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IMPACT OF TAXATION ON HOUSEHOLD CONSUMPTION EXPENDITURES IN SELECTED WEST AFRICAN COUNTRIES

Abstract

Purpose. This study examines the impact of taxation on household consumption expenditure in West Africa and evaluates whether the region's tax structure exerts pressure on household spending patterns.

Design/methodology/approach. The research adopts an ex-post facto design using panel data from five West African countries. Data were obtained from the OECD database and analyzed using the Panel Autoregressive Distributed Lag (ARDL) model to capture both short-run and long-run dynamics between taxation variables and household consumption.

Findings. The results reveal that direct taxes have a negative and significant effect on household consumption expenditure, while indirect taxes exhibit a more nuanced and less consistent impact. Inflation shows a significant positive relationship with consumption, whereas exchange rate and GDP per capita exert insignificant downward pressure. These findings suggest that taxation policies, particularly direct taxation, influence household financial capacity and consumption behavior in the region.

Originality. This study contributes to the literature by providing a comprehensive regional analysis of taxation-consumption dynamics, incorporating both direct and indirect taxes within a unified framework. It offers new empirical insights into fiscal policy effects in West Africa and provides evidence to support tax policy reforms aimed at balancing revenue generation with household welfare.

Keywords: direct tax, indirect tax, inflation, exchange rate, gross domestic product per capita.

Introduction

One of the fundamental problems encountered by individual, household, and firm is scarcity, as human wants are numerous and the resources to satisfy those want are finite. However, despite limited supply of resources, household incur certain expenditures, mostly on goods and services, to satisfy their need or want. Household consumption is a major driver of economic growth and development, as it is the largest component of aggregate expenditure (Osei Bonsu & Muzindutsi, 2017). Consumption expenditure by household consumption shows not only the welfare of the population but, as well, mirrors the general standard of living. This assertion is supported by Asogwa and Nkolika (2018), as they argued that, in order to improve economic performance, the government should focus more on prioritizing household satisfaction and living standards. Adegbite (2023) defines household consumption expenditure as total market value for all goods and services, which include durable goods, such as household items, procured from their income to satisfy their needs and improve their living standard. In most countries of the world, household consumption expenditure contributes to nearly 60% of contribution to GDP (Judijanto, Siminto, & Rahman, 2024). This indicate that consumption expenditures by households have a great significant on the overall economy (Demurger & Wang, 2016).

Various studies have defined household consumption expenditure, such as Adeoye (2021), which posited that household's consumption spending patterns refers to the total spending by household on goods and service, including food and beverages, housing and personal care, education, amongst others. Ajibola and Olowolaju (2017), described household consumption as the portion of disposable income which are spent on acquiring various goods and services that ensure the welfare of the household, especially in meeting essential needs. Adegbite (2023) also posited that household consumption are expenditure incurred on durable goods to enhance the household standard of living.

From the literature consulted, Household Consumption Expenditure (HCE) represent consumer spending (household) on essential goods and services and durable goods that gives satisfaction or utility to the household. Given its importance to economic well-being, it is pertinent to highlight some of the factors that influence it. In an economy, the volume of consumption expenditure is influenced by various factors such as disposable income, interest rate, savings, among others. However, one major factor that influence HCE is Taxation, because for a household, consumption is depending on their disposable income, and this disposable income is derived by subtracting Tax paid from personal income. However, it is not only restricted to Personal Income Tax (PIT), but also indirect tax such as sales tax, value added tax (VAT), and customs, and excise duties.

Taxation is a statutory obligation payment or fees imposed by the government through its revenue agencies, and it is payable by individual, households, businesses, and corporation. Taxation has become a critical component of economic growth and development, as it serves as the major source of revenue to the government. Taxes are implemented by relevant government institutions (Onokoya & Affinition, 2016). Existing literature has identified various forms of tax and defined them, such as Petroleum Profit Tax (PPT), Personal Income Tax (PIT), Value Added Tax (VAT), Company Income Tax (CIT), Customs and Excise Duties (CEDs), amongst others.

An extensive review of the existing literature indicates that, to the researcher's best knowledge, there is limited empirical evidence directly examining the impact of taxation on household consumption expenditure (HCE) within a West African regional context. Most prior studies are either country-specific or focus narrowly on a single category of taxation, typically distinguishing between direct and indirect tax in isolation. In Nigeria, only a handful of studies have explicitly investigated the relationship between taxation and household consumption expenditure (Ajibola & Olowolaju, 2017; Usman, 2018; Omodero, 2020; Adegbite, 2023; Ologbenla, 2024), while several others concentrate exclusively on indirect or consumption-based taxes (Adegbite, 2018; Gidigbi et al., 2021; Nyiputen & Abijia, 2022; Miftahu & Emmanuel, 2023). More broadly, empirical research in the region has largely examined the effect of taxation on other macroeconomic outcomes, including poverty (Ayano, 2022), income inequality (Anyaduba, 2019; Nwosu et al., 2018; Nwachukwu, 2025), unemployment (Adesola, 2018), economic growth (Eugene & Abigail, 2016; Micah et al., 2016; Onakoya & Afiniti, 2016), and investment (Adegbite & Usman, 2017). Similarly, studies focusing on Ghana predominantly emphasize indirect or consumption-based taxes and their implications for broader economic indicators, rather than household consumption behavior specifically. (Andoh, 2021; Ocran & Fumey, 2023). Furthermore, findings reveal inconsistent findings on the effect of taxation on household consumption expenditure, especially within the West Africa region. For instance, the review of literature indicates that there is no consensus yet on the specific effect of Taxation on HCE, as studies such as Omodero (2020), Miftahu & Emmanuel (2023), and Adegbite (2023) showed mixed result, as carefully exposed in the empirical review.

Against this backdrop, the present study contributes to the body of literature by providing a comprehensive assessment of the effects of taxation on household consumption expenditure across the selected West African countries. And unlike existing studies that rely on aggregate tax measures or single-country analyses, this study differentiates between multiple tax categories, especially highlighting the role of personal income tax, also examining the short-run and long-run responses. Furthermore, by adopting a regional perspective, the study offers new insights into tax-consumption dynamics in economies characterized by high informality and weak fiscal transmission mechanisms, where changes in tax policy do not always translate into proportional adjustments in household disposable income or consumption behavior, as a significant share of economic activity remains outside the formal tax system.

Literature review

Previous studies have investigated the influence of taxation on household consumption expenditure and related macroeconomic outcomes using different tax categories, and methodological approaches. While some studies employ a broad macroeconomic perspective, others narrow their focus to consumption taxes, particularly value added tax (VAT) and custom and excise duties (CED). To summarise the empirical evidence and clarify existing gaps this study reviews findings from developing and emerging economies.

A strand of literature examines the macroeconomic effects of taxation without directly focusing on consumption. For instance, Eugene and Abigail (2016) investigated the impact of tax policy on Nigeria's economic growth using the Ordinary Least Squares (OLS) technique and found that petroleum

profit tax (PPT), company income tax (CIT), customs and excise duties, and VAT exert positive and significant effects on economic growth. In contrast, Micah, et al., (2016), analyzing the Nigerian economy between 2010 and 2014, reported a significant but negative effect of company income tax on economic growth. Similar evidence was provided by Joseph (2018), who also employed OLS and found that tax revenue negatively affects economic growth in Nigeria.

Beyond growth, other studies have explored other macroeconomics variable such as the labour market and investment channels through which taxation affect economic welfare. In the same vein, Adesola (2018), employed Weighted Least Square estimation technique from 2002 to 2016, examines the influence of government taxes on unemployment rate in Nigeria and reported a positive relationship, suggesting that higher taxes tend to increase unemployment levels. However, Buzugbe, Ologunla and Santeli (2024) revealed that this positive effect mainly exists in the long run. while in the short run unemployment responds negatively to changes in PPT and CIT but positively to VAT. Similarly, Asogwa and Nkolika (2018) found that VAT has significant long-run impact on investment growth in Nigeria, whereas findings from Chindengwike (2022) reported a negative long-run relationship between VAT and private domestic investment, suggesting that value-added tax is negatively associated with private domestic investment in the long run. Collectively, these findings indicate that the effects of taxation vary not only across tax types but also across economic outcomes and time horizons.

More closely related to household consumption expenditure, Omodero (2020) examined the impact of indirect taxation that is VAT and CEDs on consumption expenditure in Nigeria from 2005 to 2019 using Ordinary Least Squared. The study found that VAT exert a positive relationsip on consumption but the association is insignificant, while custom and excise duties have a significant positive effect. The researchers argues that VAT may discourage the consumption of certain good and services, thereby encouraging smuggling and other informal sector activities, while CEDs do not significantly reduce the consumption of targeted products. Similar evidence was reported by Sani and Idris (2020) as they examine the effect of VAT on consumption expenditure in Nigeria over the period 1994 to 2018 employing Autoregressive Distributed Lag (ARDL) model. There findings suggest that the impact of VAT on consumption is affected by other macroeconomic variables which includes interest rate and inflation. When interest rate and inflation are low, VAT influence consumption positively, whereas high interest rate and inflation weaken consumer's purchasing power and result in a negative consumption response.

Using a more broader tax structure, Adegbite (2023) investigated the effect of multiple tax component on household consumption expenditure in Nigeria, from 1990 to 2021 using ARDL framework. The study found that petroleum profit tax (PPT) has statistically significant, strong and positive impact on consumption expenditure by household. While, company income tax, VAT and custom and excise duties have negative statistically significant influence on HCE. The author concluded that overall, taxation tend to reduce household consumption expenditure, although the magnitude and direction vary by tax component. Related evidence from Ghana was provided by Adukonu and Aberese (2016), who assess the relationship between various form of taxation on poverty in Ghana, focusing on the effect of tax policies on poverty and inequalities over the period of 1984 to 2013, the researchers employ Johansen cointegration estimation technique. The study utilised household per capita consumption as a proxy for poverty. The study found that direct taxes have a positive and significant effect on poverty, while indirect taxes exert a negative and significant effect. This evidence suggests a consistent divergence in the welfare effects of direct and indirect taxation across countries within the West African region.

