likewise becomes stationary after first differencing and is therefore classified as I(1). Since all variables are integrated at the same order, the presence of a long-run equilibrium relationship among them can be investigated. Accordingly, the Pedroni panel cointegration test is applied to assess the existence of such a relationship.

3.2. Panel Cointegration Relationship

Analysis proceeds to investigate the presence of a long-run cointegrating relationship among the variables through the Pedroni test. The Pedroni (1999) approach is particularly appropriate as it allows for heterogeneity across the cross-sectional units, represented by the countries included in the sample (Catalano & Forni, 2022). The test comprises two categories of statistics. The first category includes four within-dimension statistics, which assess the existence of a cointegrating relationship within the individual cross-sectional units. The second category consists of three between-dimension statistics, calculated from the average of the individual statistics across the sample units (Zairis, 2024). These statistics are used to assess the existence of a common cointegrating relationship across the countries in the sample.

Table 6

Results of the pedroni panel cointegration tests

Dimension	Estimated Model	Test Statistic	P-value
Within-Dimension	Panel V-statistic	-0.75	0.77
	Panel RHO-statistic	1.41	0.92
	Panel PP-statistic	-2.55	0.00
	Panel ADF-statistic	-2.54	0.00
Between-Dimension (Between-Group Dimension)	Group RHO-statistic	2.63	0.99
	Group PP-statistic	-2.97	0.00
	Group ADF-statistic	-2.17	0.00

Source. Author's elaboration based on the outputs of EViews 13.

The findings obtained from the Pedroni (1999) panel cointegration tests provide substantial evidence of cointegration among the variables under investigation. Specifically, the four variables under consideration.

Estimation and Analysis of the Dynamic Panel Model

After examining the order of integration of the explanatory variables and the dependent variable, namely per capita carbon dioxide emissions (ACPO2), all of which were found to be integrated of order I(1), as shown in the table presenting the order of integration, the Panel ARDL model will be estimated using the Pooled Mean Group (PMG) methodology (Chen, 2022; Limo, 2024). The optimal model among the selected specifications is the Panel ARDL (2, 0, 0, 0, 1, 0) – PMG model, selected based on the Akaike Information Criterion (AIC). Accordingly, the dynamic panel model is estimated using the Pooled Mean Group (PMG) approach to examine both the short-run and long-run relationships, in addition to the error correction term.

Table 7

Estimation results of the panel ARDL(2,0,0,0,1,0)–PMG model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEGD	-0.045521	0.012613	-3.608980	0.0004
SUGD	0.049676	0.089377	0.555802	0.5793
TAG	0.031215	0.023523	1.326999	0.1868
OIPR	-0.061525	0.026014	-2.365050	0.0195
PUPU	-1.968288	0.929316	-2.117995	0.0361
C	25.37651	2.416432	10.50165	0.0000
Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ	-0.136808	0.077237	-1.771285	0.0088
D(APCO2(-1))	0.104954	0.130892	0.801841	0.4241
D(OIPR)	0.008576	0.012801	0.669929	0.5041

Source. Author's elaboration based on the outputs of EViews 13.

Long-Run Analysis

The estimation results obtained using the *Pooled Mean Group (PMG)* approach reveal the following:

- The coefficient of the total public debt-to-GDP ratio (DEGD) has a negative and statistically insignificant relationship with per capita carbon dioxide emissions (CO_2). A 1% increase in DEGD leads to a 0.04% decrease in per capita CO_2 emissions.
- The coefficient of the surplus or deficit-to-GDP ratio (SUGD) has a negative and statistically insignificant relationship with per capita CO_2 emissions. A 1% increase in SUGD leads to a 0.04% increase in per capita CO_2 emissions.
- The coefficient of the tax gap (TAG) has a positive and statistically insignificant relationship with per capita CO_2 emissions. A 1% increase in TAG leads to a 0.03% increase in per capita CO_2 emissions.
- The surplus or deficit-to-GDP ratio (SUGD) exhibited a negative but statistically insignificant association with per capita CO_2 emissions. A 1% increase in SUGD was associated with a 0.04% rise in per capita CO_2 emissions.
- The tax gap (TAG) showed a positive yet statistically insignificant relationship with per capita CO_2 emissions. Specifically, a 1% increase in TAG was associated with a 0.03% increase in per capita CO_2 emissions.
- The oil-revenue-to-total-revenue ratio (OIPR) displayed a negative and statistically significant relationship with per capita CO_2 emissions. A 1% increase in OIPR corresponded to a 0.06% reduction in per capita CO_2 emissions.
- The ratio of general government revenues to general government expenditures (PUPU) was negatively and statistically significantly associated with per capita CO_2 emissions. A 1% increase in PUPU was linked to a 1.96% decrease in per capita CO_2 emissions.

Error Correction Term

The short-run dynamics are analyzed within an Error Correction Model (ECM), which expresses the variables in first differences while incorporating the lagged error-correction term as an explanatory variable. This specification captures the mechanism through which short-run disequilibria are gradually corrected and the system converges toward its long-run equilibrium path (Fernández-Val & Weidner, 2018).

The estimated error-correction coefficient was −0.13, and it was negative and statistically significant at the 5% level. This result provides evidence of a stable long-run equilibrium relationship among the variables. The coefficient implies that approximately 13% of the disequilibrium generated by short-run shocks is corrected in each period, indicating a gradual adjustment of the system toward its long-run equilibrium (De Hoyos & Sarafidis, 2006).

More specifically, the coefficient suggests that approximately 13% of the disequilibrium generated by a short-run shock is corrected during each period. Thus, the system gradually adjusts and returns to its long-run equilibrium path over time.

Short-Run Analysis

The estimation results obtained using the Pooled Mean Group (PMG) approach indicate the existence of a positive and statistically insignificant relationship between the oil revenues-to-total revenues ratio (OIPR) and per capita CO_2 emissions. A 1% increase in OIPR leads to a 0.008% increase in per capita CO_2 emissions (Warhel, 2024; Kırıkkaleli & Adebayo, 2020).

Conclusion

This study investigated the impact of fiscal sustainability on the environmental dimension of sustainable development in Algeria and a selected group of Arab countries over the period 2004–

2022, employing panel-data econometric techniques. The analysis sought to examine the relationship between fiscal sustainability and environmental performance while accounting for the specific characteristics of the countries included in the sample.

The preliminary econometric tests, including tests of cross-sectional homogeneity, stationarity, and panel cointegration, confirmed the appropriateness of employing panel-data estimation techniques that account for both the cross-sectional and temporal dimensions of the dataset. Furthermore, the results of the Pedroni panel cointegration tests provided evidence of a long-run equilibrium relationship between fiscal sustainability indicators and per capita carbon dioxide emissions, thereby confirming the existence of a stable long-term relationship between fiscal sustainability and the environmental dimension of sustainable development.

The estimation results obtained using the Pooled Mean Group (PMG) approach indicated that the impact of fiscal sustainability indicators on environmental performance varies depending on the nature of the fiscal indicator considered. In the long run, the ratio of oil revenues to total revenues (OIPR) and the ratio of total revenues to total expenditures (PUPU) exhibited negative and statistically significant relationships with per capita carbon dioxide emissions. Specifically, a 1% increase in OIPR was associated with a 0.06% reduction in per capita CO_2 emissions, whereas a 1% increase in PUPU led to a 1.96% decrease in per capita CO_2 emissions. These findings suggest that more effective revenue management and improved fiscal efficiency may contribute to alleviating environmental pressures and enhancing environmental performance.

By contrast, the long-run estimates for the total public debt-to-GDP ratio (DEGD), the surplus or deficit-to-GDP ratio (SUGD), and the tax gap (TAG) were not statistically significant. This suggests that, when examined individually, these fiscal indicators do not have a statistically significant impact on per capita CO_2 emissions over the period covered by the study. Such findings may be attributed to cross-country differences in economic structures, institutional capacity, dependence on energy resources, the efficiency of public expenditure, and the implementation of environmental policies.

The estimated error-correction coefficient was negative and statistically significant, reaching −0.13, thereby supporting the existence of a long-run equilibrium relationship among the variables under investigation. This coefficient indicates that approximately 13% of short-term deviations from the long-run equilibrium are corrected during each period, reflecting a gradual convergence of the system toward equilibrium after temporary shocks.

In the short run, the oil-revenue-to-total-revenue ratio (OIPR) exhibited a positive association with per capita CO_2 emissions; however, this relationship was not statistically significant. This result implies that the environmental consequences of fiscal sustainability may differ according to the time horizon, emphasizing the importance of distinguishing short-term adjustments from long-term equilibrium effects.

Taken together, the results suggest that the relationship between fiscal sustainability and the environmental dimension of sustainable development is multifaceted and varies across countries and over time. Fiscal sustainability should therefore be viewed beyond the conventional objectives of reducing fiscal deficits, managing public debt, and maintaining fiscal balance. It should instead be incorporated into broader environmental and development strategies through policies aimed at improving public expenditure efficiency, expanding renewable energy use, encouraging green investment, fostering environmental innovation, and ensuring the efficient allocation of public resources.

Accordingly, advancing sustainable development in Algeria and other Arab countries requires an integrated policy framework that aligns fiscal discipline with environmental objectives. This approach should prioritize improving the efficiency of public expenditure, diversifying economic structures, reducing reliance on environmentally intensive activities, and promoting cleaner and more sustainable sources of economic growth promoting renewable energy, and directing financial resources toward sustainable projects can contribute to achieving greater compatibility between fiscal sustainability and environmental protection.

Finally, the study recommends that future research incorporate additional institutional, technological, energy-related, and environmental variables and employ more advanced econometric techniques capable of capturing cross-country heterogeneity and structural differences. Such extensions would provide a deeper understanding of the mechanisms through which fiscal sustainability affects environmental performance in Algeria and the broader Arab region.

1. This section presents the main empirical findings obtained from the econometric analysis, together with the results of testing the study hypotheses. The findings of the study confirmed the validity of the two formulated hypotheses, as follows:
2. H1: There is a long-run equilibrium relationship between fiscal sustainability and the environmental dimension of sustainable development in Algeria and a selected group of Arab countries over the period 2004–2022.
3. H2: Fiscal sustainability has an impact on environmental performance, and this impact differs between the short run and the long run. Accordingly, this hypothesis was evaluated based on the statistical significance of the estimated relationships in both the short and long run.

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The Dialectical Relationship Between Service Culture and Moral Development in Public Service

Mahbuba Kholiyarova

Abstract. *This article examines the relationship between service culture and the moral development of public servants as a problem of institutional design and personal agency. Its purpose is to explain how external standards of conduct become stable professional practice when they are supported by internalized public-service values. The study uses a qualitative conceptual design combining dialectical analysis, axiological interpretation, and directed content analysis. The analytical corpus comprises the Law of the Republic of Uzbekistan on State Civil Service, the 2025 presidential decree on a professional and results-oriented civil service, international public-integrity frameworks, and selected scholarship on organizational culture, communicative action, and public service motivation. The analysis distinguishes three components of service culture: communicative ethics, procedural responsibility, and integrity-based accountability. It then models their development through contradiction, reflective revision, and institutional–personal synthesis. The principal result is a framework of six operational dimensions linking observable conduct with moral capacities: citizen orientation, respectful communication, reliability, procedural fairness, integrity, and collegial responsibility. The article argues that codes, training, and control mechanisms are necessary but insufficient in isolation. Sustainable service culture requires coherent standards, ethical leadership, reflective learning, fair incentives, and feedback from citizens. The framework is intended for subsequent empirical validation in public institutions.*

Keywords: *public service, service culture, moral development, public integrity, organizational culture, ethical competence, citizen orientation*

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Dövlət xidmətində xidmət mədəniyyəti ilə mənəvi inkişaf arasında dialektik əlaqə

Məhbubə Xoliyarova

Xülasə. *Məqalədə dövlət qulluqçularının xidmət mədəniyyəti ilə mənəvi inkişafı arasındakı əlaqə institusional quruluş və şəxsi fəaliyyət problemi kimi araşdırılır. Tədqiqatın məqsədi xarici davranış standartlarının ictimai xidmət dəyərləri daxilən mənimsənildiyi halda necə sabit peşə təcrübəsinə çevrildiyini izah etməkdir. İşdə dialektik təhlil, aksioloji şərh və istiqamətləndirilmiş məzmun təhlilini birləşdirən keyfiyyət yönümlü konseptual dizayndan istifadə edilmişdir. Analitik korpusa Özbəkistan Respublikasının Dövlət qulluğu haqqında Qanunu, peşəkar və nəticəyönümlü dövlət qulluğuna dair 2025-ci il prezident fərmanı, beynəlxalq ictimai dürüstlük çərçivələri, təşkilati mədəniyyət, kommunikativ fəaliyyət və ictimai xidmət motivasiyası üzrə seçilmiş elmi əsərlər daxildir.*

Təhlil xidmət mədəniyyətinin üç tərkib hissəsini fərqləndirir: kommunikativ etika, prosedur məsuliyyəti və dürüstlüyə əsaslanan hesabatlılıq. Daha sonra onların inkişafı ziddiyyət, reflektiv yenidən baxış və institusional–şəxsi sintez mərhələləri vasitəsilə modelləşdirilir. Əsas nəticə müşahidə olunan davranışı mənəvi qabiliyyətlərlə əlaqələndirən altı əməli ölçüdən ibarət çərçivədir: vətəndaşyönümlülük, hörmətli ünsiyyət, etibarlılıq, prosedur ədaləti, dürüstlük və kollektiv məsuliyyət. Məqalə göstərir ki, davranış kodeksləri, təlim və nəzarət mexanizmləri zəruri olsa da, ayrılıqda kifayət etmir. Davamlı xidmət mədəniyyəti uyğun standartlar, etik liderlik, reflektiv öyrənmə, ədalətli təşviqlər və vətəndaş rəyi tələb edir.

Açar sözlər: *dövlət qulluğu, xidmət mədəniyyəti, mənəvi inkişaf, ictimai dürüstlük, təşkilati mədəniyyət, etik səriştə, vətəndaşyönümlülük*

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Introduction

Public service culture is expressed in the everyday ways in which officials interpret rules, communicate with citizens, exercise discretion, and accept responsibility for their decisions. It therefore cannot be reduced to etiquette or procedural discipline. Formal rules establish legitimate expectations, yet the quality of implementation depends on whether officials understand and internalize the values that those rules are designed to protect. The OECD defines public integrity through consistent alignment with shared ethical values and the prioritization of the public interest over private interests, thereby connecting institutional arrangements with individual conduct (Recommendation of the Council on Public Integrity, 2017, OECD, 2020).

This connection is especially important in citizen-facing services. Timeliness, accuracy, equal treatment, clear explanations, and respectful communication are simultaneously administrative and ethical requirements. A formally correct decision may still weaken trust if it is delivered without intelligible reasons or with indifference to the citizen's situation. Conversely, goodwill alone cannot substitute for legality, competence, or equal procedures. Service culture thus arises from the interaction between personal dispositions and an organizational environment that authorizes, supports, and evaluates ethical conduct.

The problem can be formulated as a contradiction between external norm and internal commitment. A rule may require an official to act impartially, but stable impartial conduct also requires the capacity to recognize conflicts of interest, resist improper influence, and justify a decision in public-interest terms. Dialectical analysis treats such tension as a source of development rather than as a choice between control and conscience. The relevant question is how organizational controls and personal moral agency can be transformed into a mutually reinfocing system.

This approach is consistent with the theory of organizational culture, in which visible practices, declared values, and underlying assumptions interact over time (Schein & Schein, 2017). It also reflects the idea of communicative rationality: legitimacy depends not only on the outcome of an administrative act but also on reasons that can be understood and assessed by those affected (Habermas, 1984). In public administration, public service motivation further explains why commitment to the public interest can shape occupational choice and behavior, while later research emphasizes that motivation is sensitive to institutional context and managerial practice (Perry & Wise, 1990; Ritz et al., 2016). Uzbekistan's Law on State Civil Service establishes principles that include legality, professionalism, accountability, openness, impartiality, and service to the people. The reform agenda reinforced in 2025 places additional emphasis on professionalization and results-oriented personnel management (Law on State Civil Service No. ZRU-788, 2022; Decree on Organizing State Civil Service No. PF-95, 2025). These norms make the relationship between service standards and moral qualities a practical governance issue. Xoliyarova (2026) similarly argues that improving service standards should support the moral profile of civil servants rather than remain a formal compliance exercise.

The purpose of this article is to develop a conceptually rigorous framework for explaining and assessing the relationship between service culture and moral development in public service. It addresses three questions. First, which components of service culture have a direct moral dimension? Second, through what mechanism can external standards become internalized professional conduct? Third, which observable indicators can be used in future empirical assessment without claiming that moral character is reducible to a numerical score?

Methods

The study follows a qualitative conceptual design. Its evidence base combines normative documents, international integrity frameworks, and selected theoretical literature. The normative component includes the Law of the Republic of Uzbekistan on State Civil Service and the presidential decree of 19 June 2025 on organizing civil service through new approaches (Decree No. PF-95, 2025). The international policy component comprises the OECD Recommendation on Public Integrity (2017), the OECD Public Integrity Handbook (OECD, 2020), the United Nations Development Programme (UNDP) report on public service motivation (UNDP, 2015), and the UNDP Integrity and Ethics Agency Improvement Framework (UNDP, 2023). The theoretical component draws on dialectics, communicative action, organizational culture, and public service motivation (Habermas, 1984; Hegel, 1977; Perry & Wise, 1990; Ritz et al., 2016; Schein & Schein, 2017).

Directed content analysis was used to identify passages concerning public interest, integrity, impartiality, responsibility, professionalism, communication, learning, accountability, and citizen orientation. These concepts were grouped into three analytical domains: relationships with citizens, performance of official procedures, and responsibility for the ethical use of public authority. The grouping was interpretive rather than statistical; no frequency counts are presented because the documents differ in purpose, length, and genre.

Dialectical analysis was applied in three steps. The first step identified recurrent tensions: rule and discretion, efficiency and explanation, individual conviction and organizational incentive, and control and trust. The second step examined how one-sided responses can reproduce the problem. Excessive formalism may produce mechanical compliance, whereas an exclusively character-based approach may leave conduct dependent on personal preference. The third step constructed a synthesis in which institutional standards shape behavior while reflective practice allows officials and organizations to learn from difficult cases.