To have a broaden analytical scope, this study also consider evidence from emerging economies also panel data analyses. Simionescu and Albu, (2016), used a panel data model to estimate from five central and Eastern European countries, found that VAT rate had a statistically significant positive impact on GDP, using Generalized Moment Methods System (GMM). In contrast, Esunge (2025), employing a panel dataset of 94 high- and low-income countries and a GMM approach, reported that both VAT and income tax are negatively correlated with household consumption per capita. These findings highlight the different effects of taxation across income groups and economic structures.

Further evidence from emerging economies shows mixed result. Kolahi and Noor, (2016) examined the effect of VAT on economic growth in nineteen emerging economies between 1995 and 2010 and found that VAT negatively affects capital accumulation and productivity but positively influences overall economic growth. Balasoiu, Chifu, and Oancea (2023), using panel data from 27 European Union

countries, reported that corporate income tax significantly affects economic growth, while personal income tax reduces growth in countries with limited fiscal efficiency. Hammour and McKeown (2022) analyzed household purchasing behavior in the United Arab Emirates (UAE) and found that VAT reduces household income and consumption across both high- and low-income groups. Similarly, Yilmaz, Ozyer, and Ozyer (2019) demonstrated that VAT and excise duties exert a regressive effect on household consumption in Turkey, disproportionately affecting low-income households.

Overall, across both single-country and cross-country evidence, the literature reveals several consistent themes such as; indirect taxes often have ambiguous effects on household consumption, with some studies reporting positive impacts in the long-run while others finds insignificant or negative effect depending on the macroeconomic conditions and exchange rates furthermore, direct taxes and indirect taxes may exert contrasting influence which then suggest that disaggregated tax analysis is crucial for understanding consumption expenditure pattern.

In conclusion, the reviewed of literature shows that while taxation has been widely examined in relation to economic growth, investment, unemployment, poverty, and inequality, relatively few studies focus explicitly on household consumption expenditure, particularly within the West African context. Moreover, existing studies often analyze either direct or indirect taxes in isolation or rely on aggregate tax measures. This study contributes to the literature by uniformly examining multiple tax categories and their effects on household consumption expenditure in selected West African countries, thereby proffering a more comprehensive understanding of tax and consumption dynamics and household welfare in the region.

Methodology

This study adopts an ex post facto research design. The research relied on secondary time-series data covering the period of 2010-2023 for the selected West African countries. The choice of 2010–2023 period is deliberately linked to major fiscal, institutional, and macroeconomic developments in West Africa. This time-period captures a phase of major tax reforms as well as structural adjustments across the region. Specifically, the period covers the expansion and harmonization of VAT regimes across ECOWAS countries, also reforms in personal income tax administration which includes the introduction of taxpayer identification system such as tax identification number (TIN). Furthermore, the increase reliance on indirect taxation following the oil price fluctuation and declining oil revenue particularly 2014 to 2016 oil price shock. Lastly, macroeconomic disruptions arising from the COVID-19 pandemic, which significantly changes consumption pattern, income level of household and government fiscal policy response. The empirical analysis covers five selected West African countries: Nigeria, Ghana, Senegal, The Gambia, and Cote d'Ivorie.

The main research question guiding the study was: What is the impact of direct tax on household's consumption expenditure? What is the impact of indirect tax on household's consumptions in Nigeria.

The theoretical foundation is anchored on three major theories; Keynesian consumption theory proposed by John Maynard Keynesian in 1936, the Permanent Income Hypothesis proposed (PIH) by Milton Friedman in 1957 and the life-cycle hypothesis (LCH) developed by Franco Modigliani in (1957). These theories provide a framework for understanding how household consumption respond to changes in income, and fiscal policy instrument over time. Direct taxes, such as personal and company income taxes, affect disposable income and households' long-term consumption plans, consistent with the predictions of the PIH and LCH. Indirect taxes, including VAT and customs and excise duties, influence consumption by altering the prices of goods and services, thereby affecting purchasing power in line with Keynesian short-run consumption behavior.

Following from the consumption theory by JM. Keynes, such that;

$$C = a + by^{d} \quad (1)$$

Where

$$Y^{d} = Y\text{-}T \quad (2)$$

Thus, from equation (1), we have

$$C_{t} = a + b\,(Y - T) \quad (3)$$

Where Ct is current consumption at time t, 'a' is autonomous consumption, (Y – T) is the current disposable income, and 'b' is the marginal propensity to consume (MPC). The study therefore draws from the consumption theory and also guided by Ekong & Effiong (2020), with little modification. The new model's functional form is specified as:

$$HCE = f(PIT, VAT, CIT, CED, INF, EXR, GDP) \quad (4)$$

To achieve Objective 1, we have;

$$HCE_{it} = \alpha_0 + \alpha_1 lnPIT_{it} + \alpha_2 INF_{it} + \alpha_3 EXR_{it} + \alpha_4 GDP_{it} + \mu_{it} \quad (5)$$

$$HCE_{it} = \beta_0 + \beta_1 lnCIT_{it} + \beta_2 INF_{it} + \beta_3 EXR_{it} + \beta_4 GDP_{it} + \mu_{it} \quad (6)$$

To achieve Objective 2, the model is specified below;

$$HCE_{it} = \lambda_0 + \lambda_1 lnVAT_{it} + \lambda_2 INF_{it} + \lambda_3 EXR_{it} + \lambda_4 GDP_{it} + \mu_{it} \quad (7)$$

$$HCE_{it} = \varphi_0 + \varphi_1 lnCED_{it} + \varphi_2 INF_{it} + \varphi_3 EXR_{it} + \varphi_4 GDP_{it} + \mu_{it} \quad (8)$$

Where:

HCE is household consumption expenditure, PIT is Personal income tax, VAT is Value Added Tax, custom and excise duties denoted by CED, INF is rate of inflation, EXR is the official exchange rate, and μ is used to denote the error term. The HCE is the dependent variable, while PIT, VAT, and CED are the explanatory variable or the independent variables. INF, EXR and Gross Domestic Product Per Capital are employed as control variable for the model, the error term is employed to capture the unexplained variation in the model. The explanatory variable is in their natural logarithm form. Equation 1 and 2 are specified to capture the impact of direct taxes on Household consumption expenditure while equation 3 and equation 4 were specified to explain the impact of indirect taxation on household consumption expenditure. The a-priori expectation is expressed mathematically as $\alpha_1 < 0$, $\beta_1 < 0$, $\lambda_1 < 0$, $\varphi_1 < 0$.

The study was conducted in several stages. First, relevant data were collected and organized in time series format. Second, Correlation Matrix was used to examine the degree of association of the variables. Third. unit root test such as Augmented Dickey-Fuller test and Philip-Perron was applied to assess the level of stationarity of the variables. Fourth, cointegration test such as Kao residual was employed to examine if variables exhibit long-run relationship. Fifth, panel Autoregressive Distributed Lag (ARDL) model was used to examine both the short-run and long-run relationships among the variables.

Results and discussion

To evaluate level of association amongst the variables, correlation matrix was utilised. From the table 1 below it is observed that the explanatory variable is positive but highly correlated with each other, for instance LOGPIT with LOGCIT (0.956), LOGPIT with LOGVAT (0.959), LOGPIT with LOGCED (0.949). This strong association is expected, as all explanatory variables represent different components of tax revenue and tend to move together over time. However, the independent variable (HCE) is weakly correlated with the dependent variables but fall within the accepted threshold, suggesting that while taxation is associated with household consumption, the linear relationship is not excessively strong at the bivariate level. The control variables display moderate correlation with the dependent variable Indicating their relevance in explaining household consumption dynamics without posing serious multicollinearity concerns.

The different tax components are not used together in a single model due to their high degree of correlation. Including highly correlated regressor in a single model could lead to multicollinearity, resulting in inflated standard errors and unreliable coefficient estimates which will give spurious results. This will help us achieve our objective while still avoiding multi-correlation.

Table 1
Correlation Matrix

Var	HCE	LOGPIT	LOGCIT	LOGVAT	LOGCED	INF	EXR	GDP
HCE	1							
LOGPIT	-0.075	1						
LOG CIT	-0.063	0.988	1					
LOGVAT	-0.050	0.994	0.987	1				
LOGCED	-0.011	0.987	0.985	0.996	1			
INF	0.168	0.488	0.495	0.438	0.455	1		

Continuation of the table

Var	HCE	LOGPIT	LOGCIT	LOGVAT	LOGCED	INF	EXR	GDP
EXR	-0.170	-0.199	-0.172	-0.119	-0.0098	-0.186	1	
GDP	-0.677	0.050	-0.005	-0.020	-0.083	-0.169	-0.374	1

*Source***:** *Author's Compilation*

To determine the degree of stationarity of the variables, the research employs Augmented Dickey-Fuller (ADF), Phillips-Perron (P-P) and Levin, Lin & Chu (LLC). This study adopts these unit root tests to compare the level of stationarity, Levin Lin & Chu assumes common unit root process while the Augmented Dickey-Fuller and Philip-Perron assumes individual unit root process. The findings revealed that the variables are stationary at both levels, I (0), and at first difference, I (1). This implies that in each of our model there will be a mixed order of integration. The presence of variables integrated of both I(0) and I(1), and the absence of any variable integrated of order two, I(2), justify the use of the Panel Autoregressive Distributed Lag (Panel ARDL) framework. This approach is appropriate for modeling long-run and short-run relationships in panels characterized by mixed orders of integration and cross-country heterogeneity.

Table 2
Unit Root Test

VAR	Augmented Dickey-Fuller Test			Phillip-Perron Test			Levin, Lin & Chu			Decision
	ADF statistics	Prob.	Order of integration	PP statistics	Prob.	Order of integration	LLC statistic	Prob.	Order of Integration	
HCE	22.859	0.011	I (0)	38.868	0.000	I (1)	-2.27	0.012	I (0)	I (0)
LOGPIT	19.988	0.029	I (0)	19.5463	0.033	I (0)	-2.627	0.004	I (0)	I (0)
LOGCIT	20.115	0.028	I (0)	25.1682	0.005	I (0)	-4.437	0.000	I (1)	I (0)
LOGVAT	36.869	0.000	I (1)	35.967	0.000	I (1)	-5.798	0.000	I (1)	I (1)
LOGCED	37.758	0.000	I (1)	58.164	0.000	I (1)	-2.854	0.002	I (0)	I (1)
INF	28.964	0.001	I (1)	28.565	0.001	I (1)	-4.21	0.000	I (1)	I (1)
EXR	20.451	0.025	I (1)	32.759	0.000	I (1)	-2.647	0.004	I (1)	I (1)
GDP	32.867	0.000	I (1)	39.652	0.000	I (1)	-3.156	0.000	I (0)	I (1)

*Source***:** *Author's Compilation*

To examine the existence of a long-run equilibrium relationship among the variables, the Kao residual panel cointegration estimation technique was employed. The Kao test is appropriate in panel settings where slope coefficients are assumed to be homogeneous across cross-sectional units, which aligns with the long-run assumptions underlying the Pooled Mean Group (PMG)/Panel ARDL estimator. Kao Residual Cointegration result shows that there exists a long-run relationship among the variables as the ADF statistic (-2.055, prob = 0.019 < 0.05) is significant at 5%. This finding provides empirical justification for estimating both long-run coefficients and short-run dynamics using the Panel ARDL framework with an error-correction mechanism.