Axiological analysis clarified the values embedded in each domain. Respect and dignity were connected with communication; conscientiousness and reliability with procedural performance; and honesty, fairness, and responsibility with accountability. These values were then translated into observable but non-exhaustive indicators. An indicator is treated as evidence about conduct, not as a complete measure of moral worth. This distinction avoids the methodological error of equating ethical development with a single performance score.

The study is conceptual and does not involve human participants, interviews, personal data, or experiments. Its validity therefore depends on transparent source selection, logical coherence, and the practical interpretability of the proposed framework. Empirical testing is reserved for future research.

Results

The first result is a three-component model of service culture. The communicative-ethical component covers respectful treatment, understandable explanation, listening, and responsiveness. Its moral foundation is recognition of the citizen as a person entitled to dignity and reasons. The procedural-responsibility component covers accuracy, timeliness, consistent application of rules, and correction of errors. Its moral foundation is conscientious performance of entrusted duties. The integrity-accountability component covers impartiality, conflict-of-interest management, transparency, and willingness to accept review. Its moral foundation is priority of the public interest.

The model shows that the components are analytically distinct but practically interdependent. Respectful communication without procedural reliability creates courtesy without effective service. Procedural efficiency without fairness can normalize unequal treatment. Integrity controls without an open communication climate can discourage questions and reporting. A mature service culture requires the components to operate as one system, a conclusion consistent with whole-of-government approaches to public integrity (OECD, 2020) and agency-level integrity improvement (UNDP, 2023).

The second result is a developmental mechanism organized as contradiction, reflective revision, and synthesis. Contradiction appears when declared standards conflict with routine practices or incentives. An institution may formally prioritize citizens while rewarding only processing volume; an official may value fairness while facing informal pressure to give preferential treatment. These situations reveal the gap between normative language and operating assumptions.

Reflective revision begins when the contradiction is made discussable through case review, supervision, complaint analysis, peer learning, or protected reporting. This stage is not simple rejection of existing rules. It distinguishes legitimate procedural safeguards from habits that no longer serve their purpose. In Hegelian terms, development preserves what is rational in the earlier form while overcoming its limitation (Hegel, 1977). In organizational terms, it requires examination of the assumptions that reproduce behavior (Schein & Schein, 2017).

Synthesis occurs when ethical judgment and institutional support become mutually reinforcing. Officials receive clear standards, practical guidance, and fair review; leaders model expected conduct; training uses real dilemmas; and incentives do not penalize careful explanation or lawful refusal. Personal commitment then becomes visible in repeatable professional practices, while institutional feedback helps refine those practices. The outcome is described here as value-ased service competence.

The third result is an operational framework of six dimensions. The framework links values with observable behaviors and appropriate forms of institutional evidence. It is deliberately plural: no single indicator can establish the existence or absence of integrity. Multiple sources should be combined, and any assessment should allow contextual explanation and procedural appeal.

Table 1
Operational framework for value-based service competence

Dimension	Moral capacity	Observable conduct	Possible evidence
Citizen orientation	Public-interest commitment	Explains options and considers lawful citizen needs	Case review and citizen feedback
Respectful communication	Respect for dignity	Listens, uses clear language, avoids dismissive treatment	Observation and substantiated feedback
Reliability	Conscientiousness	Provides accurate information and corrects errors	Quality review and rework records
Procedural fairness	Justice	Applies comparable rules consistently and gives reasons	Decision sampling and appeal outcomes
Integrity	Honesty and self-restraint	Discloses conflicts and refuses improper influence	Declarations, advice records, audit findings
Collegial responsibility	Shared accountability	Raises risks, supports learning, and accepts review	Team review and improvement actions

The fourth result concerns implementation. Values become durable when they are embedded across the employment cycle rather than confined to a code or an occasional seminar. Recruitment can use scenario-based questions about impartiality and public interest. Induction can connect legal duties to realistic service dilemmas. Supervision can focus on reasons, not only outputs. Performance review can combine service quality, lawful results, and ethical process. Leadership and protected reporting mechanisms can ensure that integrity is supported when it is costly.

This implementation logic also clarifies the role of motivation. Public service motivation can orient employees toward the public interest, but motivation is not self-executing and should not be romanticized. Organizational conditions may sustain, redirect, or frustrate it (Perry & Wise, 1990; Ritz et al., 2016; UNDP, 2015). For that reason, the proposed framework integrates personal motivation with standards, resources, leadership, and accountability.

Discussion

The results support a relational understanding of service culture. Institutions do not merely constrain officials from outside; they shape the language, incentives, and routines through which officials interpret their roles. At the same time, institutions act through people who can apply, question, or circumvent rules. Sustainable improvement therefore requires both organizational design and personal moral agency.

The framework differs from a narrow compliance model in two respects. First, it treats minimum legal compliance as a necessary floor, not the full meaning of ethical service. The OECD Recommendation explicitly encourages standards that go beyond minimum requirements and prioritize the public interest (Recommendation of the Council on Public Integrity, 2017). Second, it treats communication as part of legitimacy. Citizens need decisions that are not only lawful but also intelligible, respectful, and open to appropriate review. Habermas's account of communicative action helps explain why the quality of reasons matters in institutional relationships (Habermas, 1984).

The framework also differs from approaches that rely primarily on moral exhortation. Appeals to conscience can become symbolic if employees work under contradictory incentives, ambiguous responsibility, or leadership that tolerates exceptions. UNDP's agency improvement framework emphasizes diagnosis, planning, management, and measurement at the organizational level, while the OECD handbook stresses coherent responsibilities, standards, risk management, capacity, openness, and enforcement (OECD, 2020; UNDP, 2023). Moral development is therefore interpreted here as ethically informed professional competence supported by institutional conditions, not as a private or confessional category.

For Uzbekistan, this interpretation offers a way to connect legal principles with personnel practice. The State Civil Service Law and the 2025 reform decree provide a normative basis for professionalism, accountability, public orientation, and results (Law No. ZRU-788, 2022; Decree No. PF-95, 2025). The proposed six dimensions can help translate these principles into training cases, supervisory conversations, and balanced evaluation criteria. They should not, however, be converted mechanically into rankings. Ethical judgment is contextual, and poorly designed metrics can produce strategic compliance rather than genuine learning.

A practical assessment should therefore use triangulation. Administrative records can show delays or rework; citizen feedback can identify communication problems; reasoned case review can examine fairness; and integrity systems can document advice, disclosure, and response to risk. Each source has limitations, but together they can support a more credible judgment than a single satisfaction score or output count. The official should also have access to the evidence and anopportunity to explain contested cases.

The proposed model is compatible with Xoliyarova's earlier conclusion that service-culture standards contribute to the moral profile of civil servants (Xoliyarova, 2026), but it sharpens that argument by separating values, conduct, and institutional evidence. This separation is important because a value cannot be inferred directly from one outcome, and an outcome may have multiple causes. The framework is thus a guide for inquiry and organizational learning rather than a claim to measure inner character directly.

Limitations

The study is conceptual and document-based. It does not test causal relationships, estimate effect sizes, or claim that the proposed dimensions predict citizen trust. The selected policy and theoretical sources were chosen for relevance rather than through a systematic-review protocol. Translation between legal, philosophical, and organizational concepts may also obscure differences in disciplinary meaning.

The framework must therefore be validated before it is used for consequential personnel decisions. Sector, organizational level, workload, discretion, and the type of citizen interaction may change the meaning and feasibility of individual indicators. In addition, citizen feedback can reflect expectations or bias and should never be treated as a self-sufficient measure of ethical conduct.

Future Research

Future studies should develop interview and survey items for the six dimensions, pilot them in several public institutions, and test their reliability and construct validity. Mixed-method research could combine document analysis, anonymized service records, case vignettes, employee interviews, and citizen feedback. Longitudinal designs would be especially useful for examining whether reflective supervision, leadership behavior, and scenario-based ethics training produce durable change.

Comparative research should also examine how the model operates in organizations with different mandates and levels of discretion. Such studies can determine which dimensions are general and which require sector-specific adaptation, while protecting employee rights and personal data.

Conclusion

Service culture and moral development in public service are best understood as mutually constitutive. Rules, procedures, and controls provide a legitimate structure for conduct, while internalized values give those structures consistency in situations that require judgment. Neither dimension is sufficient alone. The article developed a three-component model of communicative ethics, procedural responsibility, and integrity-based accountability; explained development through contradiction, reflective revision, and synthesis; and proposed six operational dimensions for future assessment. The model's central practical implication is that public institutions should align standards, leadership, training, incentives, review, and citizen feedback. This alignment can move service culture from episodic compliance toward value-based professional competence while preserving legality, fairness, and public accountability.

Declarations
Ethics approval: Not applicable. The study used publicly available documents and did not involve human participants or personal data.

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Digitalization, Institutional Quality and Export Diversification: A Synthesis of Evidence from Emerging Economies

Nurlan Meherremov

Abstract. *This paper examines whether digitalization promotes export diversification in emerging economies and whether institutional quality conditions that effect. It develops a transaction-cost framework in which digital infrastructure lowers the fixed costs of entering new export lines — buyer search, documentation and border compliance — while institutions determine the share of returns an exporter can appropriate. Three testable propositions are derived from the framework and confronted with a structured synthesis of the empirical literature, assembled through systematic searches of RePEc, Scopus-indexed journals and the working-paper series of the International Monetary Fund and the World Bank. The evidence supports complementarity rather than substitution: digitalization broadens export baskets and raises their technological sophistication, but weak governance blunts and can reverse these returns. Firm-level evidence indicates that home-country corruption steepens the curvilinear relationship between digitalization and export propensity, amplifying both the gains of digital leaders and the losses of the over-extended. The substitution view survives only as a process-level claim about narrow verification functions such as customs processing and documentary compliance, not as an economy-wide alternative to contract enforcement. The paper specifies a replicable panel design for twenty-four emerging economies over 2000–2023 using openly available data, and derives sequencing implications for diversification policy: customs efficiency and regulatory predictability are preconditions for, rather than complements to, digital investment.*

Keywords: *export diversification, digitization, institutional quality, governance, emerging economies, transaction costs*

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Rəqəmsallaşma, institusional keyfiyyət və ixracin diversifikasiyasi: inkişaf etməkdə olan iqtisadiyyatlar üzrə dəlillərin sintezi

Nurlan Meherremov

Xülasə. *Məqalədə rəqəmsallaşmanın inkişaf etdirilməsi olan iqtisadiyyatlarda ixracın diversifikasiyasına təsiri və institutsional keyfiyyətin bu təsirləri müəyyən edilir. Tədqiqatın nəzəri əsaslarını tranzaksiya idarəetmə yanaşması təşkil edir: rəqəmsal infrastruktur yeni mənbələrə daxil olmaq üçün sabitləşməni — xarici alıcıların axtarışı, sənədləşdirmə və sərhədlərinə uyğunluq dəstəyini —, institutlar əldə etmək üçün əldə edilən gəlirin tədarükçüdə qalan investorları azaldır.*

Bu çərçivədə üç yoxlanıla bilən müddəa irəli sürülür və empirik ədəbiyyatın strukturlaşdırılmış birləşməsinə uyğunlaşdırılır. Mənbələr RePEc, Scopus indeksli jurnallar, Beynəlxalq Valyuta Fondu və Dünya Bankının işçi sənədləri üzrə sistemli axtarışlar toplanmışdır. Nəticələr əvəzedicilik deyil, tamamlayıcılıq fərziyyəsini təyin etmək: rəqəmsallaşma ixrac səbətini artırır və onun texnoloji mürəkkəbliyini artırır, lakin zəif idarəetmə bu gəlirliliyi azaldır və nəticə etibarilə dəyişdirilə bilər. Firma səviyyəsindəki dəllər göstərir ki, ölkəxili korrupsiya rəqəmsal olaraq ixrac meyilliliyi ilə bağlı əyrixətli əlaqələri və həm qazancları, həm də itkilərini gücləndirir. Əvəzedicilik baxışı yalnız gömrük yoxlaması və sənəd dövriyyəsi kimi dar yoxlama funksiyaları güclü qüvvədədir.Məqalədə 2000–2023-cü illərdə olan iqtisadiyyat üzrə 2000–2023-cü illərdə açıqlanan məlumatlara söykənən təkrar istehsal olunan panel tədqiqat dizaynı təqdim edilir və diversifikasiya strategiyası üçün təhlükəsizlik tədbirləri həyata keçirilir.

Açar sözlər: *ixracın diversifikasiyası, rəqəmsallaşma, institusional keyfiyyət, idarəetmə keyfiyyəti, inkişaf etməkdə olan iqtisadiyyatlar, transzaksiya idarə*

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Introduction

Why do some emerging economies broaden their export baskets while others remain locked into a handful of products? The question is not new, but it has acquired fresh urgency. Commodity price cycles since the early 2000s, the disruption of global supply chains after 2020, and the accelerating digitalization of trade itself have all sharpened the costs of concentration. A country that ships mostly crude oil, copper or a narrow band of garments absorbs terms-of-trade shocks with little cushion, and the growth literature has long associated such concentration with higher output volatility and weaker long-run performance (International Monetary Fund, 2014).

Two candidate drivers of diversification dominate recent policy debates. The first is digitization. Digital infrastructure reduces the cost of discovering foreign buyers, complying with documentation requirements, and coordinating production across borders; it therefore lowers precisely the fixed entry costs that heterogeneous-firm trade theory identifies as the barrier keeping marginal firms and marginal products out of export markets (Melitz, 2003; Freund & Weinhold, 2004). The second driver is institutional quality. Trade in differentiated and complex products is contract-intensive, and countries with weak enforcement systematically specialize away from such products (Nunn, 2007; Levchenko, 2007). Poor institutions act, in Anderson and Marcouiller's (2002) phrase, as a hidden tax on trade.

What remains contested is how these two forces interact. One view treats digitization as an institutional bypass: electronic platforms, escrow-style payment systems and, more recently, distributed-ledger applications embed trust in technology and thereby substitute for weak courts. A competing view holds that digital tools amplify whatever institutional environment they land in, so that connectivity investment without governance reform will disappoint. Adjudicating between these views matters directly for how diversification budgets are spent.

This paper contributes in three ways. First, it grounds the debate in a unified transaction-cost framework rather than treating digitalization and institutions as separate control variables, as much of the earlier driver literature does (Agosin et al., 2012; Giri et al., 2019), and derives three testable propositions from it. Second, it conducts a structured synthesis of the empirical evidence — from the classic diversification studies through the most recent firm-level work on digitalization in emerging economies – and weighs that evidence against the two competing views. Third, it translates the framework into a complete and immediately implementable macro-panel research design for twenty-four emerging economies over 2000–2023, built entirely on openly available data, with the estimation protocol released as an open replication package. The synthesis speaks in particular to resource-dependent economies of the kind found in the Caspian region and Central Asia, where diversification programs increasingly combine digital corridors, customs modernization and logistics upgrading.

1.1. Conceptual framework and propositions

The framework treats entry into a new export line as an investment with a fixed cost F and an institution-dependent expropriation and enforcement risk. Digitization lowers F through cheaper search, marketing and compliance. Institutions determine the expected share of returns the exporter keeps. When enforcement is weak, lowering F changes little, because the binding constraint is appropriability, not entry cost; when enforcement is adequate, a lower F draws marginal products into the export basket. On this logic digitization and institutions are complements: the diversification payoff of a given improvement in connectivity rises with governance quality. The substitution view predicts the opposite pattern – technology-embedded trust should matter most precisely where courts are weakest. Three propositions follow.

P1. Digitization is associated with lower export concentration in emerging economies.

P2. Institutional quality is associated with lower export concentration.

P3. The diversification effect of digitalization strengthens with institutional quality (complementarity), rather than weakening (substitution).

Methods

2.1. Evidence synthesis method

The evidence base was assembled through structured searches of the major bibliographic sources for economics (RePEc, Scopus-indexed journals and working-paper series of the IMF and World Bank), combining the terms export diversification, export concentration, export sophistication, institutional quality, governance, digitalization, ICT and internet, with no lower date bound and coverage through early 2026. Studies were retained when they were empirical, peer-reviewed or issued by an international financial institution, and directly informative about at least one leg of the framework: the diversification–development path, the institutional determinants of trade composition, the digitalization–export nexus, or their interaction. Purely theoretical contributions were retained only where they supply the identifying mechanism. The synthesis is narrative and structured rather than meta-analytic, because the outcome variables across the literature (concentration indices, sophistication measures, export propensity) are not commensurable enough for formal effect-size pooling. Table 1 summarizes the core evidence set; Section 3 weighs it.

Table 1

Core empirical evidence on diversification, institutions and digitalization

Study	Sample and method	Finding relevant to this synthesis
Imbs & Wacziarg (2003)	Sectoral data, large country panel; non-parametric and parametric estimation	Hump-shaped relationship between concentration and income: economies diversify as they grow and re-concentrate only at high income levels.

Study	Sample and method	Finding relevant to this synthesis
Cadot, Carrère & Strauss-Kahn (2011)	156 countries, 19 years, HS6 product-level export data (4,991 lines)	Confirms the hump for exports; diversification in low and middle-income countries occurs mostly along the extensive margin (new export lines).
Agosin, Alvarez & Bravo-Ortega (2012)	Cross-country panel, 1962–2000; system GMM	Trade openness alone does not diversify exports; real exchange rate overvaluation and terms-of-trade volatility discourage new export products.
Giri, Quayyum & Yin (2019)	Large cross-country panel; Bayesian model averaging over a wide driver set	Infrastructure, human capital, institutional quality and financial development are among the most robust predictors; resource-rich developing economies face the steepest challenge.
Anderson & Marcouiller (2002)	Bilateral trade, gravity framework with survey-based insecurity measures	Corruption and weak contract enforcement depress trade like a hidden tax on the traded good.
Nunn (2007)	Industry-level trade data interacted with judicial quality across countries	Countries with better contract enforcement hold comparative advantage in relationship-specific, contract-intensive goods.
Levchenko (2007)	Trade flows; institutional differences modelled as a source of comparative advantage	Institutional weakness pushes specialisation toward simple, homogeneous products — i.e., toward a concentrated export basket.
Freund & Weinhold (2004)	Country panel, late 1990s; gravity-style export growth regressions	Growth in internet penetration is associated with faster export growth, consistent with lower market-entry and search costs.
Atasoy (2021)	61 countries; three export sophistication measures; GMM	Digitalization raises export sophistication; institutional quality and access to credit act as complementary drivers.
Kurul (2023)	Developing and least developed countries; panel estimation	Both hard (infrastructure) and soft (procedures, institutions) dimensions of trade facilitation raise export diversification.
Capelleras, Martin-Sanchez & Zhang (2025)	35 emerging economies, 17,265 firm-level observations; multilevel analysis	Inverted U-shaped effect of digitalization on export propensity; home-country corruption steepens the curve, amplifying both benefits and downsides.