Table 3
Kao Residual Cointegration Test

	t-Statistic	Prob. value
ADF	-2.055	0.0199

*Source***:** *Author's computation*

To achieve our objective one which is to examine the impact of direct taxation proxied by personal income tax and company income tax we employ Panel Autoregressive Distributed Lag model as it can be used to examine both the short-run and long-run relationships when the variables are mixed order of integration I(0) and I(1). The trend specification is set to be linear trend and this is done so as to capture the constant growth or decline in the dependent variable over time.

The Panel ARDL results confirm a stable long-run relationship between household consumption expenditure (HCE) and personal income tax, as indicated by the negative and statistically significant error correction term (–0.673, p = 0.0126). This suggests that about 67 percent of short-run disequilibrium is corrected each year, this means a relatively fast adjustment of consumption to long-run equilibrium following fiscal shocks. The long-run result shows that tax statistically and significantly reduces household consumption (–5.594, p < 0.01). This shows the reality in West Africa, where personal income taxes directly lower consumer purchasing power and households' disposable income. Furthermore, given the region's high informality and narrow tax base, the tax incidence will fall on a small portion of formal earners, and this will amplify the contractionary effect on consumption. This finding is consistent with the Keynesian consumption theory (KCT) and the permanent income hypothesis (PIH), both which explain the role of disposable income in shaping consumption decisions.

Inflation (INF) exhibits a significant positive long-run effect on consumption (0.354, p < 0.0023), implying that persistent increase in price level might lead to household spending more quickly to avoid further rise in prices. The exchange rate (EXR) also exerts a negative and insignificant long-run effect (–0.008, p = 0.4130), this imply that currency depreciation may reduce consumption through higher import prices. GDP per capita shows no long-run effect on HCE (0.005, p = 0. 1742), this suggest that variations in average income levels do not translate directly into corresponding changes in consumption for the sample period. Furthermore, GDP growth may not necessarily translate into household level of income.

In the short-run, PIT do not significantly influence consumption (0.849, p = 0.7454), indicating that households initially smooth consumption in response to tax changes. However, short-run inflation shocks significantly reduce consumption, reflecting households' limited ability to adjust spending when faced with sudden increases in living costs. Short-run GDP per capita also shows a negative effect, suggesting precautionary behavior in uncertain economic conditions. Exchange rate remain insignificant in the short-run.

Table 4
Panel ARDL (PMG) estimate (PIT)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
		Long-Run Estimate		
LOGPIT	-5.594***	1.125	-4.9706	0.000
Inflation	-0.354**	0.106	` 3.329	0.0023
Exchange Rate	-0.008	0.009	-0.829	0.413
GDP per Capita	-0.005	0.003	1.390	0.1742
		Short-Run Estimate		
COINTEQ01	-0.673**	0.254	-2.265	0.0126
D(LOGPIT)	0.849	2.593	0.327	0.745
D(Inflation)	-0.401**	0.182	-2.202	0.0352
D(Exchange Rate)	0.222	0.394	0.565	0.5762
D(GDP per Capita)	-0.0216**	0.009	-2.261	0.0309
Note: ***= 1% significance, **=5%, *= 10%				

*Source***:** *Author's computation*

To achieve equation (ii) objective 1, the study also employs panel ARDL while making company income tax (CIT) serves as the main explanatory variable while other control variable is used per-usual. The results are presented in the Table 5.

The error correction term is negative and statistically significant (COINTEQ01 = –0.662, p = 0.017), confirming the existence of a stable long-run relationship among household consumption expenditure (HCE), company income tax, inflation, exchange rate, and GDP per capita. The magnitude of the adjustment coefficient implies that approximately 66 percent of short-run deviations from equilibrium are corrected annually, indicating relatively rapid convergence to the long-run path.

In the long-run estimates showed that company income tax has a negative significant (-3.752, p = 0.000) impact on household consumption spendings such that 1% increase in corporate income tax reduces long-run HCE by 3.75%. This effect reflects the indirect transmission of corporate taxation to households through reduced firm profitability, lower wages, employment adjustment and widen the income inequality gap, particularly in West African economies. Inflation shows a positive and significant long-run effect on consumption (0.361, p < 0.01), suggesting that persistent price increases may encourage households to bring forward consumption in anticipation of further inflation. Exchange rate movements and GDP per capita remain statistically insignificant in the long run, indicating weak income and external price transmission to household consumption. in the short run, changes in CIT have insignificant effect on household consumption spending pattern, suggesting that households initially smooth spending in response to corporate tax changes. However, short-run inflation and GDP per capita both exhibit negative and significant effects, reflecting the immediate erosion of purchasing power and precautionary consumption behaviour during periods of macroeconomic uncertainty. Exchange rate changes remain insignificant in the short run.

The overall findings from objective one shows that Direct tax proxy by personal income tax and company income tax has a contractionary impact on household consumption expenditure in West African, with strong impact observed in the long run than in the short run. These findings are in line with earlier evidence from Nigeria and other developing economies (Ajibola & Olowolaju, 2017; Omodero, 2020; Adegbite, 2023), as well as recent cross-country studies (Esunge, 2025). However, they differ from studies that report growth-enhancing effects of taxation (Eugene & Abigail, 2016), suggesting that improvements in macroeconomic performance do not necessarily translate into higher household consumption or welfare.

Table 5
Panel ARDL (PMG) estimate (CIT)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Long-Run Estimate				
LOGCIT	-3.752***	0.877	-4.277	0.000
Inflation	0.3614**	0.113	3.193	0.003
Exchange Rate	-0.012	0.011	-1.046	0.303
GDP per Capita	0.003	0.004	0.754	0.456
Short-Run Estimate				
COINTEQ01	-0.662**	0.2639	-2.5076	0.017
D(LOGCIT)	2.024	2.369	0.8544	0.399
D(Inflation)	-0.495**	0.1782	-2.777	0.0092
D(Exchange Rate)	0.5022	0.5860	0.857	0.3980
D(GDP per Capita)	-0.0215**	0.009	-2.279	0.0297

Note: ***= 1% significance, **=5%, *= 10%

Source: Author's compilation

The paper then examine object 2, which is to determine the impact of indirect tax proxy by value added tax (VAT) and custom and excise duties (CEDs) on household consumption spending. Table 6 presents the Panel ARDL (PMG) estimates examining the impact of value added tax on household consumption expenditure (HCE). The error correction term is negative and highly significant (COINTEQ01 = –0.620, p = 0.0017), confirming the existence of a stable long-run equilibrium relationship among consumption, VAT, and the macroeconomic control variables. The coefficient indicates that about 62 percent of short-run disequilibrium is corrected annually, suggesting relatively fast adjustment to the long-run path.

Value added tax has a negative but marginally significant (at 10%) effect on household consumption in the long-run (-5.349, p = 0.093). this implies the increase in value added tax reduces consumption through higher final prices, which reduces disposable income and consumption. The weak effect of VAT as compared to PIT and CIT is that VAT burden spreads across all households, including informal sector, also some West African countries such as Nigeria and Ghana have VAT exemption on basic necessities, moderating it effect, VAT reduces tax evasion as it is better enforced than income tax, however, it raises prices broadly especially with the not so recent increase in the VAT rate for some African countries. Inflation shows a positive and strongly significant long-run relationship with household consumption (0.735, p < 0.01), suggesting that persistent price increases may induce households to accelerate spending in anticipation of further inflation. Exchange rate depreciation and GDP per capita both show negative but statistically insignificant long-run effects, indicating limited transmission of external price shocks and average income changes to household consumption over the study period. In the short run, changes in VAT do not significantly affect household consumption, indicating that households do not immediately adjust spending in response to VAT fluctuations.

In the short-run, inflation exhibit a significant negative effect on household consumption expenditure (–0.592, p = 0.013), showing the quick reduction of purchasing power before income adjustments happens. Exchange rate changes remain insignificant, while GDP per capita is only weakly significant at the 10 percent level, suggesting limited short-term income responsiveness. Overall, the VAT results further support the broader findings of the study which is indirect taxation reduces household consumption in West Africa, but its effect is weaker and less immediate than that of direct taxes, largely due to policy exemptions, informality and consumption behavior pattern by household.

Table 6
Panel ARDL (PMG) estimate (VAT)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Long-Run Estimate				
LOGVAT	-5.349*	3.088	-1.732	0.093
Inflation	0.735***	0.195	3.754	0.000
Exchange Rate	-0.017	0.013	-1.308	0.200
GDP per Capita	-0.005	0.005	-1.092	0.282
Short-Run Estimate				
COINTEQ01	-0.620**	0.180	-3.437	0.0017
D(LOGVAT)	-10.848	10.341	-1.049	0.3023
D(Inflation)	-0.592**	0.226	-2.612	0.013
D(Exchange Rate)	0.358	0.454	0.791	0.435
D(GDP per Capita)	-0.0159*	0.008	-1.777	0.0852

Note: ***= 1% significance, **=5%, *= 10%

*Source***:** *Author's computation*

The effect of customs and excise duties (CEDs) on household consumption expenditure is presented in table 7 below. The error correction term is negative and statistically significant (COINTEQ01 = –0.489, p = 0.001), confirming a long-run equilibrium relationship among consumption, CEDs, and the control variables. The coefficient indicates that approximately 49 percent of short-run disequilibrium is corrected annually, implying moderate speed of adjustment.