Note. Full bibliographic details in the reference list. Sample descriptions follow the studies' own reporting.

2.2. Empirical research design implied by the framework

The propositions are directly testable with openly available data, and the framework implies a specific design. The unit of analysis is an unbalanced panel of twenty-four emerging economies over 2000–2023: Argentina, Azerbaijan, Brazil, Chile, China, Colombia, Egypt, Hungary, India, Indonesia, Kazakhstan, Malaysia, Mexico, Morocco, Peru, the Philippines, Poland, Romania, South Africa, Thailand, Türkiye, Ukraine, Uzbekistan and Vietnam – a list that deliberately mixes resource-dependent exporters with manufacturing-oriented ones so that the institutional and digital gradients in the data are wide. The dependent variable is the normalized Herfindahl–Hirschman index of export product concentration from UNCTADstat, compiled annually through 2023; the Theil index from the IMF Export Diversification Database, the standard alternative (Cadot et al., 2011; International Monetary Fund, 2014), ends in 2014 and serves as a robustness measure on the earlier sub-sample. Digitalization is the first principal component of internet use, mobile subscriptions and fixed broadband penetration, following the practice of compressing correlated ICT indicators into a single index (Atasoy, 2021); institutional quality is the average of the six Worldwide Governance Indicators (Kaufmann et al., 2011); controls follow the robust drivers identified by Giri et al. (2019) and Agosin et al. (2012): log income and its square, natural resource rents, FDI, trade openness, private credit and human capital.

The estimating equation regresses concentration on its lag, digitization, institutions, their interaction and the controls, with country and year effects. Because concentration is persistent and connectivity is plausibly endogenous to trade structure, estimation should combine two-way fixed effects with two-step system GMM (Blundell & Bond, 1998), collapsing the instrument matrix and validating the specification with the AR(2) and Hansen tests; and because a 24-year annual panel is long relative to a 24-country cross-section, the GMM step belongs on non-overlapping three-year averages, the standard remedy in the dynamic cross-country literature. Under P3 the interaction coefficient is negative – a given improvement in connectivity reduces concentration by more where governance is stronger – and the single most policy-relevant output of the model is the institutional threshold below which the marginal effect of digitalization loses significance. The full estimation protocol, including data acquisition from the World Bank, UNCTAD and Penn World Table sources, is released as an open replication package accompanying this paper, so the design can be executed and audited without further discretionary choices.

Results

3.1. Diversification along the development path

The stylized facts are well established. Imbs and Wacziarg (2003) documented a hump-shaped relationship between sectoral concentration and income: economies diversify as they grow and re-concentrate only at high income levels. Cadot et al. (2011) extended the finding to exports using highly disaggregated product data for 156 countries, showing that diversification occurs mostly along the extensive margin – the addition of new export lines – before re-concentration sets in among rich countries. For the income range occupied by emerging economies, the empirically relevant portion of the curve is unambiguous: development and export diversification move together, and the policy question is what shifts a country along that path faster.

Cross-country work on the drivers points to a consistent set of correlates. Agosin et al. (2012) find that trade openness by itself is not sufficient and that real exchange rate overvaluation and terms-of-trade volatility discourage the emergence of new export products. Using Bayesian model averaging over a large set of candidate variables, Giri et al. (2019) identify infrastructure, human capital, institutional quality and financial development among the most robust predictors, with resource-rich developing economies facing the steepest diversification challenge – a class that includes the hydrocarbon exporters of the Caspian basin. Trade facilitation matters as well: improvements in both physical border infrastructure and the soft quality of customs procedures raise export diversification in developing and least developed countries (Kurul, 2023).

3.2. Institutions and the composition of trade

The institutional literature supplies the deeper mechanism, and applied to trade composition the argument is specific rather than general. Complex and differentiated goods require relationship-specific investments and are traded under incomplete contracts, so countries with better contract enforcement hold a comparative advantage in exactly those goods (Nunn, 2007). Levchenko (2007) formalizes the point: institutional differences are themselves a source of comparative advantage, and institutional weakness pushes specialization toward simple, homogeneous products – the definition of a concentrated export basket. Anderson and Marcouiller (2002) show that insecurity and corruption depress trade volumes as effectively as tariffs. Taken together, this body of work makes P2 the best-supported leg of the framework: no study in the evidence set finds that weaker governance broadens export baskets.

3.3. Digitization and export outcomes

Early evidence on the internet and trade found that connectivity growth in developing countries was associated with faster export growth (Freund & Weinhold, 2004). Subsequent research has moved from volumes to composition. Atasoy (2021) shows for a panel of 61 countries that digitization raises export sophistication, with institutional quality, access to credit and research intensity acting as complementary drivers. This supports P1: better connectivity is associated with broader and more sophisticated export baskets.

The digitalization channel, however, is not unconditionally positive. At the firm level the relationship with export propensity turns concave, suggesting over-investment beyond an optimal point (Capelleras et al., 2025). This finding cautions against reading any digitization coefficient as a pure technology dividend.

Discussion

4.1. Weighing the interaction: complementarity versus substitution

The decisive question for policy is P3, and here the evidence, while thinner, points consistently in one direction. Three strands support complementarity. First, in the cross-country sophistication results the institutional and financial variables do not wash out once digitization enters; they operate alongside it, which is what a complementary technology implies (Atasoy, 2021). Second, the driver literature finds institutions and infrastructure jointly robust rather than mutually redundant (Giri et al., 2019), and the trade facilitation results show that the soft, institutional dimension of border management carries diversification effects over and above physical infrastructure (Kurul, 2023). Third, and most directly, the firm-level evidence shows that home-country corruption reshapes the digitalization–export relationship itself: it steepens the inverted U, amplifying the gains of the digital leaders but also the losses of the over-extended, so that the same digital investment produces more dispersed and riskier outcomes in worse-governed environments (Capelleras et al., 2025). None of these results is what the substitution view predicts, namely a larger and more uniform digital dividend precisely where formal institutions are weakest.

The substitution view retains a defensible niche rather than a general claim. Technology-embedded trust demonstrably works within narrow, well-specified transaction environments – documentary compliance, customs processing, traceability – where distributed-ledger systems can substitute for specific verification functions of weak bureaucracies. But these are process-level substitutions inside a single transaction, not economy-level substitutes for contract enforcement over the life of an export relationship. The synthesis conclusion is therefore that digital infrastructure and governance reform are complements at the margin that matters for diversification: the appropriate reading of the evidence is that connectivity spending buys the most new export lines where courts, regulators and customs already function tolerably well.

4.2. Policy implications

The political implications are sharpest for resource-dependent economies. Diversification programs in such countries increasingly bundle transport corridors, customs digitalization and logistics investment, as in the Trans-Caspian Middle Corridor initiatives. The synthesis implies that the sequencing of such programs matters: customs efficiency and regulatory predictability are not complements to be added later but preconditions for the digital components to generate new export lines rather than merely cheapening existing ones (Kurul, 2023). Financing is a parallel constraint: mobilizing private capital for structural transformation requires exactly the institutional credibility that the interaction measures.

4.3. Limitations and directions for further research

Two limitations qualify the contribution and point to further work. A narrative synthesis cannot replace estimation, which is why the paper closes with a complete, openly replicable design rather than with a verdict claimed on its behalf; executing that design is the immediate next step. And the evidence base for the interaction, while consistent, remains thin at the macro level and largely silent on services exports, where digital delivery changes the economics of diversification more radically than for goods. Both extensions are feasible and, given the fiscal weight now attached to digital-corridor strategies across Eurasia, worth undertaking.

Conclusion

This paper asked whether digitization diversifies the exports of emerging economies and whether institutions govern the size of that effect. The transaction-cost framework predicts complementarity: digital infrastructure lowers the fixed costs of entering new export lines, but weak enforcement caps the expected return to entry, so connectivity pays off most where governance is sound. The structured synthesis of the empirical literature supports that prediction. Institutional quality is the best-attested determinant of trade composition in the evidence set; digitalization broadens and upgrades export baskets across levels of aggregation; and where the two are studied together, governance conditions return to digital investment rather than being displaced by it. The substitution view survives only as a process-level claim about specific verification functions, not as a strategy for structural transformation.

For policy, the operative conclusion is one of sequencing rather than of choice between instruments: connectivity spending and governance reform are not competing claims on a diversification budget, and the former yields its largest return where the latter has already been undertaken. The panel design set out in Section 2.2 makes this claim falsifiable, and its execution — together with an extension to services exports — defines the agenda that follows from this synthesis.

Statement on the use of artificial intelligence tools

In accordance with the journal's policy on authorship and artificial intelligence, the author discloses that the AI-based language assistant Grammarly was used in the preparation of this manuscript for language editing purposes only. All sources were verified by the author, the analytical framework and conclusions were reviewed and approved by the author, and the author takes full responsibility for the entire content of the article.

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Azərbaycan XVI–XVII əsr Osmanlı tarixçilərinin təsvirində

Rəsmiyyə Qasımova

Xülasə. *Məqalədə XVI–XVII əsrlərdə Azərbaycan tarixinin öyrənilməsində Osmanlı tarixçilərinin əsərlərinin və arxiv materiallarının əhəmiyyəti araşdırılır. Tədqiqatda Peçəvi İbrahim Əfəndi, Solakzadə Mehmed Çələbi, Selaniki Mustafa Əfəndi və Övliya Çələbinin əsərlərində Azərbaycan, Səfəvi dövləti və Osmanlı–Səfəvi münasibətləri ilə bağlı məlumatlar təhlil edilir. Xüsusilə "Tarix", "Tarixi-Selaniki" və "Səyahətnamə" əsərlərində Azərbaycanın şəhərləri, sosial-iqtisadi vəziyyəti, ticarət və sənətkarlığı, siyasi idarəçilik sistemi, hərbi hadisələri və əhalinin dini-mədəni xüsusiyyətləri haqqında verilən məlumatların elmi əhəmiyyəti müəyyənləşdirilir. Araşdırmada Əhkam və Mühimmə dəftərlərinin Səfəvilərin Anadoludakı fəaliyyəti və Osmanlı–Səfəvi münasibətlərinin öyrənilməsi baxımından mühüm mənbə olduğu göstərilir. Eyni zamanda, Osmanlı mənbələrində Səfəvilərə münasibətdə işlədilən dini-siyasi terminologiya təhlil olunur. Məqalədə Osmanlı mənbələrinin farsdilli və digər tarixi qaynaqlarla müqayisəli şəkildə istifadəsinin Azərbaycan tarixinin daha obyektiv və kompleks şəkildə tədqiqinə imkan yaratdığı nəticəsinə gəlinir. Ayrıca, tədqiqatda tarixi-müqayisəli və mənbəşünaslıq təhlili metodlarından istifadə olunaraq, sənədlərin obyektivliyi qiymətləndirilir. Mənbələrdəki geosiyasi yanaşmalar və terminoloji çalarlar regional təhlükəsizlik və diplomatik münasibətlər kontekstində kompleks şəkildə nəzərdən keçirilir.*

Açar sözlər: *Səfəvilər, Osmanlı tarixçiləri, Osmanlı–Səfəvi münasibətləri, Övliya Çələbi, tarixi mənbələr*

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Azerbaijan as Depicted by 16th–17th Century Ottoman Historians

Rasmiyya Gasimova

Abstract. *The article examines the importance of the works of Ottoman historians and archival materials in the study of the history of Azerbaijan in the 16th–17th centuries. The study analyzes the information on Azerbaijan, the Safavid state and Ottoman–Safavid relations in the works of Pechevi Ibrahim Efendi, Solakzade Mehmed Çelebi, Selaniki Mustafa Efendi and Evliya Çelebi. In particular, the scientific significance of the information provided in the works "Tarih", "Tarihi-Selaniki" and "Seyahetname" about the cities of Azerbaijan, their socio-economic situation, trade and craftsmanship, political administration system, military events and religious and cultural characteristics of the population is determined. The study shows that the Ahkam and Muhimmeh notebooks are an important source in terms of studying the activities of the Safavids in Anatolia and Ottoman–Safavid relations. At the same time, the religious and political terminology used in Ottoman* *sources in relation to the Safavids is analyzed. The article concludes that the comparative use of Ottoman sources with Persian and other historical sources allows for a more objective and comprehensive study of Azerbaijani history. Additionally, by applying historical-comparative and source-critical methods, the objectivity of the documents is evaluated. Geopolitical perspectives and terminological nuances in the sources are comprehensively examined within the context of regional security and diplomatic relations.*

Keywords: *Safavids, Ottoman historians, Ottoman–Safavid relations, Evliya Çelebi, historical sources*

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Giriş

Səfəvilər dövrünün tarixinin öyrənilməsində Osmanlı tarixçilərinin əsərlərinin mühüm əhəmiyyəti vardır. XX əsrin 90-cı illərinə qədər XVI–XVII əsrləri öyrənən və tədqiq edənlər əsasən farsdilli mənbələrin məlumatları ilə kifayətlənmişlər. Onlar Osmanlı mənbələrinə demək olar ki, əhəmiyyət verməmişlər. Dövrün sosial, iqtisadi, siyasi və hərbi vəziyyətini öyrənərkən Osmalı mənbələrindən fars mənbələri ilə yanaşı müqayisəli istifadə etmək olar.

Metodlar

Tədqiqatda Osmanlı salnamələrində və səyyah əsərlərində Azərbaycan haqqında verilən məlumatların elmi dəyərinin müəyyənləşdirilməsi qarşıya məqsəd qoyulur. Eyni zamanda, Peçəvi, Solakzadə, Selaniki Mustafa Əfəndi və Övliya Çələbi kimi müəlliflərin əsərlərində Səfəvi dövlətinin siyasi, sosial-iqtisadi və mədəni vəziyyətinə dair məlumatların təhlili nəzərdə tutulur. Məqalədə Osmanlı–Səfəvi münasibətlərinin müxtəlif mərhələlərinin Osmanlı mənbələrində necə təqdim edildiyi araşdırılır. Əhkam və Mühimmə dəftərlərində əks olunan rəsmi məlumatların Azərbaycan və Səfəvilər tarixi baxımından əhəmiyyətinin müəyyənləşdirilməsi də tədqiqatın əsas məqsədlərindəndir.

Nəticələr

Osmanlı tarixçilərinin təsvirində Azərbaycan. Osmanlı tarixçilərindən İbrahim Əfəndi Peçəvinin (1574–1649) “Tarix” əsərində Osmanlı imperiyasının 1520–1649-cu illərdəki tarixi işıqlandırılmışdır. Əsərdə Qafqaza, o cümlədən Azərbaycana da yer verilmişdir. Müəllif Osmanlı ordusunun tərkibində Azərbaycanın bəzi şəhərlərində olmuşdur. Ona görə də Azərbaycanın şəhərləri, şəhər həyatı, sənətkarlıq və ticarətin vəziyyəti, yerli hakimlər barədə maraqlı məlumatları elmi baxımdan qiymətlidir. Əsərində sonuncu Şirvanşahlar haqqında ətraflı bəhs etmişdir. Onun əsərinin Azərbaycan və Gürcüstanla bağlı hadisələrini S.S. Cikiya gürcü dilinə tərcümə edərək çap etdirmişdir (Peçəvi, 1988).

Tariximiz üçün əhəmiyyətli əsərlərdən biri Solakzadə Mehmed (1590–1658) Çələbinin “Tarix” əsəridir. Kitab iki clddən ibarətdir və Vahid Çubuk tərəfindən 1989-cu ildə Ankarada çap olunmuşdur. Atasının solakbaşı - Osmanlı sultanının şəxsi mühafizə dəstəsinin rəisi olması səbəbindən “Solakzadə” ləqəbi ilə tanınmışdır. Mehmed Solakzadənin əsəri Osmanlı dövlətinin qurulmasından 1657-ci ilə qədər olan dövrü əhatə edir. Birinci cild Osmanlı dövlətinin qurulmasından

1622-ci ilə qədər olan dövrü əhatə edir və bir çox Osmanlı salnamələrinin məzmununu əks etdirir. Əsərin ikinci cildi isə Solakzadənin öz dövrünə aid yazdıqlarıdır. Bu hissə orijinal və etibarlıdır. Çünki bu dövrdə hadisələrin şahidi olmuşdur. Solakzadə Sultan IV Murad (1623–1640), Sultan I İbrahim (1640–1648) və Sultan IV Mehmedin (1648–1687) səltənətinin ilk illəri ilə bağlı çox qiymətli məlumatlar verir. Solakzadənin "Tarix" kitabında Azərbaycan tarixinə dair hissələr akademik Z. Bünyadov tərəfindən Azərbaycan türkcəsinə çevrilərək çap olunmuşdur. Müəllif əsərində Əmir Teymurun Azərbaycana yürüşü, Qaraqoyunlu Qara Yusif və Sultan Əhməd Cəlairi ilə döyüşlər, Teymurun Anadoluya yürüşü, Osmanlı sultanı I Bəyazidin məğlub edilməsi, Qaraqoyunlu hökmdarı İsgəndər Mirzə ilə Teymuri Şahrux arasında müharibə barədə məlumat verir. Ağqoyunlu Uzun Həsənlə Osmanlı sultanı II Mehmed, I Şah İsmayılla Sultan Səlim arasında həm Türkiyənin, həm də Azərbaycanın şəhər və kəndlərini viran edən müharibələr (1514–1555), (1578–1590), (1602–1639) təsvir olunur (Solakzadə,1991; Əfəndiyev 2016).