In contrasts to value added tax and other direct taxes, CEDs shows a positive and marginally significant long-run effect on household consumption (7.757, p = 0.078). This suggests that a 1 % increase in CED revenue is associated with about a 7.8 % increase in long-run household consumption. This outcome is contrary to the a-priori expectations and can be explained by the structure of excise taxation in West Africa, where CED revenues are largely derived from commodities such as fuel, alcohol, tobacco, and other inelastic or habit-forming goods "Bads". Despite higher duties, consumption of these goods remains strong, thereby increasing overall household expenditure. In addition, excise duties are not directly deducted from household income, making their burden less visible compared to income taxes and VAT. In the short run, changes in CEDs do not significantly influence consumption, implying limited immediate behavioral response to excise duty adjustments. However, short-run inflation negatively and significantly affects consumption (–0.421, p = 0.028). Short-run changes in GDP per capita also reduce consumption, suggesting temporary income constraints.

In summary, the findings reveal a nuanced impact of indirect taxation on consumption expenditure in West Africa. While VAT reduces household consumption, customs and excise duties increase long-run consumption, reflecting the dominance of excise-taxed goods with low demand elasticity. This is to show the importance of disaggregating indirect taxes when analysing their welfare and consumption effects in economies characterised by informality and consumption rigidity

These findings are supported by studies from Omodoro, (2020), Sani and Idris (2020), Esunge (2025), and Yilmaz, et al., (2019)

Conclusion

The study investigates the impact of taxation on household consumption expenditure in selected West African countries over the period 2010–2023 using a Panel ARDL (PMG) framework. By disaggregating taxation into personal income tax, company income tax, value-added tax, and customs and excise duties, the paper adds to the body of literature, which has largely relied on aggregate tax measures, single-country evidence, or a narrow focus on indirect taxation. The empirical results indicate that direct taxes, proxied by personal and company income taxes, exert a negative and statistically significant long-run effect on household consumption expenditure. This result is consistent with the Keynesian consumption framework, which emphasises the role of disposable income in shaping consumption behaviour, and is also compatible with the Permanent Income and Life-Cycle hypotheses. The findings for indirect taxes are nuanced. Value-added tax exhibits a negative but relatively weaker long-run effect on household consumption expenditure. This finding supports evidence that VAT operates primarily through price increases, which may reduce real purchasing power, particularly among lower-income households. The comparatively smaller magnitude of the VAT effect may reflect the presence of exemptions and zero-rating on basic goods, as well as the large informal sector, which limits the effective reach of VAT in West African economies. While in contrast, customs and excise duties are found to exert a positive and marginally significant impact on household consumption expenditure. While this result may appear counterintuitive, it is consistent with empirical studies indicating that excise-taxed goods, such as fuel, alcohol, and tobacco, often exhibit low price elasticity of demand in developing countries. Consequently, increases in excise revenues may coincide with sustained or rising consumption of these goods rather than a contraction in overall household spending. This highlights the importance of distinguishing between different forms of indirect taxation when assessing their consumption and welfare effects. With respect to the control variables, inflation shows a positive long-run but negative short-run relationship with household consumption. Exchange rate depreciation exerts a reducing effect on consumption, reflecting the import dependence of the selected economies. GDP per capita does not exhibit a robust long-run relationship with household consumption, indicating that average income growth may not adequately capture household-level welfare dynamics in the presence of inequality and structural constraints.

From a policy stand point, the findings suggest that the composition of taxation is critical for household consumption outcomes in West Africa. VAT reforms should continue to prioritise exemptions and targeted relief for essential goods to mitigate adverse welfare effects

Overall, the study provides evidence that tax instruments affect household consumption through

distinct channels, and that uniform tax policy prescriptions may yield uneven welfare outcomes. By offering tax-disaggregated and region-wide evidence, the paper contributes to a more context-sensitive understanding of fiscal policy and household consumption dynamics in West Africa.

Conflicts of Interest

The authors declare no conflict of interest.

Author Contributions

Conceptualization, A.A. and B.A.; Methodology, A.A.; Software, A.A. and B.A.; Validation, A.A. and B.A.; Formal Analysis, A.A.; Investigation, A.A. and B.A.; Resources, B.A.; Data Curation, A.A. and B.A.; Writing – Original Draft Preparation, A.A.; Writing – Review & Editing, B.A.; Visualization, A.A. and B.A.; Supervision, B.A.; Project Administration, A.A. and B.A.

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PRIORITY OF THE GENERATIVE ROLE OF HUMAN CAPITAL UNDER THE NEW TECHNOLOGICAL PARADIGM

Abstract

Purpose. This study aims to substantiate the priority of the generative role of human capital in the contemporary economy, where technological change is driven by digitalization, automation, and artificial intelligence, and mediated by the quality of knowledge, skills, and institutional conditions.

Design/methodology/approach. The research employs a mixed methodological approach combining theoretical and conceptual analysis of human capital evolution with comparative and index-based analysis of international data. The empirical base includes the World Bank Human Capital Index, OECD data on productivity and innovation, and selected micro-level studies on innovation mechanisms.

Findings. The results indicate that countries with similar levels of technological development demonstrate significantly different innovation outcomes depending on the quality of human capital and its institutional integration. Two models are identified: an adaptive model focused on the reproduction of imported technologies, and a generative model based on the creation of new technological and organizational solutions. Kazakhstan is positioned between these models, with fragmented realization of human capital due to institutional gaps between education, the labor market, and the innovation system.

Originality. The study contributes to the literature by redefining human capital as a system-forming factor in the new technological paradigm, emphasizing its generative function in fostering innovation, structural transformation, and sustainable economic growth.

Keywords: human capital, new technological paradigm, digital economy, innovative development, generative function.

Introduction

The emergence of a new technological order, driven by the proliferation of digital platforms, automated production systems, and artificial intelligence, is accompanied by a change in the fundamental mechanisms of economic growth. Technological innovations are no longer merely a tool for improving the efficiency of individual industries but are increasingly acting as a factor in the structural transformation of the economy, reshaping the nature of employment, the requirements for competencies, and the ways value is added. Under these conditions, there is a growing need to reconsider traditional notions of the key sources of competitiveness, as technological endowment alone does not ensure sustainable economic outcomes. Contemporary practice demonstrates that comparable technological solutions lead to different development trajectories depending on the quality of human capital and the institutional conditions for its realization. Economies with a developed potential of knowledge, skills, and innovation activity are capable not only of adapting to technological changes but also of generating their own technological and organizational solutions. Conversely, in conditions of a fragmented innovation environment and limited interconnectedness between education, the labor market, and the production sector, technological modernization often acquires the character of formal adoption, failing to translate into sustained innovation dynamics.

The relevance of this study is determined by the fact that, under the conditions of the new technological order, human capital acquires a qualitatively new function. Its significance extends beyond the traditional understanding of it as a factor of productivity or a resource for adaptation to change. Its generative potential-i.e., its ability to act as a source of innovation, structural transformations, and the formation of long-term economic growth trajectories-is becoming

increasingly significant. At the same time, ambiguity persists in the academic literature regarding the priority of this role: a significant body of research is confined to assessing the contribution of human capital to growth in an aggregated form, leaving the mechanisms of its participation in the creation of new technological and institutional solutions insufficiently explored. This issue acquires particular significance for emerging-market economies, including Kazakhstan, which are characterized by structural constraints on innovative development combined with the need for technological modernization and integration into global value chains. Under such conditions, human capital becomes not merely a supplementary element, but a potentially decisive factor in the transition from adaptive development to an innovation-oriented growth model.

The purpose of this article is to substantiate the priority of the generative role of human capital under the conditions of the new technological order and to identify the mechanisms through which human capital transforms technological potential into innovative and structural changes in the economy. To achieve this goal, the study provides a conceptual understanding of the evolution of human capital theory, analyzes international empirical data, and juxtaposes the national context of Kazakhstan with broader global trends of digital and innovation transformation.

Literature review

The formation of a new technological order in the modern economy is regarded by researchers as a process accompanied not only by the acceleration of technological change but also by a profound restructuring of growth mechanisms and competitiveness factors. Analytical reports from the Organisation for Economic Co-operation and Development emphasize that the proliferation of digital platforms, automated production systems, and artificial intelligence is transforming the sectoral structure, the nature of employment, and the ways value is created, which necessitates a revision of traditional development models (OECD, 2020; OECD, 2021). These changes demonstrate the limitations of approaches in which technological progress is interpreted primarily through the accumulation of physical capital and the expansion of material infrastructure. The theoretical foundations of human capital research were laid in the seminal works of G. Becker, who regarded knowledge and skills as a special form of capital capable of enhancing productivity and income growth (Becker, 1993). In economic theory, human capital is defined as a set of knowledge, skills, qualifications, and intellectual abilities that individuals acquire throughout their lives and which serve as the foundation for enhancing their productivity and income. According to the classical view of G. Becker, human capital represents a form of capital in which investments are made through education, training, and the accumulation of experience. These investments, as Becker argues, yield long-term economic benefits for both individuals and the economy as a whole. In the context of the new technological order, the concept of human capital acquires a broader meaning. It encompasses not only an individual's ability to perform labor tasks but also their potential in the sphere of innovation, adaptation to technological transformations, and contribution to the development of new organizational and production models. This gives human capital a key significance for the modern economy. A similar line of reasoning was developed by J. Mincer, who substantiated the dependence of earnings on the level of education and accumulated experience (Mincer, 1974). At the same time, early models of human capital focused primarily on the individual returns on investment in education, while its systemic role in generating technological and institutional changes remained secondary. In the Russian and post-Soviet scientific tradition, a significant contribution to the development of human capital theory was made by S. Dyatlov, who considered human capital as a structural element of economic growth and modernization (Dyatlov, 1994). Contemporary authors, such as Gritsaenko, emphasize the need for a methodological expansion of the concept of human capital beyond labor and income effects, drawing attention to its connection with innovation processes and institutional dynamics (Gritsaenko, 2022). A. Bulina, K. Mozgovaya, and M. Pakhnin, analyzing classical growth models, also note that new approaches increasingly interpret human capital as an endogenous source of technological development rather than as a supplementary resource (Bulina et al., 2020). Empirical studies conducted in the context of the digital economy confirm the qualitative complication of human capital functions. Thus, T. Liu et al., analyzing the innovative activity of corporate inventors, show that it is the characteristics of human capital that determine firms' ability to generate new technological solutions even with comparable access to material and digital resources (Liu et al., 2023). At the macro level, similar patterns are identified in the work of A. Grigorescu and colleagues, who find a robust relationship between the quality of human capital and the innovation dynamics of Central and Eastern Eu-

ropean countries (Grigorescu et al., 2021). B. Shao and H. Wang, in a more recent study, emphasize that the accumulation of human capital becomes a crucial factor in the structural advancement of the economy under conditions of digital transformation (Shao & Wang, 2025).