Selaniki Mustafa Əfəndinin "Tarixi-Selaniki" əsərində Qanuni Sultan Süleyman hakimiyyətinin sonlarından (1520–1566), Sultan II Səlim (1566–1574), Sultan III Murad (1574–1595), Sultan III Mehmedin (1595–1603) dövrünə qədər olan tarix (1563–1600) əhatə olunur. Selanikinin əsərində XVI əsr Azərbaycan və qonşu ölkələrin tarixinə aid mühüm əhəmiyyət kəsb edən məlumatlar vardır. Əsərdə Səfəvi–Osmanlı münasibətləri, müharibələr, sülh danışıqları və Azərbaycan haqqında məlumatlar 1599-cu ilə qədər davam edir. XVI əsrin ortalarında Səfəvi şahları dövlət hakimiyyətini möhkəmləndirmiş, ölkə daxilində yüksək iqtisadi dirçəlişə nail olmuşlar. I Şah Səfi (1629–1642), II Şah Abbas (1642–1666) dövründə Azərbaycanın şəhərlərinin iqtisadi həyatı canlanmış, ticarət və sənətkarlıq inkişaf etmişdir (Selaniki, 1989).

XVII əsrin 40-cı illərində Azərbaycanın sosial-iqtisadi həyatının tədqiqi üçün əsas qaynaqlardan biri məşhur türk səyyahı Övliya Çələbinin (1611–1682) 10 cildlik "Səyahətnamə" əsəridir. Övliya Çələbi 1611-ci ildə İstanbulda doğulmuşdur. Atası II Sultan Səlim (1566–1574) və I Sultan Əhməd (1607–1617) dövründə sarayda baş zərgərlik vəzifəsində çalışmışdır. Övliya Çələbi ibtidai və mədrəsə təhsili aldıqdan sonra 1635-ci ildə Sultan IV Muradın (1623–1640) sarayına dəvət olunaraq, görkəmli alimlərin yanında təhsilini davam etdirmişdir. O, ərəb, fars, türk dilləri ilə yanaşı, yunan, latın, tatar və digər dillərə də yiyələnmişdir. Övliya Çələbi 1640–1641-ci illərdə ilk dəfə Qafqaza səfər etmişdir. Bu səfər "Qəsri-Şirin" sülhündən (1639) sonrakı dövrə təsadüf edir. Övliya Çələbi "Səyahətnamə"də gördükləri ilə yanaşı, bir sıra tarixi mənbələrdən, o cümlədən İbn Hövqal, Hamdullah Qəzvini və digər əsərlərdən də istifadə etmişdir. O, hadisələri xronoloji ardıcıllıqla təsvir etmişdir. Övliya Çələbi ərəb coğrafyaşünaslarının ənənələrini davam etdirərək, Avropalı səyyahların gündəliklərinə müraciət etmədən öz əsərini yazmışdır. Tanınmış şərqşünas V. V. Bartold əsərə yüksək qiymət verərək yazırdı ki, bu əsər coğrafi, etnoqrafik və linqvistik materialların zənginliyinə, dolğunluğu və əhatəliliyinə görə ən yaxşı ərəb coğrafyaşünaslarının əsərlərini geridə qoyur. Övliya Çələbinin Azərbaycana və Gürcüstana (1646–1648) aid qeydləri II cilddə toplanmışdır. IV cilddə Van, Təbriz, Bağdad və digər yerlərə səfərləri verilmişdir (1655–1656). O, təkcə səyyah kimi deyil, həm də dini və diplomatik missiya rəhbəri kimi Azərbaycana gəlmişdir.

Çələbinin "Səyahətnaməsi" Azərbaycan tarixi üzrə tutarlı qaynaqlardan biridir. Əsərdə bəzi qala və şəhərlərimiz haqqında verilən məlumatlar maraqlıdır. Məsələn, göstərilir ki, Azərbaycanda, İrəvan torpağında Karşi şəhər ərazisi olmuşdur. Karşi qalası gözəl və dördkünc şəklindədir. Şəhərdə minarəli məscid, kiçik bazar vardır. Osmanlı sultanı IV Muradın (1623–1640) ordusu buranı talan etmişdir. Karşi şəhərini vaxtilə Əmir Teymurun oğlu Şahrux Mirzə tikdirmişdir. Şəhər çayın üzərində yerləşir. Müəllif Naxçıvan torpağındakı Qarabağlar şəhərini təsvir edir. Bu şəhərin əsasını İranın Pişdadilər sülaləsindən olan Manuçöhr qoymuşdur. Naxçıvan torpağında bu şəhərin ayrıca sultanlıq olduğunu qeyd edir. Övliya Çələbi Ravan şəhərinin əsasının Ravanqulu xan tərəfindən qoyulduğunu (1409–1410) və onun adı ilə "Ravan" adlandırıldığını qeyd etmişdir. XVII əsrin 40-cı illərində Azərbaycanın sosial-iqtisadi vəziyyəti əsasən Övliya Çələbinin "Səyahətnaməsi" əsasında araşdırılmışdır. Lakin müəllifin əsərindəki materialları o dövrün Avropa səyyahlarından – J. B. Taverniye (1631–1643), A. Oleari (1636–1638), J. Şarden (1672–1673) və b. ilə, habelə Səfəvi hökmdarları – II Şah Abbas (1642–1666) və Şah Süleymanın (1667–1694) baş vəziri olmuş tarixçi Məhəmməd Tahir Vahidin "Abbasnamə" əsəri (1663–1664) ilə müqayisə etdikdə düzgün nəticələr almaq mümkündür. Onun əsəri II Şah Abbasın hakimiyyəti illərinin hadisələrini xronoloji ardıcıllıqla əhatə edir (Çələbi, 1997; Nəcəfli 2014).

Övliya Çələbinin "Səyahətnaməsi" ilk dəfə Qahirədə Bulak mətbəəsində "Müntəqobat-i Evliya Çələbi" adı ilə nəşr olunmuşdur (1848). 1703-cü ildə "Səyahətnamə"nin əlyazması köçürülmüş və Sultan III Murad (1574–1595) dövründə Üsküdarda təsis edilmiş Partav Paşa kitabxanasına təqdim olunmuşdur. Saxlanılan əlyazma nüsxəsi əsasında ərəb əlifbası ilə "Səyahətnamə"nin VI cildi (1896–1897) nəşr olunmuşdur. Övliya Çələbinin "Səyahətnaməsi"nin Azərbaycana aid olan II hissəsini Fuad Əliyev rus dilinə tərcümə edib, giriş və şərhlərlə çap etdirmişdir (1983). Yaqub Mahmudov Övliya Çələbinin "Səyahətnamə"sinin II cildinin rus dilindən olan nəşrindən Azərbaycana aid materialları seçərək Azərbaycan türkcəsində nəşr etdirmişdir (Mahmudov, 2012).

"Səyahətnamə"nin (1896–1897) II cildində Azərbaycana aid olan məlumatları ilk dəfə S. B. Aşurbaylı Türkiyədə çap etdirmiş, 1960-cı ildə Şərqşünasların XXV Qurultayındakı məruzəsində bu barədə məlumat vermiş, XVII əsrin I yarısında Azərbaycanın sosial-iqtisadi və siyasi tarixi üçün əsərin əhəmiyyətini qeyd etmişdir. O, Azərbaycanın şəhərləri, idarəçilik sistemi, etno-siyasi məsələləri, memarlığı, adət-ənənələri haqqında məlumatları şərh etmişdir (Aşurbəyli, 1960).

XVI əsrin sonu – XVII əsrdə Azərbaycanın sosial-iqtisadi durumunun bəzi problemlərini araşdıran Q. E. Rəhməni də Övliya Çələbinin əsərini tədqiqata cəlb etmişdir. Onun Azərbaycanın şəhərləri haqqında qismən ətraflı qeydləri vardır. Lakin onların bəziləri dağınıq və natamamdır (Rəhməni, 1981). Adil Baxşəliyevin "Azərbaycanın sosial-iqtisadi durumu və mədəni həyatı" əsəri Övliya Çələbinin "Səyahətnamə" əsəri əsasında xüsusi tədqiqat obyekti olmuşdur. Müəllif Övliya Çələbinin verdiyi məlumatları onun salnaməçiləri və başqa əsərlər ilə müqayisəli şəkildə araşdırmış, təhlil etmiş və faktları dəqiqləşdirmişdir. (Baxşəliyev, 2009)

Arxiv materialları. İki böyük sivilizasiyanın, iki böyük mədəniyyətin beşiyi olan Anadolu və Azərbaycan torpaqları qədim dövrlərdən XVII əsrin sonlarına qədər demək olar ki, fasiləsiz olaraq bir-biri ilə müharibələr aparmışdır. Əslində Osmanlı–Səfəvi münasibətləri Osmanlı və Səfəvi sülalələri səviyyəsində Səfəvi dövlətinin 1501-ci ildə rəsmi şəkildə yaranmasından daha əvvələ gedib çıxır. Lakin dövlətlərarası münasibətlər məhz həmin ildən başlamış hesab edilir. Təxminən XVI əsrin əvvəllərində başlayan bu münasibətlər XVII əsrdə Qəsri-Şirin sülh müqaviləsinin imzalanmasına qədər hər iki dövlət arasında fasiləsiz silahlı qarşıdurmalar şəklində davam etmişdir.

Hazırda Türkiyənin əlində Osmanlı dövlətinin beynəlxalq münasibətlərinin, daxili siyasətinin, inzibati, iqtisadi və maliyyə quruluşunun, dövlət təşkilatının və müxtəlif idarə və müəssisələrinin tarixini yenidən tədqiq etməyə imkan verən olduqca zəngin arxiv materialları mövcuddur. Bu materiallar İstanbul və Ankaradakı dövlət arxivlərində qorunub saxlanılır. Mövzumuz baxımından bu arxiv materialları arasında əsasən iki növ mənbə xüsusi əhəmiyyət daşıyır. Bunlardan əlavə, müxtəlif xarakterli tək səhifəlik sənədlər də mövcuddur.

Mühimmə və Mühimmə Zeyli dəftərləri. Adından da göründüyü kimi, bu növ dəftərlər də Əhkam dəftərləri kimi Divan-i Hümayunda müzakirə olunan mühüm maliyyə, hüquq və idarəçilik məsələləri, eləcə də şikayətlərlə bağlı müəyyən dövrlərdə qəbul edilmiş hökm və qərarların toplandığı rəsmi dəftərlərdir. Bu dəftərlərin ən qədim nümunəsi Topqapı Sarayı Arxivində E.12321 nömrəsi ilə qeydiyyata alınmış hicri 951-ci (1545-ci) ilə aid dəftərdir. Göründüyü kimi, bu sənəd Qanuni Sultan Süleyman dövrünə, yəni Osmanlı–Səfəvi münasibətlərinin nisbətən sonrakı mərhələsinə aiddir.

Başbakanlıq Osmanlı Arxivində saxlanılan digər Mühimmə dəftərləri isə sonrakı dövrləri əhatə edir. Buradakı ən qədim qeyd 5 nömrəli Mühimmə dəftərində yer alır və hicri 973-cü il Səfər ayının 8-i (4 sentyabr 1565-ci il) tarixinə aiddir. Ən son qeyd isə 71 nömrəli Mühimmə dəftərində olub hicri 1002-ci il Rəbiüləvvəl ayının 25-i (9 dekabr 1593-cü il) tarixini daşıyır.(İnalcık, 2009; Kütükoğlu, 1962)

Müzakirə və Nəticə

Göründüyü kimi, XVI əsrin sonlarına qədər olan dövrü əhatə edən bu dəftərlərdə Səfəvilərin Anadoludakı fəaliyyəti haqqında çoxsaylı qeydlər mövcuddur. Bu sənədlər indiyədək həm türk, həm də Qərb tarixçiləri tərəfindən geniş şəkildə istifadə olunmuşdur. Yuxarıda deyilənləri ümumiləşdirsək, belə nəticəyə gəlmək olar ki, araşdırılan dövrə aid Osmanlı mənbələrinin demək olar ki, hamısı Osmanlı–Səfəvi münasibətlərini və mübarizəsini ilk növbədə siyasi rəqabət deyil, “doğru inanc” (sünnilik) ilə “azğın inanc” (şiəlik və ya rafizilik) arasında gedən ideoloji-dini qarşıdurma kimi təqdim etmişdir. Lakin müəlliflərin qənaətinə görə, Osmanlı mərkəzi hakimiyyətinin və ona bağlı üləmanın “rafizilik” adlandıraraq pislədiyi cərəyan əslində klassik İmamiyyə şiəliyi deyil, Şah İsmayıl və onun xəlifələri tərəfindən təbliğ edilən, daha çox ismaililiyə yaxın olan və türkmənlərin xalq inancları ilə qarışmış ifrat bir dini cərəyan olmuşdur. Hesab etmək olar ki, Osmanlılar həm İslam dünyası, həm də xristian Qərbi qarşısında öz mövqelərini müdafiə etmək, Səfəviləri pisləmək və Anadoludakı sünni əhalinin dini inanclarını qorumaq məqsədilə qəsdən “rafizilik”, “zəndəqə” və “ilhad” kimi ifadələrdən istifadə etmiş, İmamiyyə şiəliyinə elmi deyil, polemik yanaşmışlar. Bu yanaşma həm arxiv sənədlərində, həm də vəqayinamələrdə işlədilən terminologiyada açıq şəkildə görünür.

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Equality, People-Centeredness, and Social Justice in the Works of Nineteenth-Century Karakalpak Thinkers: A Socio-Philosophical Analysis

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Abstract. *This article examines the formation of equality, people-centeredness, and social justice in the works of the nineteenth-century Karakalpak thinkers Kunkhoja, Otesh, Ajiniyaz, Berdakh, and Omar. It aims to identify how these concepts interact as poetic images, moral judgments, and social demands. The source corpus comprises works addressing labour, taxation, official responsibility, and human dignity. Historical-contextual interpretation, comparative analysis, thematic coding, and conceptual reconstruction are applied. The findings show that justice is articulated through four recurring criteria: fair remuneration for labour, equal treatment regardless of social status, the accountability of officeholders to the people, and protection of human dignity. Labour justice is most prominent in Kunkhoja and Otesh; legal and moral equality is central to Ajiniyaz; and taxation, coercion, and public responsibility dominate the relevant works of Berdakh and Omar. The article does not equate these historical ideas with fully developed modern political theories. Instead, it interprets them as historically situated moral conceptions of justice. The study concludes that people-centeredness in Karakalpak classical thought is more than sympathy for ordinary people: it is a normative position that connects labour, rights, responsibility, and dignity.*

Keywords: *nineteenth century, Karakalpak thinkers, social justice, equality, people-centeredness, labour justice, taxation, official accountability, human dignity*

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XIX əsr qaraqalpaq mütəfəkkirlərinin yaradıcılığında bərabərlik, xalqpərvərlik və sosial ədalət: sosial-fəlsəfi təhlil

Oralbay Yoldasbayev

Xülasə. *Məqalədə XIX əsr qaraqalpaq mütəfəkkirləri Künxoca, Öteş, Əjiniyaz, Berdaq və Ömərin yaradıcılığında bərabərlik, xalqpərvərlik və sosial ədalət anlayışlarının formalaşması sosial-fəlsəfi baxımdan araşdırılır. Tədqiqatın məqsədi bu anlayışların bədii obraz, mənəvi hökm və ictimai tələb kimi qarşılıqlı əlaqəsini müəyyənləşdirməkdir. Mənbə korpusuna əmək, vergi, vəzifəli şəxslərin məsuliyyəti və insan ləyaqəti mövzularına həsr olunmuş əsərlər daxil edilmişdir. Tarixi-kontekstual şərh, müqayisəli təhlil, tematik kodlaşdırma və konseptual rekonstruksiya metodlarından istifadə olunmuşdur. Nəticələr göstərir ki, ədalət ideyası dörd əsas meyarla ifadə edilir: əməyə layiqli haqq, sosial mövqedən asılı olmayaraq bərabər münasibət, vəzifəli şəxsin xalq qarşısında cavabdehliyi və insan ləyaqətinin qorunması. Künxoca və Öteşdə əmək ədaləti, Əjiniyazda hüquqi-mənəvi bərabərlik,* *Berdaq və Ömərdə isə vergi zorakılığı və hakimiyyətin məsuliyyəti ön plana çıxır. Müqayisə mütəfəkkirlər arasındakı fərqli vurğuları da ardıcıl şəkildə üzə çıxarır. Məqalə bu irsi müasir siyasi anlayışlarla eyniləşdirmir, onu ədalət haqqında tarixi mənəvi təsəvvürlər kimi şərh edir. Belə nəticəyə gəlinir ki, qaraqalpaq klassik düşüncəsində xalqpərvərlik sadəcə rəğbət deyil, əmək, hüquq və ləyaqəti birləşdirən normativ mövqedir.*

Açar sözlər: *XIX əsr, qaraqalpaq mütəfəkkirləri, sosial ədalət, bərabərlik, xalqpərvərlik, əmək ədaləti, vergi, vəzifəli şəxslərin məsuliyyəti, insan ləyaqəti*

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Introduction

Restricting the study of nineteenth-century Karakalpak social thought to literary history narrows its normative meaning. Kunkhoja, Ajiniyaz, Berdakh, Otesh, and Omar not only represented the social experience of their time poetically but also proposed standards for evaluating the value of labour, the accountability of officials, attitudes towards rich and poor people, and human dignity. Although their works were not written as systematic philosophical treatises, they contain historically situated moral answers to the question of what makes a society just. Understanding social relations in nineteenth-century Central Asia requires simultaneous attention to the Khanate of Khiva, the agrarian economy, tax obligations, and systems of local administration (Adle et al., 2005; Bregel, 2003).

Modern theories of justice provide conceptual tools for organising this historical material, but they cannot be imposed on classical texts as ready-made templates. Rawls associates justice with the fair organisation of basic social institutions, while Sen approaches it through the reduction of actual injustices and the expansion of human capabilities (Rawls, 1971; Sen, 2009). Honneth, in turn, describes disrespect and denial of recognition as experiences that damage a person's social existence (Honneth, 1995). In the language of Karakalpak thinkers, these issues appear through moral categories such as right, equality, oppression, shame, the suffering of the people, and official responsibility.