The question of why identical technological solutions lead to different economic outcomes is actively discussed in contemporary literature. The OECD, in its materials, points out that the effectiveness of digitalization and innovation significantly depends on the institutional environment and the economy's capacity for learning and adaptation (OECD, 2021). K. Forichon, examining human capital in a multidimensional analysis of fragility, also emphasizes that technological effects are mediated by the quality of human resources and the conditions for their realization (Forichon, 2020). Thus, technologies do not act as an autonomous source of growth, but as a factor whose economic effectiveness is determined by the generative function of human capital. This issue acquires particular significance for emerging-market economies, where limited investment resources and dependence on traditional industries amplify the role of human capital as a key factor of structural modernization. Zh. Baigireyeva and S. Niyazbekova, analyzing the economy of Kazakhstan, show that human capital is the dominant factor of growth in the long term (Baigireyeva & Niyazbekova, 2020). G. Dinzhanova and M. Bayetova confirm that in the industrial sector of Kazakhstan, the quality of human capital is directly linked to innovative potential and the possibilities of technological renewal (Dinzhanova & Bayetova, 2022). A. Serikkyzy, S. Baktymbet and A. Baktymbet also note the importance of human capital for the sustainable economic development of the country, emphasizing the need for its institutional strengthening (Serikkyzy et al., 2024). These findings are consistent with data from the World Bank, which records the structural constraints on the realization of human capital in transition economies (World Bank, 2020). Despite a significant increase in the number of studies devoted to human capital in the digital economy, a substantial part of the work concentrates either on an aggregated assessment of its contribution to growth or on the analysis of individual components of digital skills, employment, and educational indicators. For instance, M. Eskindarov and his co-authors examine the role of human capital in the digital economy through institutional and regional differences; however, the question of its priority generative function remains insufficiently disclosed (Eskindarov et al., 2022). Similarly, A. Veshkurova and colleagues analyze human capital as a condition for the digital transformation of companies, focusing on adaptive mechanisms but leaving open the question of its role as a source of innovative production (Veshkurova et al., 2022). The existing literature provides a significant theoretical and empirical foundation for the study of human capital in the context of the new technological order; however, the question of the priority of its generative role remains debatable. This determines the need for further conceptualization of human capital as a system-forming element of economic transformation, which sets not only the speed of technology diffusion but also the depth of structural changes, the sustainability of growth, and the competitiveness of national economies.

Methodology

The methodological framework of the study is formed considering the need for a joint analysis of the qualitative and quantitative aspects of human capital in the context of the new technological order. This approach is determined by the specifics of the object under study: the generative role of human capital cannot be adequately described solely through aggregated indicators of employment or education, since it is manifested in the dynamics of innovation activity, structural shifts, and institutional transformations. In this regard, the work employs a mixed methodology combining theoretical-conceptual analysis and analytical processing of statistical and index data. The theoretical part of the study is based on the evolution of the human capital concept, starting from the classical propositions laid down in the works of G. Becker and J. Mincer, and ending with modern interpretations in which human capital is considered as an active factor of technological and institutional development (Becker, 1993; Mincer, 1974; Borisova, 2016). At the same time, the analysis is not limited to reproducing well-known models but is aimed at identifying those aspects of the theory that allow interpreting human capital as a source of generating innovations, and not only as a factor of labor productivity growth. Additional attention is paid to modern approaches of economic growth theory, within which knowledge and skills are considered as an endogenous factor of technological progress. To comprehend the context of the new technological order, the concepts of the digital economy and technological revolutions presented in the works of international organizations and academic research were used. The analysis of OECD documents made it possible to identify structural changes in the economy associated with digitaliza-

tion, the spread of platform-based models, and the increasing complexity of production chains, as well as to clarify the mechanisms of interaction between human capital and innovation at the sectoral level. These provisions are supplemented by studies examining the impact of digital transformation on institutional and regional differences in economic development (Kochetkov, 2019).

The empirical part of the study is based on the use of secondary data and analytical indices reflecting the state and dynamics of human capital and innovative development. The World Bank's Human Capital Index is used as a key data source, allowing for a comparison of the potential productivity of future generations of workers, taking into account education and health. Despite the aggregated nature of this indicator, its use is justified by the objectives of the study, since it captures the structural constraints on the realization of human capital in the long term. To clarify the interrelationships between human capital and innovation dynamics, OECD materials reflecting sectoral differences in productivity and innovation activity are used. Analytical data processing was carried out using comparative and index analysis, which made it possible to identify stable patterns between the quality of human capital and indicators of technological and innovative development. Within the framework of comparative analysis, data on economies with different levels of digitalization and institutional development were compared, which made it possible to trace how identical technological conditions lead to different economic outcomes. Particular attention was paid to the interpretation of differences, rather than their formal recording, which made it possible to avoid reducing the analysis to simple correlational dependencies. To deepen the empirical findings, the results of recent studies based on micro- and meso-level data were used. In particular, the conclusions of works analyzing the innovative activity of firms and the role of human capital in the creation of technological innovations were drawn upon, which made it possible to link macroeconomic indices with the mechanisms operating at the level of economic agents. This comparison provided a logical linkage between aggregated indicators and the processes of innovation generation occurring within organizations and industries.

The regional aspect of the study is represented by an analysis of works devoted to the economy of Kazakhstan, as well as by the interpretation of national statistical and analytical data. The use of findings from domestic research made it possible to take into account the specifics of an emerging-market economy, in which human capital plays a compensatory and simultaneously system-forming role under conditions of limited access to advanced technologies. This approach ensured the comparability of international and national findings and reduced the risk of mechanically transferring foreign models to a different institutional context. The interpretation of the obtained results was carried out on the basis of logical-economic generalization and structural-functional analysis. These methods made it possible to consider human capital not as an isolated factor, but as an element of a broader system of interaction between technologies, institutions, and economic agents. As a result, the methodological framework of the study provided an opportunity to identify cause-and-effect relationships between the quality of human capital and the nature of technological development, as well as to substantiate its priority generative role in the context of the new technological order.

Results and discussion

The obtained results make it possible to record persistent differences in the nature of economic effects arising from a comparable level of technological development but a different quality of human capital. A comparison of international and national data indicates that, in the context of the new technological order, it is human capital that acts as a key factor determining the ability of an economy to transform technological potential into real innovative and structural shifts. At the same time, the identified dependencies are not linear but mediated in nature, which requires their interpretation through a set of institutional and sectoral characteristics.

An analysis of the World Bank's Human Capital Index in combination with indicators of innovative development and digitalization demonstrates that countries with similar levels of technological endowment differ significantly in terms of productivity growth rates and innovation activity. This discrepancy is not explained by the level of investment in equipment or digital infrastructure and points to the presence of a qualitative factor associated with the accumulation and realization of human capital. In particular, higher values of the Human Capital Index correlate with a greater intensity of adoption of complex technologies and a higher share of innovative products in the output structure, whereas in economies with limited quality of human capital, technological borrowing is often not accompanied by a comparable economic effect.

For a visual illustration of the identified differences, a comparison of aggregated indicators for a number of countries and Kazakhstan was used (see Table 1). The presented data do not claim to provide an exhaustive econometric interpretation, but they allow for the identification of stable empirical patterns.

Table 1
Human capital and innovation performance (averaged data)

Economy	HCI (Human Capital Index)	Global Innovation Index (баллы)	GII Rank
Kazakhstan	0.63	26.3	81
Exemplary developed country (e.g., Germany)	0.78	~60–65	~10
EU average	0.70–0.75	~40–50	~25–35

*Note- Compiled by the authors based on World Bank (2020)

Interpretation of the data in the table allows us to identify a fundamentally important result: the level of human capital by itself does not guarantee an automatic increase in innovation activity; however, when its quality is insufficient, the economic effect of technological development turns out to be significantly limited. In this sense, human capital acts as a kind of 'amplifier' of technological changes, without which digitalization and automation do not lead to the expected structural shifts.

Additional analysis of sectoral data presented in OECD materials shows that productivity differences between industries within the same economy are also largely determined by the quality of human capital, and not only by the level of technological endowment. Industries characterized by a high share of skilled labor and a developed system of in-house training demonstrate more sustained growth rates even with a comparable level of capital-to-labor ratio. This suggests a shift in the center of economic gravity from the accumulation of material resources to the processes of knowledge generation and processing.

At the micro level, the identified patterns are confirmed by the results of studies analyzing the innovative activity of firms and individual economic agents. Empirical data on corporate inventors indicate that it is the characteristics of human capital–the level of education, the cognitive complexity of tasks, and experience in innovation projects–that determine the likelihood of creating technological innovations. At the same time, access to digital tools and technological platforms acts more as a necessary condition, while the decisive factor becomes the ability of human capital to use them productively.

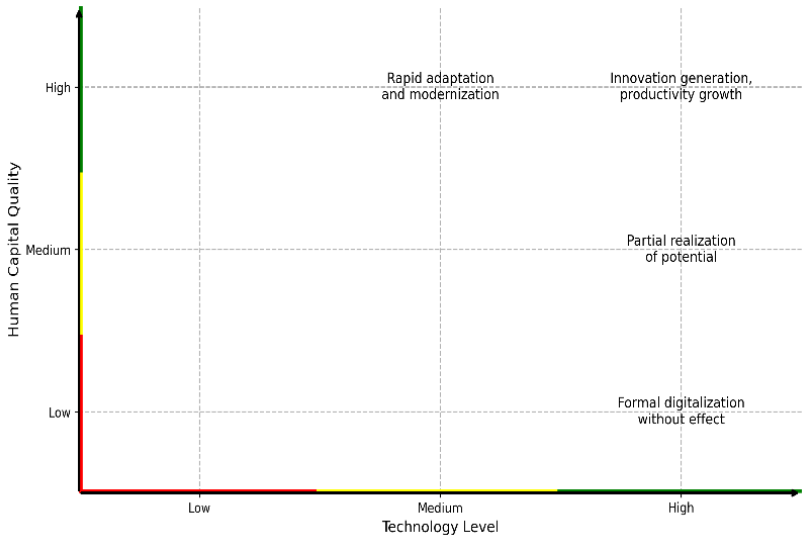
To generalize the identified relationships, an analytical matrix was formed that reflects differences in the mechanisms of technological potential implementation depending on the quality of human capital.

The analysis of the situation in the economy of Kazakhstan deserves special attention, where a combination of a moderate level of human capital and relatively high technological openness is revealed. A comparison of national data with international indicators shows that the existing potential of human capital is realized fragmentarily and is not fully transformed into sustainable innovation effects. This is manifested in the limited diffusion of technologies beyond individual sectors and in the weak interconnectedness between education, the labor market, and the innovation system. The obtained results allow us to draw an interim conclusion that, in the context of the new technological order, human capital ceases to be an auxiliary factor serving technological development and acquires an independent generative function. It is through human capital that differences in the economic performance of digitalization and innovation are formed, which is confirmed by both international and national data.

An in-depth analysis of national data allows for a more detailed examination of the specifics of human capital realization in the economy of Kazakhstan in the context of the new technological order. A comparison of indicators of human capital, innovation activity, and digital development reveals an asymmetry between potential opportunities and actual economic outcomes. With relatively stable values of the Human Capital Index and a fairly high level of digital technology penetration, the innovation returns in a

number of industries remain limited, which indicates a gap between the accumulation of human capital and the mechanisms of its productive use. Data from international indices and national studies demonstrate that human capital in Kazakhstan is more oriented towards reproducing existing production practices rather than generating new technological and organizational solutions. This is manifested in a relatively low share of employment in knowledge-intensive and creative sectors, weak interconnectedness between the education system and the innovation infrastructure, as well as in the limited diffusion of knowledge between sectors of the economy. As a result, technological borrowing and digital initiatives are often fragmentary in nature and do not create a sustainable economies of scale effect.

Figure 1
Logical matrix of technological potential realization



**Note- Compiled by the authors based on Liu, T. (2023)*

A comparative analysis with a group of Central and Eastern European countries allows us to clarify the identified patterns. With a similar level of human capital, these economies demonstrate higher innovation performance, which is explained by greater institutional coherence and a more developed knowledge transfer system. This indicates that the generative role of human capital is not realized automatically, but is embedded in the institutional and organizational structure of the economy.

Table 2
Comparison of human capital realization (Kazakhstan and CEE countries)

Indicator	Kazakhstan	CEE countries (average)
Human Capital Index	moderate	moderate–high
Share of employment in knowledge-intensive sectors	low–moderate	moderate
Innovation activity of firms	limited	sustained
Link between education and innovation	fragmentary	institutionalized
Economic effect of digitalization	uneven	Cumulative

*Note- Compiled by the authors based on OECD (2021)

The presented data allow us to conclude that, under comparable initial conditions, it is the nature of the institutional embeddedness of human capital that determines its ability to perform a generative function. In economies where stable channels for transforming knowledge into innovation have been formed, human capital becomes a source of structural shifts, whereas in the absence of such channels, it primarily serves existing technological contours. Additional analysis of the sectoral structure confirms this pattern. In industries oriented toward raw material exports and primary processing, the role of human capital is limited to maintaining technological processes and managing operational efficiency. At the same time, in sectors related to ICT, engineering services, and scientific research, even with a relatively smaller scale of investment, higher innovation returns are observed. This also indicates differences in the mechanisms of human capital capitalization, which are not reducible to the level of formal education or the number of employees.

To generalize the obtained results, a conceptual smart object was formed that reflects the mechanisms of human capital's transition from a resource function to a generative function.

Figure 2
Mechanism of the generative role of human capital

**Note- Compiled by the authors based on OECD (2021)*

This diagram illustrates the sequence of transformation of individual knowledge and skills into macroeconomic effects. At the same time, a gap at any stage of the chain leads to a decrease in overall effectiveness, which is observed in economies with insufficient institutional support for innovation.

Of particular interest are the results related to the temporal aspect of human capital realization. An analysis of the dynamics of indicators indicates the presence of a lag effect between investments in human capital and their economic returns. In the context of the new technological order, this lag is reduced but does not disappear completely, which requires consideration of time constraints when interpreting results and formulating economic policy. Countries that have managed to institutionally support the processes of continuous learning and skills updating demonstrate a faster transition from human capital accumulation to its generative realization. Taken together, the obtained results allow us to refine the understanding of the role of human capital in the modern economy. It acts not merely as a factor enhancing technological development, but as a central element determining the nature and depth of economic transformations. In the context of the new technological order, it is through human capital that the transition from formal digitalization to sustained innovation dynamics is carried out, as evidenced by both international comparisons and the analysis of the national context.

Further analysis allows us to move from quantitative comparisons to identifying qualitative differences in the ways human capital is realized in the context of the new technological order. The obtained data indicate that the generative role of human capital manifests itself heterogeneously and can take various forms depending on the structure of the economy, the nature of the institutional environment, and the degree of integration into global technological chains. This allows us to consider human capital not as a homogeneous quantity, but as a multilevel factor operating in different modes.

The analysis reveals a fundamental difference between adaptive and generative models of human capital realization. In the first case, the knowledge and skills of workers are primarily directed toward the adoption and maintenance of already existing technological solutions, ensuring their stable functioning and cost minimization. This model is characteristic of economies oriented toward technological borrowing and the reproduction of established production structures. In the second case, human capital acts as a source of creating new technological, organizational,

and managerial solutions, forming a cumulative effect of innovative development. It is this model that becomes determining in the context of the new technological order.

To systematize the identified differences, a typology of economies was formed based on the nature of human capital realization, reflecting the qualitative features of its generative function.

Table 3
Types of economies based on the model of human capital realization

Type of economy	The dominate function of HC	The nature of technological development	Long-term effect
Adaptive	Supportive	Borrowing and local optimization	Limited growth
Transitional	Mixed	Partial generation of innovations	Unstable dynamics
Generative	Innovative	Creation of new solutions	Sustained growth

*Note: developed by the authors

A comparison of this typology with empirical data shows that Kazakhstan currently occupies an intermediate position between the adaptive and transitional models. Despite the presence of isolated pockets of generative activity, primarily in sectors related to digital services and engineering development, the adaptive logic of human capital utilization dominates at the economy-wide scale. This limits the possibility of forming sustained innovation chains and reduces the multiplicative effect from the introduction of new technologies. A qualitative analysis of sectoral and institutional differences allows us to clarify the mechanisms hindering the transition to the generative model. These include the fragmentary nature of the innovation infrastructure, insufficient integration of educational and scientific organizations with the real sector of the economy, as well as limited opportunities for the accumulation and redistribution of knowledge within the economic system. As a result, human capital, even possessing the necessary cognitive characteristics, is not always incorporated into the processes of creating new economic value. The identified effect of institutional asymmetry deserves special attention, whereby the same characteristics of human capital demonstrate different economic returns depending on the environment of their application. In economies with a developed system of innovation and entrepreneurship support, human capital transitions more quickly into a generative mode, whereas under conditions of institutional constraints, it is realized primarily within the framework of adaptive strategies. This confirms the conclusion that the generative role of human capital is formed at the intersection of individual characteristics and systemic conditions.

To integrate the obtained results, an overarching analytical construct was formed that reflects the transition of human capital from a resource function to a system-forming function.

Figure 3
Qualitative modes of human capital functioning

**Note: developed by the author*

This construct allows us to capture the key finding of the study: in the context of the new technological order, the priority of human capital is determined not so much by its quantitative characteristics as by its ability to be involved in the processes of generating new economic solutions. It is precisely

this ability that becomes the criterion for distinguishing between economies that demonstrate sustained innovation dynamics and economies limited by the framework of adaptive development. The totality of the obtained results forms a holistic understanding of human capital as a central element of the new technological order. It ceases to perform an exclusively auxiliary function and acquires the status of a system-forming factor that determines the nature, depth, and sustainability of economic transformations. This creates a methodological foundation for the subsequent discussion of the obtained conclusions in the context of modern economic theory and the practice of economic policy.

The results of the analysis make it possible to significantly deepen existing understandings and, to a certain extent, adjust the dominant views on the role of human capital in the context of the new technological order that have developed in modern economic theory. In a significant body of research, human capital is still considered a factor derivative of technological progress, performing mainly an adaptive function–ensuring the assimilation and effective use of already existing technologies. This approach traces back to classical models in which technological progress is treated as exogenous and human capital as a means of increasing individual and aggregate labor productivity (Becker, 1993; Mincer, 1974). Within this framework, knowledge and skills are interpreted primarily as investments that increase incomes and efficiency, but not as an independent source of forming new technological trajectories. At the same time, the results of this study show that in the context of the new technological order, such an interpretation proves insufficient. The identified empirical dependencies indicate a more complex nature of the interaction between human capital and technological changes, in which human capital not only reacts to the introduction of new technologies but also actively shapes their direction, intensity, and economic effectiveness. This aligns the obtained results with modern endogenous theories of growth and innovation, in which knowledge, skills, and learning abilities are considered as internal sources of technological progress (Bulina et al., 2020; Grigorescu et al., 2021). Of particular importance in this context are studies emphasizing the institutional conditionality of the role of human capital. Thus, OECD work shows that digitalization and the introduction of advanced technologies do not automatically lead to productivity growth and innovation activity without appropriate learning mechanisms, knowledge transfer, and organizational changes (OECD, 2020; OECD, 2021). Similar conclusions are found in studies by K. Forichon (2020), where it is emphasized that human capital demonstrates its economic effectiveness only in an institutional environment capable of supporting its reproduction and use in complex economic processes. This confirms the thesis that human capital should be viewed not as an isolated resource, but as an element of a broader system of interaction between technologies, institutions, and economic agents. The obtained results allow for a different interpretation of the problem of technological borrowing, which is traditionally considered a universal tool for accelerated development for emerging-market economies. A number of studies emphasize that technology imports can ensure short-term growth and modernization of production processes (Baigireyeva & Niyazbekova, 2020). However, the empirical evidence obtained in this study is consistent with the conclusions of more critical approaches, pointing to the existence of the so-called ‘catch-up development trap.’ Within this trap, the economy proves capable of reproducing and exploiting borrowed technologies, but does not form sustainable mechanisms for generating its own innovations (Shao & Wang, 2025). It is in this context that the identified distinction between adaptive and generative models of human capital realization acquires fundamental importance. Although this distinction is rarely formulated directly in the economic literature, it is implicitly present in studies analyzing the heterogeneity of innovation processes and the role of knowledge in shaping the competitive advantages of firms and countries. Thus, T. Liu et al. (2023), investigating the innovative activity of corporate inventors, show that the presence of similar technological resources does not guarantee identical innovation outcomes if human capital lacks the ability to create and combine new knowledge. Similar conclusions are drawn by A. Grigorescu and colleagues (2021), emphasizing that differences in the innovation dynamics of Central and Eastern European countries are determined not so much by the level of digitalization, but by the quality of human capital and the mechanisms of its institutional embeddedness. Interpreting the results through an institutional lens allows us to assert that the generative role of human capital is formed not at the level of individual characteristics such as education or work experience, but in the space of interaction between the education system, the labor market, innovation infrastructure, and economic policy. This conclusion aligns with the propositions of institutional economics, according to which innovations are the result of collective, organizationally and institutionally mediated processes (Dyatlov, 1994;