Existing scholarship has extensively addressed the thinkers' biographies, artistic skill, and literary traditions (Ismailov, 1961; Pirnazarov, 2000). Their views of justice, however, have not been sufficiently compared through the interconnected criteria of labour, equal treatment, governmental responsibility, and human dignity. This article therefore asks: through which social problems did nineteenth-century Karakalpak thinkers articulate justice, and what common normative structure can be identified in their views? Its purpose is to reconstruct the historical-philosophical meaning of their critical imagery without modernising the texts or attributing contemporary political doctrines to them.

Methods

The study was designed as a qualitative historical-philosophical analysis. The primary corpus included Kunkhoja's *Jarimadim, Choponlar, and Kun qayda*; Otesh's *Sharmanda and Bolar*; Ajiniyaz's *Nasiyat, Kerak, Kerekti, Koring, and Otarsang*; Berdakh's *Soliq*; and Omar's *Aytmasam bolmas*. The texts were examined through published selected works and anthologies (Ájiniyaz, 1988; Berdaq, 2022; Kúnxoja, 2019; Ótesh, 1973; Qaraqalpaq poeziyasınıń antologiyası, 1956). Because editions may contain orthographic and line variants, the analysis focused on stable semantic motifs rather than isolated word forms.

The analysis proceeded in four stages. First, the social actors represented in the works—shepherds, hired labourers, wealthy people, the poor, judges, biys, tax collectors, and rulers—were identified. Second, situations expressing injustice were grouped into five codes: non-payment for labour, status-based privilege, abuse of official power, tax pressure, and humiliation of human dignity. Third, each thinker's criterion of justice was conceptually reconstructed. Fourth, the views were compared for similarities and differences. This procedure prevents poetic images from being treated as direct historical facts while allowing the normative content of the texts to be examined separately.

Studies of the social and economic organisation of Central Asia and the Khanate of Khiva were used to establish the historical context (Adle et al., 2005; Bregel, 2003). The theoretical interpretation drew on three dimensions: distribution, recognition, and the practical reduction of injustice (Honneth, 1995; Rawls, 1971; Sen, 2009). These categories were not claimed to exist in the historical texts in fully developed form; they served as analytical instruments for organising the ideas found in the sources. The study is not a quantitative content analysis: its findings depend on the functions of themes, images, and moral judgments rather than word frequencies.

Results

The analysis identified correspondence between labour and its social recognition as the first criterion of justice. In Kunkhoja's Choponlar, the image of a shepherd receiving very little compensation after a long period of service expresses a sharp imbalance between labour and reward (Kúnxoja, 2019). Reading this image merely as a description of poverty is insufficient. It also reveals the labourer's lack of recognition, the subordination of the worker's time and energy to the owner's interests, and the moral corruption of the economic relationship. For Kunkhoja, therefore, justice arises not from the existence of labour alone but from its adequate valuation.

Kunkhoja's people-centeredness is not limited to observing or sympathising with ordinary life. He adopts an active position by communicating popular suffering, exposing the arbitrariness of the powerful, and morally legitimising labourers' claims to what they are owed. The critical treatment of rank and reputation in Jarimadim likewise suggests that social status does not automatically determine moral worth. Scholarship on Kunkhoja stresses the close relationship between his life experience and the everyday existence of the people (Ismailov, 1961; Pirnazarov, 2000). People-centeredness thus means not simply selecting the people as an object of description, but making their interests a standard of evaluation.

In Otesh's Sharmanda, labour justice is expressed through an even sharper moral judgment. Withholding a labourer's due appears as a twofold violation: the material value of completed work is appropriated, and the worker's dignity as a human being is denied (Ótesh, 1973). The notion of shame in the work's title elevates injustice from a private disagreement to a matter of public judgment. The unjust party may obtain an economic benefit, yet loses moral standing in the eyes of the community. Public opinion thereby functions as an informal mechanism of social control.

Kunkhoja and Otesh share a view of labour not merely as a means of subsistence but as an activity constitutive of social worth. Their emphases nevertheless differ. Kunkhoja primarily exposes the disparity between work and remuneration through poetic imagery, whereas Otesh evaluates non-payment directly as a moral offence and public disgrace. A cautious comparison with Honneth's theory of recognition shows that economic harm and moral humiliation are inseparable in these texts

(Honneth, 1995). This comparison does not present the historical works as products of modern theory; it clarifies their normative force.

The second criterion of justice is impartial treatment regardless of social status. In Ajiniyaz's Nasiyat, judges, rulers, wealthy people, and members of other social groups are reminded of their obligations. A judge is expected to apply the same standard to the rich and the poor, as well as to beks and sultans, rather than altering decisions according to rank or private interest (Ájiniyaz, 1988). This position is not a complete modern theory of legal equality, but it affirms moral limits on office and presents impartiality as the basis on which authority can be justified. Equality here does not mean identical capacities; it means the rejection of class privilege in adjudication.

In Nasiyat, a ruler's justice is likewise not an abstract virtue. It is measured through practical actions: protecting an impartial judge, refraining from oppressing citizens, listening to experienced advisers, and preserving public peace. The moral value of authority is therefore assessed by its effects on people's lives rather than by power or rank itself. Ajiniyaz's criticism of officeholders connects his literary legacy to the problem of social responsibility (Pirnazarov, 2000). A careful comparison with Rawls's account of institutional fairness shows that justice in this text concerns procedures of decision-making as well as personal generosity (Rawls, 1971).

In Ajiniyaz's Kerekti, equality appears as a collective need broader than the virtues of a particular official. The image of many people awaiting equality indicates both a moral objection to the existing order and hope for a better life (Ájiniyaz, 1988). Equality is not a completed political programme here; it is a normative demand formed as an alternative to oppression, status-based discrimination, and arbitrariness. In comparison with Sen's approach, its significance lies in its orientation towards removing visible injustices rather than constructing a comprehensive model of an ideal order (Sen, 2009).

The third criterion of justice is the fair distribution of taxation and other obligations among social groups. In the nineteenth-century Khanate of Khiva, taxes and service duties were closely connected to the agrarian economy, local administration, and political authority (Adle et al., 2005; Bregel, 2003). For the Karakalpak population, taxation was not merely an economic payment but a direct, everyday form of interaction with power. Violence, privilege, and arbitrariness in tax collection consequently appear in the thinkers' works as moral problems.

Berdakh's Soliq criticises not taxation as such, but its unjust assessment and violent collection (Berdaq, 2022). Tax relations reveal disparities between rich and poor, the conversion of office into privilege, the vulnerability of weaker groups, and the moral responsibility of authority. For Berdakh, people-centeredness requires not only recording the people's hardship but also exposing the relations that produce it. The modern edition of his selected works similarly demonstrates that public interests and social reality are central themes of his writing (Berdaq, 2022).

Omar's Aytmasam bolmas continues this critical tradition from the late nineteenth into the early twentieth century. The poet refuses to remain silent about violence by tax collectors, the difficult lives of labourers, and the estrangement of local officials from the people (Qaraqalpaq poeziyasınıń antologiyası, 1956). The title raises truth-telling to the level of the writer's moral duty. Because Omar was born in 1879, his legacy represents a transitional position between the nineteenth-century classical tradition and new social experiences of the early twentieth century. He is therefore considered here as a successor to the nineteenth-century intellectual tradition rather than treated without qualification as a nineteenth-century author.

The synthesis of the findings indicates that the fourth criterion—the protection of human dignity—integrates the preceding three. Withholding wages is both economic damage and disregard for the person; adjudicating by status denies equal worth; and coercive tax collection violates citizens' dignity and security. Dignity is consequently not an isolated theme but the shared moral foundation of reflections on labour, rights, and authority. Comparison with Honneth and Sen shows how recognition and the reduction of actual injustice are interconnected in these texts (Honneth, 1995; Sen, 2009).

Discussion

Comparative analysis reveals a common normative structure in the thinkers' views. First, justice is not an abstract concept detached from popular experience; it is tested in concrete situations involving wages, taxation, courts, public office, and everyday humiliation. Second, people-centeredness is not simply praise of the people but the adoption of the weaker party's interests as a moral standard. Third, equality is expressed not as a demand to eliminate all differences in wealth and position, but as the application of the same moral measure to judgments, treatment, and obligations. Fourth, authority is justified not by office itself but by the fulfilment of responsibility to the people.

Despite these common features, the thinkers emphasise different dimensions. Kunkhoja foregrounds the imbalance between labour and reward; Otesh, the moral disgrace of withholding what is due; Ajiniyaz, the impartiality of decision-makers; Berdakh, the unjust distribution of obligations; and Omar, the duty to speak truth in the face of injustice. These differences prevent their works from being reduced to repetitions of a single idea. Instead, they demonstrate complementary dimensions of justice in classical Karakalpak social thought: labour, recognition, impartiality, distribution, and accountability.

Comparison with modern theories of justice is useful in two respects. Rawls foregrounds institutions and fair arrangements, Sen the need to reduce actual injustice, and Honneth the moral injury caused by denial of recognition (Honneth, 1995; Rawls, 1971; Sen, 2009). Karakalpak thinkers articulate related concerns through local historical experience, poetic imagery, and the moral language of the people. Similarity, however, should not be mistaken for identity: classical texts do not systematically formulate constitutional rights, modern citizenship, or a theory of distributive justice. Their value lies not in anticipating modern theory but in perceiving injustice clearly within their own historical environment.

The study proposes a four-criterion interpretive model as its principal scholarly contribution: fair remuneration for labour, impartial and equal treatment, governmental accountability, and protection of dignity. This model identifies common ground without erasing the writers' individual styles. Applying it comparatively to other nineteenth-century Central Asian literary traditions may reveal shared and distinctive features of regional concepts of justice. Such work must continue to treat historical context and textual variants with caution.

Limitations

The study relies on selected published works; it does not encompass all manuscript copies, oral variants, or textual editions. Some works may have orthographic, line, and title variants. The article therefore does not resolve questions of textual criticism or authorship attribution. Its findings constitute a socio-philosophical interpretation of stable themes in the selected works.

A second limitation is the risk of anachronism when applying modern theoretical concepts to historical texts. To reduce this risk, the ideas of Rawls, Sen, and Honneth are not presented as fully formed concepts already contained in the sources; they are used only as instruments of comparison.

Third, the article does not empirically investigate reception history—that is, how later generations interpreted these ideas.

Future Research
Future studies should establish textual differences between early editions and manuscripts, examine the semantic history of justice-related concepts in the Karakalpak language, and analyse how the thinkers' works have been interpreted in later textbooks and collective memory. Comparative analysis of labour, taxation, and official accountability in Karakalpak, Kazakh, Uzbek, and Turkmen classical poetry using a common set of criteria may also yield new findings for regional intellectual history.

Conclusion

Ideas of equality, people-centeredness, and social justice in the works of nineteenth-century Karakalpak thinkers developed in close relation to the period's actual social contradictions. The devaluation of labour, status-dependent judgment, unequal tax burdens, official arbitrariness, and humiliation of human dignity are the principal objects of criticism. Justice is advanced not as an abstract aspiration but as a practical standard for evaluating relations among people.

Kunkhoja and Otesh particularly emphasise labour justice; Ajiniyaz, impartial judgment and equal treatment; Berdakh, taxation and official responsibility; and Omar, the moral duty to speak truth. Human dignity provides the common foundation connecting these views. People-centeredness in classical Karakalpak thought should therefore be understood not merely as sympathy with popular life but as a normative position integrating labour, rights, responsibility, and dignity. This legacy is both a historical source and an important form of local moral reasoning about justice.

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Historical Turning Point: the Battle of Zigetvar a Turning Point in Ottoman Military and Political History: The Siege of Szigetvar (1566)

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Abstract. *The Siege of Szigetvar in 1566 was the closing move of Sultan Suleiman the Magnificent's 46-year reign and one of the peak points of the Ottoman Empire's military strategies towards Western Europe in the 16th century. Historians examine the military, logistical, socio-economic, and political dimensions of the campaign with an interdisciplinary approach. This study provides a multifaceted investigation of the Siege of Szigetvár, comparing the defensive strategy of the fortress commander Nikola Šubić Zrinski with the siege, fortification, and artillery techniques of the Ottoman army. The death of Sultan Suleiman the Magnificent on the night of September 6-7, and the secrecy surrounding this eventual concealment by Grand Vizier Sokullu Mehmed Pasha to maintain army morale and discipline, constitutes one of the most successful examples of early modern military crisis management. The magnificent Turk died, changing world history. The short- and long-term impacts of the Szigetvár Campaign on Central European geopolitics are detailed in light of contemporary Ottoman chronicles, Habsburg archival documents, and analyses by modern historians.*

Keywords: *Siege of Szigetvár, Sultan Suleiman the Magnificent, Ottoman Empire, Nikola Šubić Zrinski, Sokullu Mehmed Pasha, military crisis management, Central European geopolitics, 16th century Ottoman history*

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Tarixi dönüm nöqtəsi: Ziqetvar döyüşü Osmanlı hərbi və siyasi tarixində dönüş nöqtəsi: Ziqetvar mühasirəsi (1566)

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Xülasə. *1566-cı ildəki Ziqetvar mühasirəsi Sultan Süleyman Qanuninin 46 illik hakimiyyətinin yekun gedişi və Osmanlı İmperiyasının XVI əsrdə Qərbi Avropaya yönəlmiş hərbi strategiyalarının zirvə nöqtələrindən biri olmuşdur. Tarixçilər bu yürüşün hərbi, loqistik, sosial-iqtisadi və siyasi aspektlərini fənlərarası yanaşma ilə tədqiq edirlər. Bu tədqiqat qalalar komandanı Nikola Şubiç Zrinskinin müdafiə strategiyası ilə Osmanlı ordusunun mühasirə, istehkam və artilleriya üsullarını müqayisə edərək Ziqetvar mühasirəsinin çoxşaxəli təhlilini təqdim edir. Sultan Süleyman Qanuninin sentyabrın 6-dan 7-nə keçən gecə vəfat etməsi və ordunun mənəvi ruhunu, nizam-intizamını qorumaq üçün Sədrəzəm Söküllü Mehmed Paşa tərəfindən ölümünün gizli saxlanılması erkən müasir dövr* *hərbi böhran idarəçiliyinin ən uğurlu nümunələrindən birini təşkil edir. Möhtəşəm türk vəfat edərək dünya tarixini dəyişdi. Ziqetvar yürüşünün Mərkəzi Avropa geo-siyasətinə qısamüddətli və uzunmüddətli təsirləri dövrün Osmanlı salnamələri, Habsburq arxiv sənədləri və müasir tarixçilərin təhlilləri işığında ətraflı şəkildə işıqlandırılır.*

Açar sözlər: *Ziqetvar mühasirəsi, Sultan Süleyman Qanuni, Osmanlı İmperiyası, Nikola Şubiç Zrinski, Sököllü Mehmed Paşa, hərbi böhran idarəçiliyi, Mərkəzi Avropa geosiyasəti, XVI əsr Osmanlı tarixi*

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Introduction

The 16th century marks the peak of the "Classical Age" or "Golden Age" of the Ottoman Empire, during which it established its political and military hegemony over a vast geographical area stretching from the Mediterranean to the Black Sea, from the Persian Gulf to Central Europe. The Battle of Mohács in 1526, which destroyed the Kingdom of Hungary, brought the Ottoman State and the Holy Roman Empire directly to the border. From this date onwards, the lands of Hungary entered world history as a constant battleground for influence and wars of attrition between two global powers. During the reign of Suleiman the Magnificent (1520-1566), westward campaigns formed the main military concept of the state. With the Siege of Vienna in 1529 and the German Campaign in 1532, pressure on the Habsburgs increased, and with the establishment of the Buda Province (1541), Hungary was directly integrated into the Ottoman administrative structure and became Ottoman territory.

However, by the 1560s, the incursions of Archduke Maximilian II of Austria into Hungarian territories under Ottoman control and the banditry activities in border fortresses had disrupted the peace and become a factor in the war. By 1566, Sultan Suleiman the Magnificent, at the age of 72, was known as a magnificent ruler suffering from serious health problems due to gout. Nevertheless, he decided to embark on his 13th and final campaign to re-establish the authority of the state, ensure border security, and once again prove military superiority against the West. Although centers such as Erlau (Eger) Castle or Esztergom were considered as the initial targets, Szigetvár Castle was determined as the main target due to its strategic location on the border and Nikola Šubić Zrinski's attacks targeting Ottoman supply lines.

Methods

Historical-critical analysis and comparative source research methods were applied. The research is based on the following methodological framework:

Analysis of Ottoman Chronicles
The works written by the court historians of the period and the bureaucrats who directly participated in the campaign were examined. Among these are:

• Celâlzâde Mustafa Çelebi: Presents the official perspective of the Ottoman bureaucracy and the preparations for the campaign.
• Peçevî İbrahim Efendi: Due to his proximity to the region and events, he recounts the details of the siege, the climate and terrain conditions.
• Feridun Ahmed Bey: As the private secretary of Sokullu Mehmed Pasha, he describes the moment of the siege and the process of concealing the death of Suleiman the Magnificent from a first-hand perspective.

Habsburg and Hungarian Archival Documents
The correspondence of Nikola Šubić Zrinski, who witnessed the siege from within, records from the Austrian Military Archives (Kriegsarchiv), and contemporary Italian/German embassy reports (Relazioni) were compared with the available data.

Military and Logistical Assessment
The siege warfare was subjected to quantitative and qualitative analysis in terms of the caliber of cannons used, the depth of the sewer tunnels, the engineering characteristics of the wooden bridges built for swamp reclamation, and the army's supply mechanisms.

Expedition Preparations and the Army's March
In the early months of 1566, massive preparations for an expedition began in Istanbul. Due to the Sultan's illness, a special carriage was designed for him, and the positions where the army would encamp along the route were arranged in advance by bridge-building and passenger units.

Logistics and Provisioning Organization
The Ottoman logistics system is considered the most advanced mechanism of the Early Modern period. Stocks of wheat, barley, hardtack, and meat were established at staging posts along the expedition route. The Danube River was used as the main waterway for transporting heavy artillery ammunition, provisions, and siege equipment.

March Route
The army departed from Istanbul on May 1, 1566. Upon reaching Belgrade, Prince János Zsigmond II of Transylvania was received and shown respect. With the strategic decision made here, it was confirmed that the main direction of the operation was Szigetvár. Heavy rains and muddy terrain slowed the army's progress, but on August 5, 1566, they reached the Szigetvár Fortress and established their camp.