Eskindarov et al., 2022). In this sense, human capital acts not merely as a bearer of knowledge, but as an active element of the system ensuring its transformation into economic outcomes. With regard to the economy of Kazakhstan, the obtained results allow for a critical reconsideration of existing technological modernization strategies, focused primarily on the development of digital infrastructure and the introduction of ready-made technological solutions. A number of studies indicate the presence of significant human capital potential in Kazakhstan (Baigireyeva & Niyazbekova, 2020; Serikkyzy et al., 2024). However, empirical data show that this potential is realized primarily in an adaptive mode. This is manifested in the weak interconnectedness between education, science, and the real sector, limited diffusion of knowledge between industries, and insufficient institutionalization of innovation activity (Dinzhanova & Bayetova, 2022). In the context of global competition for human resources and high mobility of skilled labor, such a situation creates additional risks. The absence of conditions for the generative realization of human capital can lead to talent outflows and the entrenchment of an adaptive development model, which reduces the long-term potential for economic growth. This is consistent with the findings of the World Bank (2020), pointing to structural constraints on the realization of human capital in emerging-market economies. Taken together, the discussion of the obtained results allows us to assert that the priority of human capital in the context of the new technological order is not declarative but structural in nature. It is manifested in the ability of human capital to set the direction of technological changes, shape innovation ecosystems, and ensure the sustainability of economic development. The theoretical contribution of the study lies in expanding the analytical framework of human capital theory by emphasizing its generative function. Considering human capital as an active mechanism for shaping technological trajectories allows us to link micro-level processes of learning, innovation activity, and organizational changes with macroeconomic outcomes–structural modernization and sustainable growth. At the same time, the research results complement discussions on industrial and technological policy, in which the limitations of universal solutions are increasingly emphasized. The analysis shows that measures aimed solely at stimulating technology adoption prove insufficient without creating institutional conditions for the generation and capitalization of knowledge. This confirms the need for context-dependent development strategies that take into account the structure of the economy and the specifics of the institutional environment. In this context, the priority of human capital acts as a key condition for the effectiveness of technological policy and the long-term competitiveness of national economies, especially under the conditions of the new technological order.

Conclusion

The study shows that in the new technological paradigm, human capital becomes not only a resource allowing the economy to adapt to digital changes, but also a key source of innovations and structural transformations. Technologies and digital infrastructure by themselves do not guarantee sustainable growth: their impact largely depends on the knowledge, competencies of the economy, and the institutional conditions for the creation and diffusion of new solutions. A comparison of Kazakhstan with Central and Eastern European countries confirms that differences in innovation indicators are determined not only by the level of technological complexity, but also by the degree of establishment of stable links between education, the labor market, academia, and business. In the case of Kazakhstan, human capital is still used adaptively, which limits the possibility of transforming digitalization into a cumulative, long-term innovative effect.

Thus, the priority of human capital in the modern economy is primarily associated with its generative function – the ability to form new trajectories of technological and organizational development. The transition from adaptive use of human capital to its full-fledged innovative application becomes one of the main conditions for sustainable competitiveness and modernization of the national economy.

Acknowledgements and Conflict of Interest

The authors declare that there are no acknowledgements and no conflicts of interest related to this study.

Author Contributions

Conceptualization, T.M.; Methodology, T.M. and A.D.; Software, A.D.; Validation, T.M. and A.D.; Formal Analysis, G.R.; Investigation, T.M.; Resources, A.D.; Data Curation, A.D. and G.R.; Writing – Original Draft Preparation, T.M. and A.D.; Writing – Review & Editing, G.R.; Visualization, T.M. and A.D.; Supervision, T.M. and G.R.; Project Administration, T.M. and G.R.

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ANALYZING THE IMPACT OF INNOVATIVE TECHNOLOGIES ON ORGANIZATIONAL PERFORMANCE

Abstract

Purpose. This study aims to examine the impact of innovative technologies on organizational performance. It investigates relationships between digital innovation, digital capabilities and innovation propensity, assessing how these factors collectively drive organizational performance.

Design/methodology/approach. To fulfil the stated objective, the data were collected using an online survey from 99 employees working in companies operating in manufacturing, trade, distribution and service sectors.

Findings. The results indicate that digital innovation, digital capabilities and innovation propensity have a positive and significant impact on organizational performance.

Originality. This study contributes to the literature by providing empirical evidence on the integrated role of innovative technologies in improving organizational performance. It expands existing knowledge by examining multiple technological and organizational factors simultaneously.

Keywords: digital innovation, digital capabilities, innovation propensity, organizational performance.

Introduction

Presently, enterprises operate in a market environment characterized by uncertainty and constant change. Chen Y., Wang Y., Nevo S., Benitez-Amado J and Kou G. (2015) stated that in the era of globalization, firms are required to adopt strategies to remain competitive and achieve high performance. In such unstable conditions, organizations need to continuously reassess their strategic priorities and approaches to resource allocation to ensure long-term sustainability. Increasing competition compels companies to invest in innovative practices and technologies.

Therefore, enterprises should act proactively by adopting technologies that enable product improvement and diversification. Accordingly, this allows them to strengthen their competitive position and enhance their organizational performance (Pinho and Ferreira, 2017). The active adoption of innovative technologies not only improves operational performance but also enhances a company's ability to respond quickly to market changes. In rapidly evolving markets, innovation flexibility is an important factor for growth.

Organizational performance is commonly defined as an organization's ability to achieve its goals through the efficient use of available resources (Daft, 2000). In this regard, prior research emphasizes that effective utilization of technological resources plays a crucial role in improving firm performance and enhancing the ability to identify and exploit new business opportunities (García-Morales V., Bolívar-Ramos M., and Martín-Rojas R., 2013). In addition, performance is evaluated through both financial and non-financial indicators, reflecting the multidimensional nature of organizational success.

In the study by Lawless, M.J. and Fisher, R.J. (1990), it is stated that firm's competitive advantage often stems from its capabilities and innovative propensity in developing new products. The development of these capabilities leads to an increase in product innovation and contributes to the firm's overall innovation achievements (Guan, J., 2002). Compared to low-performing firms, high-performing firms generally possess stronger innovation propensity. Innovation propensity is defined as the skills to learn, improve and effectively utilize existing technologies, as well as the knowledge and experience required to develop new technologies. Such adaptability reflects on an organization culture that is oriented toward experimentation and continuous improvement. Companies that support knowledge sharing and creativity

are more capable of transforming ideas into implemented innovations in the market.

Furthermore, companies have begun to realize the importance of reconsidering their activities and strategies in order to adapt to the requirement of the "new normal" (Loureiro, Ferreira & Simões, 2021). Enterprises have started to implement digital tools to optimize the efficiency of their processes and to ensure the stable operation of their businesses. As a result, in unstable and uncertain market conditions, the importance of digital capabilities in increasing and interest continues to grow (Zhen, Yousaf, Radulescu & Yasir, 2021). Digital capabilities facilitate data-driven decision making and increase organizational agility.

Understanding how digital innovations influence the organizational environment enables enterprises to enhance their organizational performance and achieve strategic objectives. For this study, we conducted a survey to examine the impact of digital innovation, digital capabilities and innovation propensity on organizational performance. This research seeks to provide empirical evidence on how these factors interact and to offer practical insights for improving organizational performance through the adoption of innovative technologies. The findings of this research will have significant practical implications for managers aiming to enhance organizational performance and competitiveness through technological development.

Literature review

Organizational performance is a comprehensive concept that describes the extent to which an organization achieves its strategic objectives. Daft (2000) defines organizational performance as an organization's ability to achieve its goals through the efficient use of available resources. In contemporary research, organizational performance is measured through both financial and non-financial indicators. From this perspective, performance directly depends on the organization's internal capabilities and its level of adaptation to the external environment.

A firm's ability to adapt is mostly determined by its level of digital innovation. In the context of research, digital innovation is defined as use of information and communication technologies to create new and improved products, processes, business models, marketing and organizational methods (Ahu Tuğba Karabulut, 2020). The implementation of innovative technologies enables enterprises to enhance product quality, diversify markets and strengthen their competitiveness (Shan, Song, & Ju, 2015).

Innovation is closely related to an organization's internal strategies. Organizations must be technologically innovative to remain competitive. The authors argue that development of innovative technologies and the formation of core competencies constitute the foundation of long-term competitiveness. Furthermore, the effective utilization of digital capabilities enables enterprises to adapt to market changes and achieve sustainable performance outcomes.

In this context, digital capabilities play a crucial role. In general, digital capabilities are defined as a firm's ability to integrate, build and reconfigure information technologies with organizational resources and competencies; this capability enables the company to anticipate the strategic and operational requirements of the business environment and respond to them appropriately (Baiyere, A., Salmela, H., Nieminen, H., & Kankainen, T., 2025).

In addition, innovation propensity is defined as the degree to which an organization strives to achieve an innovation environment through innovations that support organizational architecture (Dobni, 2008). Organizations with a strong innovation propensity are more capable of adapting to technological changes and achieving sustainable performance through digital capabilities.

Accordingly, innovation propensity contributes to the development of digital capabilities, digital capabilities enhance digital innovation, and digital innovation leads to enhanced organizational performance.

Digital innovation and organizational performance

The relationship between digital innovation and organizational performance has been widely investigated in the literature, but the findings are not entirely consistent or conclusive (A. Oke, 2007). Some researchers have suggested that this relationship may be negative, as innovation involves high costs, uncertain investment returns. For example, in the study by Terwiesch and Lonch (1998), the authors emphasize that innovation intensity may have a negative or no significant effect on firm profitability.