Results

Siege Strategy and Operational Process
The Szigetvár Fortress was an extremely difficult target, fortified by natural geographical obstacles. The fortress consisted of three main sections: the New City, the Old City (Inner City), and the central Inner Citadel. The fortress was surrounded by deep swamps and ponds fed by the Almaš River. (Finkel, 2005; Imber, 2002; İnalcık, 1973).

Terrain Architecture and Fortification Moves
The first major technical stage in solving the siege was controlling the body of water that isolated the fortress.

1. Draining the Swamps: Ottoman architects and engineers lowered the pond level by altering the course of the Almaš River, and constructed dams with thousands of tons of earth, bushes, and wooden logs to prevent cannons from sinking into the mud.
2. Trench and Battery Installation: Heavy cannons were placed on three sides of the fortress, and the artillery began to bombard the walls relentlessly. (Setton, 1984; Sugar, 1977; Zürcher, 2004)

Phased Attack and Tunnel Warfare
- Fall of the Outer City (August 9): On the fourth day of the siege, the Outer City was captured by intense artillery fire and a Janissary charge, forcing the defenders to retreat to the Inner City.
- Capture of the Inner City (August 19): With the draining of the swampy areas, the tunnels leading to the Inner City walls were detonated, and thanks to the resulting fires and breaches in the walls, the Inner City was also brought under control.
- Siege of the Inner Citadel: Zrinski and his remaining core force of approximately 800 men closed themselves off in the Inner Citadel with unwavering resistance. While the Ottoman artillery continued to bombard the Inner Citadel walls, sappers, along with artillery variants, placed massive barrels of gunpowder under the walls (Aksan, 2007; Faroqhi, 2004).

Crisis Management: The Sultan's Death and Information Control
The most critical point of the siege occurred on the night of September 6th to 7th. Sultan Suleiman, who had been ill for a long time, died in his tent just before the announcement of victory (Agoston, 2014). Grand Vizier Sokullu Mehmet Pasha displayed extraordinary crisis management to prevent the chaos and demoralization that this death would create in the army:
- The Sultan's death was known only to a few trusted physicians and private secretaries.
- The Sultan's body was embalmed after his internal organs were removed and placed on his throne in the tent.
- Rumors were spread among the soldiers that the Sultan was in good health and resting on the advice of doctors.
- The Sultan's seal was affixed to the decrees written after the victory, ensuring the uninterrupted functioning of the administrative mechanism. This secret was kept until Selim II arrived in Belgrade and met with the army (for 48 days).

The End of the Siege and Zrinski's Breakout Operation
On the morning of September 8, 1566, a large part of the Inner Citadel walls was destroyed, and the defense line collapsed with the explosion of the arsenal. Having lost all hope of escape, Nikola Šubić Zrinski, instead of surrendering with his remaining soldiers, launched a desperate breakout. As a result of fierce hand-to-hand combat, Zrinski lost his life, and the Szigetvár Fortress fell completely under Ottoman control.

Discussion

The Szigetvár Campaign is a multifaceted area of debate in both Ottoman and Western historiography.

Tactical Victory or Strategic Attrition?
Some military historians consider Szigetvár a tactical success for the Ottomans, while others see it as a sign of a strategic setback in terms of its long-term effects (Ágoston, 2005).

• Positive View: The fortress was captured, the Habsburgs' border violations were punished, and Southern Hungary was completely secured.
• Critical View: The loss of a massive imperial army for more than a month in front of a single medium-sized fortress, the serious loss of soldiers, and the loss of a charismatic leader like Suleiman the Magnificent, led to the breaking of the final pressure on Vienna.

Szigetvar from the Perspective of Early Modern Military Revolution Theory
According to Geoffrey Parker's "Military Revolution" thesis, the development of Italian-style fortifications (Trace Italienne) in the 16th century prolonged siege wars and provided an advantage to the defending side. Szigetvar bears the transitional characteristics of this period. Zrinski's defense demonstrated that the effective use of firearms and geographical elements could slow down the advance of the Ottoman army (Murphey, 1999; Parker, 1996).

Conclusions

The Szigetvar Campaign created a new era in 16th-century world history, producing multifaceted consequences.
1. The End of the Reign of Suleiman the Magnificent: With the death of Suleiman the Magnificent, who brought the Ottoman Empire to the peak of its borders and institutional structure, an era ended; and with the reign of Selim II, a new bureaucratic phase began in which the role of the Grand Viziers (especially Sokullu Mehmed Pasha) in the administrative mechanism increased.
2. Military and Strategic Balance: The capture of Szigetvár consolidated Ottoman dominance in Southern Hungary and Slavonia. However, the attrition of the Ottoman army also demonstrated that its absolute offensive capability against the Habsburgs had reached its limits.
3.Diplomatic Balance: Following the campaign, the Treaty of Edirne was signed in 1568 between Selim II and Holy Roman Emperor Maximilian II, lasting for eight years. With this treaty, the Habsburgs agreed to continue paying an annual tax of 30,000 ducats, and the borders were relatively stable for a long time (until the Long Wars of 1593).
4. Crisis Management Literature: Sokullu Mehmed Pasha's concealment of the Sultan's death for 48 days, ensuring the completion of the victory without disrupting the command and control of the army, is an example of tactical brilliance written in golden letters in the history of world military crisis management.

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The Impact of Macroeconomic Determinants (Inflation, Economic Growth, and Trade Openness) on Tax Revenue in Algeria: An Empirical OLS Analysis (2000–2024)

Belaoudja Hassina

Abstract. *Tax revenue plays a central role in ensuring fiscal sustainability, yet empirical evidence on the macroeconomic factors shaping tax revenue performance in Algeria remains limited. This study aims to examine the effects of inflation, economic growth, and trade openness on tax revenue in Algeria over the period 2000–2024. Using annual time-series data, the analysis employs the Ordinary Least Squares (OLS) method to estimate the relationship between these macroeconomic variables and tax revenue measured as a percentage of Gross Domestic Product (GDP). The estimated model is statistically significant and explains approximately 48% of the variation in tax revenue. The findings indicate that inflation has a positive and statistically significant effect on tax revenue, whereas GDP growth is associated with a statistically significant negative effect. By contrast, the estimated effect of trade openness is negative but not statistically significant. The negative association between GDP growth and tax revenue may reflect the structure of the Algerian economy, where economic expansion has been largely driven by the hydrocarbon sector without generating a proportional increase in non-hydrocarbon tax revenues. These results suggest that strengthening tax performance requires more than sustaining economic growth alone. Expanding the effective tax base, improving tax administration through digitalization, and supporting economic diversification are likely to enhance domestic revenue mobilization and reduce dependence on hydrocarbon revenues. The study contributes to the literature by providing updated empirical evidence on the macroeconomic determinants of tax revenue in Algeria and offers practical insights for policymakers seeking to strengthen fiscal sustainability.*

Keywords: *tax revenue, inflation, economic crowth, trade openness, Algeria*

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Əlcəzairdə makroiqtisadi amillərin (inflyasiya, iqtisadi artım və ticarət açıqlığı) vergi gəlirlərinə təsiri: empirik OLS təhlili (2000–2024)

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Xülasə. *Vergi gəlirləri fiskal dayanıqlığın təmin edilməsində mühüm rol oynayır. Bununla belə, Əlcəzairdə vergi gəlirlərinin formalaşmasına təsir edən makroiqtisadi amillərlə bağlı empirik sübutlar hələ də məhduddur. Bu tədqiqat 2000–2024-cü illər ərzində Əlcəzairdə inflyasiyanın, iqtisadi artımın və ticarət açıqlığının vergi gəlirlərinə təsirini araşdırmağı qarşıya məqsəd qoyur.*

İllik zaman sırası məlumatlarından istifadə etməklə, tədqiqat vergi gəlirlərinin ÜDM-ə nisbətdə faizi ilə ölçülən göstəricisi ilə qeyd olunan makroiqtisadi dəyişənlər arasındakı əlaqəni qiymətləndirmək üçün Adi Ən Kiçik Kvadratlar (OLS) metodundan istifadə edir. Qiymətləndirilmiş model statistik baxımdan əhəmiyyətli olmuş və vergi gəlirlərindəki dəyişkənliyin təxminən 48%-ni izah etmişdir. Nəticələr göstərir ki, inflyasiya vergi gəlirlərinə müsbət və statistik baxımdan əhəmiyyətli təsir göstərir, halbuki ÜDM artımı vergi gəlirləri ilə statistik baxımdan əhəmiyyətli mənfi əlaqəyə malikdir. Bunun əksinə olaraq, ticarət açıqlığının qiymətləndirilmiş təsiri mənfi olsa da, statistik baxımdan əhəmiyyətli deyil. İqtisadi artım ilə vergi gəlirləri arasındakı mənfi əlaqə Əlcəzair iqtisadiyyatının struktur xüsusiyyətləri ilə izah oluna bilər. Belə ki, iqtisadi genişlənmə, əsasən, karbohidrogen sektorunun hesabına baş vermiş və qeyri-karbohidrogen sahələrindən əldə olunan vergi gəlirlərində mütənasib artım yaratmamışdır. Bu nəticələr göstərir ki, vergi gəlirlərinin səmərəliliyinin artırılması yalnız davamlı iqtisadi artımın təmin edilməsi ilə məhdudlaşmamalıdır. Effektiv vergi bazasının genişləndirilməsi, rəqəmsallaşdırma vasitəsilə vergi inzibatçılığının təkmilləşdirilməsi və iqtisadi diversifikasiyanın dəstəklənməsi daxili gəlirlərin səfərbər edilməsini gücləndirə və karbohidrogen gəlirlərindən asılılığı azalda bilər. Tədqiqat Əlcəzairdə vergi gəlirlərinin makroiqtisadi determinantları üzrə yenilənmiş empirik sübutlar təqdim etməklə ədəbiyyata töhfə verir və fiskal dayanıqlığın gücləndirilməsində siyasətçilər üçün praktiki tövsiyələr irəli sürür.

Açar sözlər: *vergi gəlirləri, inflyasiya, iqtisadi artım, ticarət açıqlığı, Əlcəzair*

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Introduction

Tax revenue represents the principal and most sustainable source of public finance, enabling governments to finance public services, infrastructure, social protection, and long-term development programs. Beyond its fiscal role, an effective tax system contributes to macroeconomic stability, supports income redistribution, and strengthens governments' capacity to achieve sustainable development objectives (Organisation for Economic Co-operation and Development (OECD), 2024). Consequently, improving domestic revenue mobilization has become a major policy priority, particularly for developing countries seeking to reduce fiscal vulnerabilities and enhance resilience to external economic shocks (International Monetary Fund (IMF), 2025).

From a theoretical perspective, tax revenue is influenced by a range of macroeconomic factors. Inflation may increase nominal tax receipts by expanding the value of taxable income, consumption, and business transactions, although persistent inflation may weaken economic activity and reduce the real value of government revenues when tax collection is delayed. Economic growth is generally expected to broaden the tax base through higher production, income, and consumption, thereby improving tax performance. Likewise, trade openness can affect tax revenue by influencing trade flows, economic activity, and the composition of government revenues. Nevertheless, the magnitude and direction of these relationships depend on the structure of the economy, the characteristics of the tax system, and the quality of fiscal and institutional governance.

Algeria offers an appropriate context for examining these relationships. Despite successive fiscal reforms aimed at modernizing tax administration and strengthening domestic revenue mobilization, public finances continue to rely heavily on hydrocarbon revenues, while the contribution of non-hydrocarbon taxation remains relatively limited. This situation highlights the need to better understand the macroeconomic factors influencing tax revenue and to identify policy measures capable of improving the efficiency and sustainability of the tax system (IMF, 2025).

Although the determinants of tax revenue have been widely examined in the empirical literature, previous studies report mixed findings regarding the effects of inflation, economic growth, and trade openness. These inconsistencies largely reflect differences in economic structures, institutional quality, fiscal systems, and methodological approaches. Consequently, further country-specific evidence remains necessary, particularly for resource-dependent economies such as Algeria, where the determinants of tax revenue may differ from those observed in more diversified economies.

Against this background, the present study investigates the effects of inflation, economic growth, and trade openness on tax revenue in Algeria over the period 2000–2024 using annual time-series data and the Ordinary Least Squares (OLS) estimation technique. The study contributes to the literature by providing recent empirical evidence on the macroeconomic determinants of tax revenue in Algeria and by offering policy-relevant insights that may support efforts to strengthen domestic revenue mobilization and promote long-term fiscal sustainability.

Accordingly, the study addresses the following main research question:
To what extent do inflation, economic growth, and trade openness affect tax revenue in Algeria during the period 2000–2024?

To answer this question, the following sub-questions are examined:
- What is the effect of inflation on tax revenue in Algeria?
- How does economic growth influence tax revenue in Algeria?
- Does trade openness have a statistically significant effect on tax revenue in Algeria?
- To what extent do inflation, economic growth, and trade openness jointly explain variations in tax revenue?

Based on the theoretical framework and the empirical literature, the study tests the following hypotheses:
H1: Inflation has a statistically significant effect on tax revenue in Algeria.
H2: Economic growth has a statistically significant effect on tax revenue in Algeria.
H3: Trade openness has a statistically significant effect on tax revenue in Algeria.
H4: Inflation, economic growth, and trade openness jointly exert a statistically significant effect on tax revenue in Algeria.

Literature Review
1. Theoretical Background
1.1. Tax Revenue
Tax revenue is the cornerstone of public finance and the principal source of domestic government financing. It consists of compulsory payments levied by the state on individuals and businesses without direct compensation, serving not only to generate public revenue but also to allocate resources efficiently, redistribute income, promote macroeconomic stability, and address market failures (Musgrave & Musgrave, 1989). Economically, it reflects a government's capacity to mobilize domestic resources for public expenditure and long-term development; an effective tax system should generate adequate income while preserving equity, efficiency, administrative simplicity, and transparency, limiting economic distortions and providing a stable financial base for education, healthcare, infrastructure, and social protection (Rosen & Gayer, 2023).

Tax revenue is shaped jointly by economic, institutional, and administrative factors. Economic conditions determine the size of the tax base through changes in production, income, consumption, investment, and trade, while institutional quality, governance, and administrative and enforcement efficiency determine how effectively taxable activity is converted into actual revenue (Stiglitz & Rosengard, 2015).

For emerging economies, strengthening domestic revenue mobilization has become a strategic priority to reduce dependence on external funding and natural-resource income while improving fiscal sustainability and resilience to shocks (OECD, 2024). In Algeria, despite successive fiscal reforms, tax performance remains constrained by structural issues—heavy reliance on petroleum income, a large informal economy, and limited administrative capacity. Recent evidence indicates that governance and tax administration reforms, combined with favorable macroeconomic conditions, are critical to improving tax revenue performance (Belaoudja & Hamdani, 2026).

Given this complexity, identifying the macroeconomic drivers of tax revenue is a central concern in public finance research, with inflation, economic growth, and trade openness among the most frequently examined, as each can influence both the size of the tax base and the state's capacity to collect sustainable revenue. The following section examines the theoretical relationship between inflation and tax revenue.

1.2. Inflation and Tax Revenue

Inflation denotes a sustained rise in the general price level, reducing the purchasing power of money. As a key macroeconomic indicator, it affects production prices, household consumption, investment decisions, wage dynamics, and overall fiscal performance. Its relationship with tax revenue is particularly relevant because inflation affects both the nominal value of tax bases and the real value of government revenue, making its net fiscal impact conceptually complex (Mankiw, 2024). Theoretically, moderate inflation may raise tax collection by increasing the nominal value of taxable income, corporate profits, consumption expenditure, and commercial transactions. Under progressive systems, rising nominal incomes can also push taxpayers into higher brackets, generating additional revenue without changes in statutory rates. Inflation can thus expand the tax base and boost nominal revenues, particularly where tax administration is efficient and collection occurs without major delay (Tanzi, 1977). Conversely, chronic or excessive inflation may undermine tax performance through several channels: it erodes purchasing power, discourages private investment, raises production costs, and can impair overall economic activity. Moreover, delays between the taxable event and actual collection allow inflation to erode the real value of tax receipts—the widely recognized Tanzi Effect—an outcome particularly pronounced in developing economies where administrative inefficiencies and collection lags further diminish real government income (Tanzi, 1977).

The magnitude and direction of the inflation–tax revenue relationship depend largely on country-specific characteristics, including the structure and composition of the tax system, administrative effectiveness, digitization, institutional quality, and taxpayer compliance. As a result, similar inflation rates can produce markedly different revenue outcomes across countries with different institutional and socioeconomic settings (Abdel Rahman, 2024). For emerging economies such as Algeria, where fiscal performance remains highly sensitive to macroeconomic fluctuations and structural constraints, understanding inflation's effect on tax revenue is particularly relevant, offering evidence for fiscal policies that safeguard domestic revenue mobilization while maintaining macroeconomic stability. This discussion underpins the first empirical hypothesis of the present study.

1.3. Economic Growth and Tax Revenue

Economic growth, defined as the persistent rise in the real value of goods and services produced, typically measured by real GDP growth, is a fundamental indicator of economic performance and a key predictor of budgetary capacity. From a public finance perspective, growth expands the tax base by raising household income, corporate profits, consumption, and investment, thereby strengthening the government's revenue-mobilization capacity (Rosen & Gayer, 2023). This relationship is anchored in the concept of tax buoyancy, which holds that tax revenue should rise as economic activity expands: higher output and income generate more taxable transactions, increasing collections from both direct taxes (personal and corporate income) and indirect taxes (VAT, excise duties). Sustained growth is thus generally expected to improve fiscal performance without requiring higher statutory rates (Musgrave & Musgrave, 1989). Despite this theoretical expectation, empirical evidence shows that economic expansion does not always translate proportionally into higher tax revenue. The strength of this link depends on structural factors such as the type of economic activity, the size of the informal sector, the prevalence of tax exemptions, administrative efficiency, and institutional quality. Where growth concentrates in sectors benefiting from preferential tax treatment or compliance remains weak, GDP gains may yield only modest revenue improvements (Stiglitz & Rosengard, 2015).

This issue is especially pronounced in resource-dependent economies, where growth driven mainly by extractive industries may not substantially broaden the domestic tax base beyond that sector—allowing relatively strong GDP growth to coexist with weak domestic tax collection. This divergence underscores the importance of economic diversification and effective tax administration for revenue mobilization (OECD, 2024). Recent empirical research shows that the growth–tax revenue relationship varies considerably across countries and development stages: some studies find a favorable long-run link, while others report weak or negative effects where institutional constraints, policy distortions, or structural factors limit the fiscal gains of growth. These divergent findings highlight the need for country-specific empirical analysis, forming the basis for the study's second hypothesis concerning the relationship between GDP growth and tax revenue.

1.4. Trade Openness and Tax Revenue

Trade openness reflects the extent to which an economy is integrated into global markets, generally measured as the ratio of total exports and imports to GDP. As a key dimension of globalization, it promotes production, investment, technological diffusion, and growth, while also affecting fiscal performance through multiple channels (Krugman et al., 2018). From a public finance standpoint, trade openness influences tax revenue both directly, through customs tariffs and import taxes, and indirectly, since deeper integration into international markets stimulates production, investment, employment, and household income—broadening the domestic tax base and raising revenue from personal income, corporate income, and consumption taxes. Trade openness has thus long been viewed as a driver of domestic revenue mobilization through higher economic activity (Baunsgaard & Keen, 2010). Nonetheless, the theoretical relationship remains ambiguous. Trade liberalization typically reduces tariffs and customs charges, which can sharply lower border tax collections. Whether these losses are offset depends on the government's capacity to strengthen domestic taxation through VAT, corporate, and personal income taxes. Countries with efficient administrations and broad tax bases are better positioned to compensate for tariff losses, whereas developing economies with weaker institutional capacity often experience persistent revenue declines following liberalization (Baunsgaard & Keen, 2010).

The fiscal impact of trade openness is further conditioned by export composition, economic diversification, the size of the informal sector, customs administration efficiency, and fiscal governance quality. In resource-dependent economies, greater trade participation does not necessarily raise domestic tax revenue when exports remain concentrated in sectors with preferential tax treatment or limited fiscal spillovers, so the revenue effects of trade openness vary considerably across countries and stages of development (OECD, 2024).

This ambiguity is mirrored in the empirical literature: while many studies find a positive association between trade openness and tax revenue via its contribution to growth, others report minimal, statistically negligible, or negative effects, largely attributable to tariff reductions and structural constraints. These divergent findings underscore the need for country-specific research. For Algeria, examining trade openness's contribution to tax revenue is particularly relevant given ongoing efforts to diversify the economy and boost domestic revenue mobilization beyond oil resources. Trade openness therefore constitutes the third macroeconomic determinant examined in this study.

1.5. Empirical Literature

Tax revenue determinants have received substantial attention in the empirical public finance literature, especially in developing and emerging economies where strengthening domestic resource mobilisation has become a key fiscal policy objective. While macroeconomic conditions are known to influence tax performance, empirical evidence remains far from unanimous: heterogeneity in the effects of inflation, economic growth, and trade openness on tax revenue is attributed to differences in economic structures, institutional quality, tax policy frameworks, and econometric approaches.

Evidence from developed and transition economies generally agrees that favorable macroeconomic conditions facilitate domestic tax revenue mobilization. In panel data models for European economies, Ristić Cakić et al. (2025) showed that economic growth and trade openness positively affect tax revenue, while inflation exerts a negative impact on fiscal performance. Similarly, Matuiza and Šapkauskienė (2025) found that financial development and trade openness improve tax revenue in post-transition EU countries, though inflation's estimated effect depends on the econometric specification. Together, these findings suggest that diversified economies, prudent macroeconomic management, and efficient fiscal institutions enhance governments' ability to convert economic growth into sustainable tax revenues (Ristić Cakić et al., 2025; Matuiza & Šapkauskienė, 2025).

Conversely, evidence from developing economies reveals a far more heterogeneous relationship between macroeconomic variables and tax revenue. Using an ARDL model for Zambia, Funjika and Gatawa (2025) found that trade openness has a positive long-run impact on tax revenue, whereas inflation and GDP per capita negatively affect fiscal performance. Similarly, Chahib, Bel Mkaddem and Tesse (2026), applying a panel ARDL model to MENA countries, concluded that exports and imports positively affect corporate tax revenue in the long run, while GDP growth does not necessarily raise tax collections. These results indicate that the fiscal implications of macroeconomic performance depend on structural features, institutional quality, tax policy design, and administrative efficiency (Funjika & Gatawa, 2025; Chahib et al., 2026).

Cross-country evidence further confirms the absence of a uniform relationship between macroeconomic variables and tax revenue. Covering 172 countries, Cornevin et al. (2024) found that tax revenue responds positively to economic growth in the long run, while short-run effects remain relatively weak due to differences in tax buoyancy, institutional capacity, and fiscal structures—suggesting that similar macroeconomic conditions can produce markedly different fiscal outcomes depending on each country's economic structure, institutional environment, and tax system.

Empirical studies on tax revenue determinants remain relatively scarce in the Algerian context, with most concentrating on institutional rather than macroeconomic factors. Belaoudja and Hamdani (2026), for instance, examined the impact of e-governance on tax revenue using annual data for 2002–2023 and OLS estimation, finding that the E-Government Development Index (EGDI) has no statistically significant direct effect on tax revenue, while regulatory quality significantly improves fiscal performance. They concluded that digital transformation alone is insufficient for improving domestic revenue mobilisation without accompanying institutional and regulatory reforms (Belaoudja & Hamdani, 2026).

Overall, the existing literature confirms that no single macroeconomic determinant exerts a persistent effect on tax revenue across contexts. Economic growth and trade openness tend to improve fiscal performance, but their effects vary substantially depending on institutional quality, tax policy design, economic diversification, and administrative efficiency. The relationship between inflation and tax revenue remains similarly unclear, with findings ranging from positive to negative depending on the economic environment and estimation methods. These disparate findings underscore the importance of country-specific empirical studies capable of capturing the structural and institutional particularities of individual economies.

To facilitate comparison with the present study, Table 1 summarises the main characteristics of selected recent empirical studies, including geographical coverage, econometric methodology, explanatory variables, main findings and their relevance to the present research.

Table 1
Summary of previous empirical studies

Research Gap / Limitation	Key Findings	Variables Examined	Econometric Method	Period	Country / Sample	Authors
Focuses primarily on the economic growth–tax revenue relationship without jointly examining other key macroeconomic determinants.	Tax revenue follows economic growth in the long run, whereas short-run responses are considerably weaker because of differences in tax buoyancy across countries.	Economic growth, Tax revenue	Dynamic panel estimators	1990 – 2019	172 countries	Cornevin et al. (2024)
Findings are based on developed European economies and may not fully reflect the characteristics of developing and resource-dependent countries.	Economic growth and trade openness positively affect tax revenue, whereas inflation negatively affects fiscal performance.	GDP growth, Inflation, Trade openness	Panel regression	Panel data	European countries	Ristić Cakić et al. (2025)
Focuses on transition economies with institutional and economic characteristics that differ from those of Algeria.	Financial development and trade openness positively influence tax revenue, while inflation produces mixed effects across estimation models.	Financial development, Inflation, Trade openness	Panel estimation	Panel data	Post-transition EU economies	Matuiza & Šapkauskienė (2025)
Findings are	Trade openness	Inflation,	ARDL	Annu	Zambia	Funjika &

country-specific and cannot be generalized to all developing or resource-dependent economies.	positively affects tax revenue, whereas inflation and GDP per capita exert negative long-run effects.	GDP per capita, Trade openness		al data		Gatawa (2025)
Focuses on corporate tax revenue rather than total tax revenue and employs a regional panel framework.	International trade stimulates corporate tax revenue in the long run, whereas GDP growth does not consistently increase tax receipts.	Exports, Imports, GDP growth	Panel ARDL	Panel data	MENA countrie s	Chahib, Bel Mkaddem, & Tesse (2026)
Examines institutional determinants but does not jointly analyze the effects of inflation, GDP growth, and trade openness on tax revenue.	E-government development has no statistically significant direct effect on tax revenue, whereas regulatory quality significantly improves fiscal performance.	EGDI, Regulator y quality, Control variables	OLS	2002 – 2023	Algeria	Belaoudja & Hamdani (2026)

Source. Compiled by the authors based on the reviewed literature.

As shown in Table 1, numerous empirical studies have examined the determinants of tax revenue, producing a wide range of findings. However, the evidence on the effects of inflation, GDP growth, and trade openness remains inconclusive. In addition, previous studies differ considerably in terms of their research methods, datasets, and country coverage, while empirical evidence for Algeria remains absent. This gap in the literature provides a strong justification for further empirical investigation in the Algerian context.

1.6. Reasearch Gap

Despite the growing body of empirical research on the determinants of tax revenue, several important gaps remain.

First, previous studies report conflicting findings regarding the effects of inflation, economic growth, and trade openness, reflecting differences in economic structures, institutional quality, fiscal systems, and econometric methodologies across countries. Consequently, no clear consensus has yet emerged concerning either the magnitude or the direction of these relationships.

Second, although a substantial number of studies have investigated the determinants of tax revenue in advanced economies and broad cross-country settings, empirical evidence from developing and resource-dependent economies remains relatively limited. This is particularly evident in the case of Algeria, which has received comparatively little attention in the recent empirical literature despite its ongoing efforts to strengthen domestic revenue mobilization and reduce its dependence on hydrocarbon revenues.

Third, the limited empirical studies conducted in Algeria have focused primarily on institutional determinants of tax performance, such as e-government and regulatory quality, while comparatively less attention has been devoted to examining the combined effects of key macroeconomic variables on tax revenue. Furthermore, differences in variable selection, estimation methods, and study periods make direct comparisons across previous studies difficult.

To address these gaps, the present study examines the effects of inflation, GDP growth, and trade openness on tax revenue in Algeria using annual time-series data covering the period 2000–2024 and the Ordinary Least Squares (OLS) estimation technique. By focusing on a resource-dependent developing economy, this study provides updated empirical evidence on the role of key macroeconomic determinants in shaping tax revenue performance. It also contributes to the growing body of literature on domestic revenue mobilization in developing economies while offering policy-relevant insights for enhancing fiscal sustainability.

Methods

1. Research Design

This study adopts a quantitative, explanatory research design to examine the relationship between inflation, economic growth, trade openness, and tax revenue in Algeria over the period 2000–2024. The analysis is based on annual time-series data and employs the Ordinary Least Squares (OLS) estimation technique to estimate the relationship between the selected macroeconomic variables and tax revenue. The study relies on secondary data obtained from internationally recognized databases. This research design is appropriate for examining the historical relationship among the study variables and generating empirical evidence to support fiscal policy in Algeria.

2. Data Sources and Sample

This study examines the effects of selected macroeconomic variables on tax revenue performance in Algeria over the period 2000–2024. The empirical analysis is based on annual time-series data covering 25 years. This period includes several major economic events, including fluctuations in international oil prices, the implementation of fiscal reform programmes, global financial crises, and the economic consequences of the COVID-19 pandemic.

The empirical model includes four variables. Tax revenue, measured as a percentage of Gross Domestic Product (GDP), serves as the dependent variable, while the inflation rate, GDP growth rate, and trade openness (measured as a percentage of GDP) are the explanatory variables. The data were obtained from internationally recognised and reliable sources.

3. Description of Variables

The empirical model consists of one dependent variable and three explanatory variables. Tax revenue, expressed as a percentage of GDP, represents the amount of tax revenue collected relative to the size of the economy. The inflation rate reflects changes in the general price level and may affect tax revenue through its influence on nominal income and consumption. GDP growth indicates the pace of economic expansion and is expected to influence the size of the tax base. Trade openness, measured as the ratio of total trade to GDP, indicates the degree of the country's integration into the global economy and may influence tax revenue through its effects on customs duties, imports, exports, and overall economic activity.

Table 2 Presents the definitions, measurements, data sources, and expected signs of the variables included in the empirical model.

Table 2
Definition and measurement of the study variables

Expected Effect	Measurement	Symbol	Variable
Dependent variable	Tax revenue as a percentage of GDP	TAX	Tax Revenue (% of GDP)
±	Annual inflation rate	INF	Inflation Rate (%)
+	Annual GDP growth rate	GDP	GDP Growth (%)
±	Total trade as a percentage of GDP	TRADE	Trade Openness (% of GDP)

Source. Prepared by the authors based on EViews output.

4. Model Specification
To examine the relationship between tax revenue and its selected macroeconomic determinants, the following linear econometric model is specified:
$TAX_t=\beta_0+\beta_1 INF_t+\beta_2 GDP_t+\beta_3 TRADE_t+\varepsilon_t$ where:

- TAX_t: denotes tax revenue as a percentage of Gross Domestic Product (GDP);
- INF_t: represents the annual inflation rate
- GDP_t: denotes the annual GDP growth rate
- $TRADE_t$: measures trade openness as a percentage of GDP
- β_0 is the intercept;
- β_1, β_2, and β_3: are the slope coefficients to be estimated
- ε_t : is the random error term that captures the effects of omitted factors.

5. Estimation Procedure
The econometric analysis was carried out using EViews. As a preliminary step, the data were subjected to a set of statistical and diagnostic tests to evaluate their characteristics and verify compliance with the assumptions required for Ordinary Least Squares (OLS) estimation. Establishing these conditions before estimating the model enhances the reliability of the coefficient estimates and supports the validity of the subsequent empirical interpretation.

Results and Discussion

1. Descriptive Statistics

Table 3
Descriptive statistics of the study variables

Max	Min	Std. Dev.	Mean	Variable
5.731	2.000	1.345	4.059	Tax Revenue (% of GDP)
9.322	0.339	2.389	4.438	Inflation Rate (%)
6.500	-5.000	2.159	3.052	GDP Growth (%)
71.000	40.100	8.646	56.208	Trade Openness (% of GDP)

Source. Prepared by the authors based on EViews output.

The descriptive statistics presented in Table 3 summarize the main features of the variables over the period 2000–2024. Tax revenue averaged 4.059% of GDP, indicating a moderate contribution of tax receipts to the Algerian economy. The standard deviation of 1.345 suggests that tax revenue exhibited relatively limited fluctuations throughout the sample period.

Inflation averaged 4.438% annually, with values ranging from 0.339% to 9.322%. This variation reflects differences in price dynamics, with some years characterized by relatively stable inflation and others by stronger inflationary pressures. Economic growth recorded an average of 3.052%, while the minimum value of −5.000% confirms that Algeria experienced periods of economic contraction. The relatively high standard deviation also indicates that growth performance was uneven over time.

Trade openness recorded the highest mean value among the explanatory variables, averaging 56.208% of GDP. This highlights the importance of external trade in the Algerian economy, while its relatively large standard deviation indicates that the degree of trade integration varied considerably across the study period.

Taken together, these descriptive results reveal noticeable differences in the behavior of the variables over time. Such variation provides an appropriate basis for investigating the relationship between tax revenue and the selected macroeconomic determinants using econometric techniques.

2. Correlation Analysis

Table 4
Pearson correlation matrix

TRADE	GDP	INF	TAX	Variables
-0.446	-0.521	0.400	1.000	Tax Revenue (TAX)
-0.268	0.045	1.000	0.400	Inflation (INF)
0.343	1.000	0.045	-0.521	GDP Growth (GDP)
1.000	0.343	-0.268	-0.446	Trade Openness (TRADE)

Source. Prepared by the author based on EViews output.

Table 4 reports the Pearson correlation coefficients among the variables included in the empirical analysis. Tax revenue is positively correlated with inflation ($r = 0.400$), indicating that higher inflation rates tend to be associated with higher tax revenue as a share of GDP. A possible explanation is that rising prices increase nominal tax receipts, particularly under a nominal tax system.

By contrast, tax revenue exhibits a moderate negative correlation with GDP growth ($r = –0.521$). This suggests that periods of stronger economic growth were accompanied by relatively lower tax revenue ratios over the sample period. One possible explanation lies in the structure of the Algerian economy, where economic growth has been largely driven by the hydrocarbon sector, limiting the extent to which higher output translates into broader tax revenues.

Trade openness is also moderately and negatively correlated with tax revenue ($r = –0.446$), implying that greater integration into international trade was not associated with higher tax revenue during the period under investigation.

The correlations among the explanatory variables remain relatively low to moderate. The highest coefficient is observed between GDP growth and trade openness ($r = 0.343$), which is well below the threshold commonly associated with multicollinearity concerns. Overall, the correlation matrix suggests that the explanatory variables can be included simultaneously in the regression model without raising serious multicollinearity issues.

3. Unit Root Test

Table 5

Augmented Dickey–Fuller (ADF) unit root test results

Order of Integration	p-value	ADF at First Difference	p-value	ADF at Level	Variable
I(1)	0.0000	-6.6381	0.3238	-1.9176	Tax Revenue (TAX)
I(0)	0.0000	-4.9174	0.0241	-3.1343	Inflation (INF)
I(0)	0.0000	-9.4108	0.0078	-3.5092	GDP Growth (GDP)
I(1)	0.0003	-4.4245	0.5355	-1.4960	Trade Openness (TRADE)

Source. Prepared by the author based on EViews output.

To examine the time-series properties of the data, the Augmented Dickey–Fuller (ADF) unit root test was conducted before estimating the regression model. This preliminary analysis was intended to identify the order of integration of each variable and to reduce the likelihood of obtaining spurious regression results.

As reported in Table 5, inflation and GDP growth are stationary in levels, with p-values below the 5% significance level, indicating that both variables are integrated of order zero, I(0). Tax revenue and trade openness, however, are non-stationary at level and become stationary after first differencing, classifying them as integrated of order one, I(1).

Taken together, these findings show that the variables are integrated at different orders, consisting of a combination of I(0) and I(1) series, while none is integrated of order two, I(2). This integration pattern provides the foundation for the subsequent stages of the empirical analysis.

4. Ordinary Least Squares (OLS) Estimation Results

Table 6

Ordinary least squares (OLS) estimation results

p-value	t-statistic	Std. Error	Coefficient	Variable
0.0024	3.4511	1.6326	5.6344	Constant
0.0353	2.2498	0.0932	0.2096	Inflation Rate
0.0109	-2.7937	0.1058	-0.2956	GDP Growth
0.3096	-1.0412	0.0274	-0.0285	Trade Openness

Source. Author's calculations using EViews.

Table 6 presents the results of the Ordinary Least Squares (OLS) estimation examining the relationship between tax revenue and the selected macroeconomic variables. Inflation has a positive and statistically significant coefficient ($\beta = 0.2096$, $p = 0.0353$), indicating that higher inflation is associated with an increase in tax revenue as a share of GDP. Holding the other variables constant, a one-percentage-point increase in inflation is associated with an estimated 0.21 percentage-point increase in tax revenue. A plausible explanation is that rising prices increase nominal incomes, consumption expenditure, and taxable transactions, thereby expanding the tax base.

GDP growth, on the other hand, has a negative and statistically significant coefficient (β = −0.2956, p = 0.0109). This finding suggests that periods of stronger economic growth were accompanied by a lower tax revenue-to-GDP ratio during the sample period. One possible explanation is the structure of the Algerian economy, where growth has been largely driven by the hydrocarbon sector, limiting the expansion of non-hydrocarbon tax revenues. The estimated coefficient for trade openness is negative (β = −0.0285), although it is not statistically significant (p = 0.3096). This result indicates that, after controlling for the other explanatory variables, changes in trade openness were not associated with a statistically significant change in tax revenue.

Overall, the estimates suggest that inflation and GDP growth were significant determinants of tax revenue over the study period, whereas trade openness did not have a statistically significant effect within the estimated model.

Table 7

Model summary statistics

Prob. (Jarque–Bera	• Jarque–Bera	• Durbin–Watson	• Prob. (F-statistic)	• F-statistic	• Adjusted R^2	• R^2
0.6408	0.8902	1.2986	0.0030	6.4063	0.4033	0.4779

Source. Author's calculations using Eviews

The model summary statistics suggest that the estimated regression provides a satisfactory fit for explaining the relationship between tax revenue and the selected macroeconomic variables. The coefficient of determination (R^2 = 0.4779) indicates that inflation, GDP growth, and trade openness jointly explain approximately 47.79% of the variation in tax revenue. After adjusting for the number of explanatory variables, the adjusted R^2 declines to 40.33%, reflecting a moderate but acceptable level of explanatory power for a macroeconomic time-series model.

The overall regression is statistically significant, as indicated by an F-statistic of 6.4063 and a corresponding p-value of 0.0030. This result rejects the null hypothesis that all slope coefficients are jointly equal to zero, confirming that the explanatory variables collectively contribute to explaining variations in tax revenue. The Jarque–Bera statistic is 0.8902, with a p-value of 0.6408, which is well above the 5% significance level. This indicates that the residuals do not depart significantly from a normal distribution, suggesting that the normality assumption of the Ordinary Least Squares (OLS) model is satisfied. The Durbin–Watson statistic is 1.2986, which is below the reference value of 2 and may indicate the presence of positive serial correlation in the residuals. This finding is consistent with the Ljung–Box test reported earlier and suggests that the estimated coefficients should be interpreted with appropriate caution.

5. Diagnostic Tests

Table 8
Diagnostic test results

Decision	p-value	Statistic	Test
No heteroskedasticity	0.8566	0.7703	Breusch–Pagan
No serial correlation at the 5% level	0.0754	3.1619	Ljung–Box (Lag 1)
Serial correlation detected	0.0146	8.4508	Ljung–Box (Lag 2)
Indicates possible positive autocorrelation	—	1.2986	Durbin–Watson

Source. Author's calculations using Eviews.

A series of diagnostic tests was conducted to evaluate the reliability of the estimated regression model.

The Breusch–Pagan test produced a p-value of 0.8566, which is well above the 5% significance level. This result indicates that the null hypothesis of homoskedasticity cannot be rejected, suggesting that the variance of the residuals remains constant across observations. Therefore, there is no evidence of heteroskedasticity in the estimated model.

The Ljung–Box test provides mixed evidence regarding residual serial correlation. At the first lag, the p-value (0.0754) exceeds the 5% significance level, indicating no statistically significant first-order autocorrelation. At the second lag, however, the p-value falls to 0.0146, suggesting the presence of serial correlation in the residuals.

This interpretation is consistent with the Durbin–Watson statistic of 1.2986, which is below the reference value of 2 and may indicate positive serial correlation. Although the Durbin–Watson statistic alone is not sufficient to confirm autocorrelation, it supports the evidence obtained from the Ljung–Box test.

Taken together, the diagnostic tests suggest that the model satisfies the homoskedasticity assumption but shows some evidence of residual serial correlation. The estimated coefficients should therefore be interpreted with appropriate caution. Future studies may address this issue by considering alternative model specifications or applying estimation methods that are more robust to serial correlation.

6. Hypothesis Testing
The research hypotheses were evaluated using the OLS estimation results at the 5% significance level. Decisions regarding each hypothesis were based on the statistical significance of the estimated coefficients.

Hypothesis 1 (H1)
H0: Inflation has no statistically significant effect on tax revenue in Algeria.
H1: Inflation has a statistically significant effect on tax revenue in Algeria.

The estimated coefficient for inflation is 0.2096, with a p-value of 0.0353. Since the p-value is below the 5% significance level, the null hypothesis is rejected. The results indicate that inflation has a positive and statistically significant effect on tax revenue over the study period.

Hypothesis 2 (H2)
H0: GDP growth has no statistically significant effect on tax revenue in Algeria.
H2: GDP growth has a statistically significant effect on tax revenue in Algeria.
GDP growth has an estimated coefficient of −0.2956 and a p-value of 0.0109. The null hypothesis is therefore rejected, indicating that GDP growth is significantly associated with tax revenue. The estimated coefficient suggests a negative relationship during the study period.

Hypothesis 3 (H3)
H0: Trade openness has no statistically significant effect on tax revenue in Algeria.
H3: Trade openness has a statistically significant effect on tax revenue in Algeria.
The estimated coefficient for trade openness is −0.0285, with a p-value of 0.3096, which exceeds the 5% significance level. The null hypothesis cannot be rejected, indicating that trade openness does not have a statistically significant effect on tax revenue within the estimated model.

Hypothesis 4 (H4)
H0: The explanatory variables are not jointly significant in explaining tax revenue.
H4: The explanatory variables are jointly significant in explaining tax revenue.
The joint significance of the regression model was assessed using the F-test. The estimated F-statistic is 6.4063, with a corresponding p-value of 0.0030. Since the p-value is below the 5% significance level, the null hypothesis is rejected. This result confirms that the explanatory variables are jointly significant and that the estimated OLS model provides a statistically significant explanation of variations in tax revenue

Table 9
Summary of hypothesis testing

Conclusion	Decision	Hypothesis
Inflation has a significant positive effect on tax revenue.	Supported	H1
GDP growth has a significant negative effect on tax revenue.	Supported	H2
Trade openness has no significant effect on tax revenue.	Not Supported	H3
The explanatory variables jointly have a significant effect on tax revenue.	Supported	H4

Source. Author's computation based on EViews regression output.

Table 9 summarizes the results of the hypothesis testing based on the OLS estimation. The empirical findings support three of the four proposed hypotheses. Inflation is found to have a positive and statistically significant effect on tax revenue, suggesting that changes in the general price level are associated with variations in government tax receipts. GDP growth also has a statistically significant effect, although the estimated coefficient is negative. This result may reflect the structural characteristics of the Algerian economy, where economic growth has been largely driven by the hydrocarbon sector without generating a proportional increase in non-hydrocarbon tax revenues.

In contrast, the hypothesis concerning trade openness is not supported. The estimated coefficient is not statistically significant, indicating that changes in trade openness were not associated with significant variations in tax revenue during the study period. The joint significance of the explanatory variables is confirmed by the F-test. The statistically significant F-statistic indicates that the regression model, taken as a whole, explains a significant share of the variation in tax revenue. Overall, the results highlight inflation and GDP growth as significant determinants of tax revenue in

Algeria, while trade openness does not appear to have a statistically significant effect within the estimated model.

Discussion

7.1. Inflation and Tax Revenue

The positive and statistically significant relationship between inflation and tax revenue identified by the OLS estimates can be interpreted in light of the dual role that inflation plays within fiscal systems. According to the Olivera–Tanzi framework, inflation may reduce the real value of tax revenues when delays exist between the time tax liabilities arise and the time they are collected. Under such circumstances, persistent inflation erodes the purchasing power of government revenues before they are received. At the same time, however, inflation may increase nominal tax collections by expanding the value of taxable transactions, particularly in tax systems that rely heavily on indirect taxation and consumption-based taxes.

Previous empirical studies suggest that the relationship between inflation and tax revenue is not uniform across countries. Rather, its direction and magnitude depend on several factors, including the efficiency of tax administration, the structure of the tax system, the speed of tax collection, and the extent to which governments rely on nominal tax bases. While Tanzi emphasized the adverse effect of inflation on real tax revenues in the presence of collection lags, later studies have shown that moderate inflation may increase tax revenues where tax administration remains sufficiently responsive and tax liabilities adjust rapidly to price changes.

The Algerian case appears to be consistent with this latter interpretation. During the study period, indirect taxes and hydrocarbon-related revenues continued to represent important components of public revenues. Consequently, moderate inflation may have expanded the nominal tax base without generating losses large enough to offset the resulting increase in nominal tax receipts. This interpretation provides a plausible explanation for the positive coefficient estimated for inflation in the present study. Nevertheless, this result should not be interpreted as evidence that inflation is inherently beneficial for tax performance. Excessive or persistent inflation would eventually be expected to weaken real tax revenues as collection lags, price distortions, and indexation problems become more pronounced. Accordingly, the findings suggest that the positive relationship observed in Algeria reflects the specific macroeconomic and institutional conditions prevailing during the sample period rather than a universal characteristic of inflation.

7.2. Economic Growth and Tax Revenue

The regression results indicate that economic growth has a negative and statistically significant effect on tax revenue in Algeria. This finding contrasts with the conventional view in public finance, which assumes that higher economic growth expands the tax base and, consequently, increases government tax revenues. In most empirical studies, stronger economic performance is associated with higher tax revenue because rising production, income, and consumption generate additional taxable activities. However, this relationship is not universal and often depends on the structural characteristics of individual economies.

Several cross-country studies have reported a positive association between economic growth and tax revenue. For example, Gupta (2007) found that higher levels of economic development generally contribute to improved tax performance in developing countries by broadening the tax base and strengthening governments' revenue-raising capacity. Similarly, Castro and Camarillo (2014) showed that economic growth is an important determinant of tax revenue in OECD countries, where diversified production structures and efficient tax administrations allow economic expansion to be translated into higher fiscal revenues.

The Algerian experience, however, appears to follow a different pattern. Throughout much of the study period, economic growth was largely driven by the hydrocarbon sector, which remains capital-intensive and highly dependent on fluctuations in international energy prices. Although this sector contributes substantially to national output, its expansion does not necessarily generate proportional increases in taxable income, household consumption, or business activity within the non-hydrocarbon economy. Consequently, periods of higher GDP growth may not be accompanied by a comparable expansion of the domestic tax base.

Another possible explanation relates to the structure of fiscal policy. Hydrocarbon revenues have historically represented an important source of public finance in Algeria, reducing the relative contribution of non-hydrocarbon taxation to total government revenues. As a result, economic growth generated by the oil and gas sector may have had only a limited effect on conventional tax revenues measured as a share of GDP. This structural characteristic provides a plausible explanation for the negative coefficient estimated for economic growth in the present study.

Overall, the findings suggest that economic growth alone is insufficient to improve tax performance unless it is accompanied by broader structural transformation. Diversifying productive activities, strengthening the non-hydrocarbon private sector, and expanding the effective tax base are essential conditions for ensuring that future economic growth translates into sustainable increases in tax revenue. Consequently, the negative relationship identified in this study shovidence contradicting the broader theoretical relationship between growth and taxation.

7.3. Trade Openness and Tax Revenue

The estimated coefficient for trade openness is negative but statistically insignificant, indicating that changes in trade openness did not have a measurable effect on tax revenue in Algeria over the study period. Although the direction of the estimated coefficient is negative, the lack of statistical significance suggests that trade openness was not a key determinant of tax revenue once the effects of inflation and economic growth were taken into account.

This finding differs from much of the empirical literature, which generally identifies trade openness as an important driver of tax revenue, particularly in developing countries that have successfully complemented trade liberalization with comprehensive domestic tax reforms. Gupta (2007), for example, argues that greater trade openness can enhance tax performance by stimulating economic activity and encouraging governments to replace declining trade taxes with more efficient domestic taxes. Likewise, several comparative studies have reported that economies with broader tax bases and stronger fiscal institutions are better positioned to offset revenue losses associated with tariff reductions through improved domestic tax collection.

Nevertheless, the relationship between trade openness and tax revenue is not always positive. Previous research has shown that the fiscal effects of trade liberalization depend largely on the capacity of governments to implement effective tax reforms and strengthen domestic revenue mobilization. In countries where tariff reductions are not accompanied by improvements in tax administration or by the expansion of alternative tax bases, greater trade openness may generate limited fiscal benefits or even reduce government revenue.

The Algerian case appears to reflect these structural constraints. During the study period, external trade remained heavily concentrated in hydrocarbon exports, while the contribution of non-hydrocarbon exports to total trade remained relatively limited. Consequently, fluctuations in trade openness primarily reflected changes in hydrocarbon exports rather than a broad expansion of taxable economic activity across productive sectors. Moreover, the gradual transition from border taxation toward more efficient domestic taxation has progressed at a relatively moderate pace, limiting the extent to which greater trade integration could translate into higher tax revenues.

Taken together, these factors provide a plausible explanation for the negative but statistically insignificant coefficient estimated for trade openness. The findings therefore suggest that trade liberalization, by itself, is unlikely to strengthen tax performance unless it is accompanied by economic diversification, improvements in tax administration, and institutional reforms capable of expanding the domestic tax base. In this respect, the Algerian evidence is consistent with the broader view that the fiscal benefits of trade openness depend not only on increased international integration but also on the quality of domestic fiscal institutions and the structure of the national economy.

7.4. Overall Discussion and Policy Implications

Overall, the findings demonstrate that the relationship between macroeconomic conditions and tax revenue in Algeria differs in several respects from the conventional patterns reported in the international literature. Rather than following a universal relationship, the estimated coefficients appear to reflect the country's specific economic structure, institutional characteristics, and fiscal framework. This observation highlights the importance of interpreting empirical findings within their national context instead of assuming that macroeconomic determinants affect tax revenue uniformly across countries.

The positive effect of inflation suggests that, during the study period, moderate price increases expanded the nominal tax base sufficiently to outweigh the adverse effects commonly associated with inflation. Conversely, the negative coefficient estimated for economic growth indicates that increases in GDP did not necessarily translate into stronger tax revenue performance, largely because economic expansion remained concentrated in the hydrocarbon sector, with limited spillover effects on the broader domestic tax base. Likewise, the insignificant effect of trade openness implies that greater integration into international markets, by itself, was insufficient to improve tax revenue, reflecting the limited diversification of exports and the gradual pace of domestic tax reforms.

These findings reinforce the view that sustainable improvements in tax revenue depend not only on favorable macroeconomic conditions but also on the quality of fiscal institutions and the structure of the economy. Economic growth is unlikely to generate substantial gains in tax revenue unless it is accompanied by broader productive diversification, a stronger non-hydrocarbon private sector, and a more comprehensive tax base. Similarly, the potential fiscal benefits of trade openness can only be fully realized when supported by effective tax administration, efficient domestic tax systems, and coherent fiscal policies.

From a policy perspective, the results underline the importance of accelerating tax administration digitalization, expanding the effective tax base, improving voluntary tax compliance, and reducing the economy's dependence on hydrocarbon revenues. Strengthening institutional capacity and supporting economic diversification would not only enhance domestic revenue mobilization but also improve the resilience of Algeria's public finances to external economic shocks. Consequently, the findings suggest that long-term fiscal sustainability requires a comprehensive reform strategy that combines macroeconomic stability with structural and institutional reforms capable of supporting a broader and more sustainable tax base.

Conclusion

This study examined the relationship between inflation, GDP growth, and trade openness and tax revenue in Algeria over the period 2000–2024 using the Ordinary Least Squares (OLS) method. The estimated model is statistically significant ($F = 6.4063$, $p = 0.0030$) and explains approximately 47.8% of the variation in tax revenue, indicating a moderate but meaningful level of explanatory power. The empirical results show that inflation has a positive and statistically significant effect on tax revenue ($\beta = 0.2096$, $p = 0.0353$). This finding suggests that higher price levels are associated with higher nominal tax receipts, reflecting the sensitivity of tax revenues to inflationary developments. In contrast, GDP growth exhibits a statistically significant negative coefficient (β = −0.2956, p = 0.0109), indicating that stronger economic growth did not translate into a higher tax revenue-to-GDP ratio during the study period. This outcome may reflect the structure of the Algerian economy, where growth has been largely driven by the hydrocarbon sector, limiting the expansion of non-hydrocarbon tax revenues. Trade openness, although negatively associated with tax revenue, does not have a statistically significant effect (β = −0.0285, p = 0.3096), suggesting that changes in external trade were not accompanied by measurable changes in tax revenue over the sample period.

These findings indicate that improving tax performance requires more than sustaining economic growth alone. Strengthening domestic revenue mobilization depends on expanding the effective tax base, improving tax administration, and increasing the contribution of non-hydrocarbon activities to public revenues. Continued digitalization of tax administration, broader taxpayer compliance, and institutional reforms aimed at enhancing tax collection efficiency could therefore play an important role in reinforcing fiscal sustainability. Likewise, the fiscal benefits of trade liberalization are likely to remain limited unless accompanied by policies that strengthen domestic productive capacity and improve tax administration.

This study is subject to certain limitations. The analysis is based on annual data covering the period 2000–2024 and includes only three macroeconomic explanatory variables. Future research could extend the framework by incorporating institutional and fiscal variables, such as governance quality, tax policy reforms, government expenditure, foreign direct investment, and the shadow economy. Applying alternative econometric techniques that explicitly distinguish between short-run and long-run dynamics, such as the Autoregressive Distributed Lag (ARDL) model, may also provide a more comprehensive understanding of the determinants of tax revenue in Algeria.

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