Nevertheless, numerous studies indicate a positive relationship between digital innovation and organizational performance. For instance, Capon et al. (1990) emphasize that firms investing in innovation tend to achieve better organizational performance. Market responses also support this positive effect. Chaney and Devinney (1992) demonstrate that public announcement of innovative announcement gets

positive market reactions. Similarly, Oke (2007) demonstrated a direct positive relationship between innovation and organizational performance. In addition, in the study by Zhang et al. (2014), it was stated that firms receiving innovation awards tend to perform better financially, further confirming the benefits of innovation. Moreover, Yoo (2010) stated that digital innovations enhance organizational performance and encourage maintaining the attractiveness of core offerings as well as creating additional sources of revenue.

Overall, literature largely supports the notion that digital innovation positively influences organizational performance.

Accordingly, we propose the following hypothesis:

H1: Digital innovation has a positive effect on organizational performance.

Digital capabilities and organizational performance

Digital capabilities enable organizations to effectively utilize the large amount of information obtained from their environment and implement technology in alignment with organization's value proposition (Gobble, 2018). Therefore, as Osmanbekov, Bello & Gilliland (2002) indicate firms need to adopt digital tools to improve their operations and respond quickly to market changes.

Organizations need to properly understand how necessary technological and innovative changes are to successfully implement digital innovation. If a company timely recognizes the importance of new technologies and integrates them into its operations, it can enhance its organizational performance. Digital capabilities enable organizations to take advantage of new opportunities and improve their activities. Lyytinen, Yoo and Boland (2016) define digital capabilities as digital systems that generate new outcomes and structures without involvement of external parties and without deliberate planning by the system creator. In other words, these are not only technological tools, but also important resources that support the development and adaptability of organizations.

Furthermore, recent studies show that the relationship between digital capabilities and organizational performance is not always clear. This depends on how effectively an organization utilizes its digital capabilities and how they are applied through business intelligence and analytics (BI&A), as these tools allow organizations to monitor their environment and make timely strategic decisions.

In the study by Heredia et al. (2022), it was stated that there is a positive relationship between digital capabilities and organizational performance. Additionally, in the study by Khin and Ho (2020) it was argued that digital capabilities have a positive impact on organizational performance.

Accordingly, we propose following hypothesis:

H2: Digital capabilities are a positive and significant indicator of organizational performance.

Innovation propensity and organizational performance.

Innovation propensity refers to an organization's inclination to adopt new approaches and strategies to achieve long-term sustainable competitive advantage. In the study by Kenedy (2007), innovation was described as an organization's ability to attain sustainable competitive advantage through innovative practices and strategies. This concept is not limited to the introduction of new products. It encompasses the organization's overall strategic orientation and its tendency toward innovativeness.

As indicated in business management research, innovation is considered one of the key determinants of organizational performance (Dunk, 2011). The positive impact of innovation propensity on organizational performance has been extensively studied in existing literature. The introduction of innovative methods into management systems enabled more efficient utilization of resources, which in turn improves organizational (Damanpour, Walker and Avellaneda, 2009; Sako, 2012).

Accordingly, innovation propensity supports development of a organization's digital capabilities. Enterprises that focus on innovation tend to adopt innovative technologies actively and integrate them with their strategies.

In the study by Hult Ketchen (2001), it was stated that an increase in innovation propensity contributes to improved firm performance through enhanced market orientation, which in turn leads to increased organizational performance.

Accordingly, we present the following hypothesis:

H3: Innovation propensity positively affects organizational performance through digital capabilities.

Methodology

This study selected the appropriate sample size of 12 companies, operating in the manufacturing, trade, distribution and service sectors (including IT and

logistics). The study aimed to examine the relationships between variables by testing hypotheses. For this purpose, data were collected through an online survey using Google Forms. As a result, 99 respondents completed the questionnaire, of whom 67.7% were women, while 32.3% were men. The age distribution of the respondents was as follows: 27.3% were between 18-25 years, 18.2% were between 26-35 years, 11.1% were between 36-45 years, 32.3% were between 46-55 years and 11.1% were over 56 years old. The participating companies varied in size, providing broader industry representation.

Measures

The research constructs were developed based on previous studies and pilot testing. To conduct the survey, we use a multiple-item method. The constructs were based on a Likert scale ranging from "strongly disagree" to "strongly agree".

Organizational performance

According to the study by Lee, H., & Choi, B. (2003), the **Organizational performance** variable was measured using 5 survey items and 6-point Likert scale. The sample item of this scale is: "Our company's overall profitability is higher compared to competitors". The Cronbach's alpha for this scale was 0.792.

Digital innovation

The questions for **Digital innovation** were adapted from Khin, S., & Ho, T. C. F. (2018) and described using 6 survey items and 5-point Likert scale. The sample item of this scale is: "The quality of our digital solutions is superior to that of our companies". The Cronbach's alpha for this scale is 0.716.

Digital capabilities

Digital capabilities variable, as indicated in the study by Khin, S., & Ho, T. C. F. (2018), was measured using 5 survey items and a 5-point Likert scale. The sample item of this scale is: "Our company can respond effectively to that demands of digital transformation". The Cronbach's alpha for this scale is 0.801.

Innovation propensity

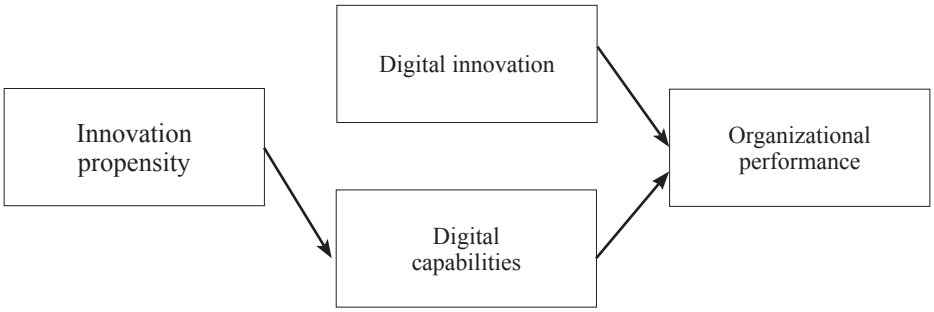
According to the study by Dobni, C. B. (2008), **Innovation propensity** is described using 9 survey items and a 7-point Likert scale. The sample item of this scale is: "Innovation is one of core values of our organization". The Cronbach's alpha for this scale is 0.829.

All items were measured reflectively. Since data were collected through an online survey, the confidentiality of respondents was ensured, and the data questionnaire was carefully designed to minimize potential methodological bias.

The research data were analyzed using SmartPLS 4.0, as this software is suitable for applying the PLS-SEM method. It also allows for assessing reliability and validity of constructs and analyzing structural models.

Our results produced the following model:

Figure 1
Research Model



Results

The measurement model was evaluated by examining indicator reliability, internal consistency and convergent validity. To ensure the reliability and convergent validity of the measurement model, several indicators (DI3, DI4, IP5, IP6 and IP8) were removed, as their factor loadings were below the recommended threshold of 0.6. After removing these low-loading items, all remaining indicators exhibited factor loadings above 0.7, confirming strong indicator reliability.

As shown in Table 1, Cronbach's alpha values for all constructs were above 0.7, ranging from 0.716

to 0.829, which indicates high internal consistency. Furthermore, composite reliability (CR) values ranged from 0.822 to 0.875, which exceeds the minimum threshold of 0.7. Average variance extracted (AVE) values for all factors were above 0.5, ranged from 0.536 to 0.558. This shows that the questions effectively measure the constructs, confirming convergent validity.

To test discriminant validity, we used the Fornell-Larcker criterion. According to this criterion, the square root of the AVE for each construct should be greater than its highest correlation with any other construct. Results in Table 1 show that AVE square roots are greater than the correlations between constructs, which confirms the discriminant validity.

Table 1
Summary of construct validity, reliability and correlation matrix

Construct	Digital innovation	Innovation propensity	Digital capabilities	Organizational performance	CR	AVE	α
Digital innovation	0.732				0.822	0.536	0.716
Innovation propensity	0.627	0.734			0.875	0.539	0.829
Digital capabilities	0.684	0.674	0.747		0.863	0.558	0.801
Organizational performance	0.631	0.729	0.720	0.740	0.858	0.547	0.792

To test the proposed hypothesis, a bootstrapping procedure with 5000 resamples was performed to evaluate the significance of the path coefficients. The results of the structural model assessment, including path coefficients, t-statistics and p-values are summarized in Table 2.

Table 2

Hypothesis testing result

Hypothesis	Direct effect			Std Estimate	S.E.	C.R.	P	Support
H1	Digital innovation – organizational performance			0.261	0.117	2.227	0.026*	Yes
H2	Digital capabilities – organizational performance			0.542	0.126	4.292	0.000***	Yes
	Mediation effect	Path coefficient A	Path coefficient B					
H3	Innovation propensity – Digital capabilities – Organizational performance	0.674	0.542	0.365	0.106	3.437	0.001***	Yes

Notes: t-values > 1.65* (p < 0.1); t-values > 1.96** (p<0.05); t-values > 2.57*** (p<0.001)

All three hypotheses were statistically validated. First, digital innovation was found to have a significant positive impact on organizational performance ($\beta = 0.261$, $t = 2.227$, $p < 0.05$). That is, the more an organization invests in and implements innovative digital solutions, the better its organizational performance becomes.

Second, the analyses revealed that the relationship between digital capabilities and organizational performance was also positive and significant ($\beta = 0.542$, $t = 4.293$, $p < 0.001$).

Third, the mediation analysis confirmed that innovation propensity significantly leads to better organizational performance through digital capabilities

($\beta = 0.365$, $t = 3.437$, $p < 0.001$). In other words, a company's desire to innovate leads to better performance by pushing the organization to build digital skills and tools.

Consequently, the statistical analysis confirms validity of all three hypotheses within the proposed research model.

Discussion and conclusion

This study provides a comprehensive analysis of the impact of digital innovation, innovation propensity and digital capabilities on organizational performance. The empirical results confirm that all proposed hypotheses are supported. The findings demonstrate that these factors play a significant role in enhancing organizational performance.

First, the results confirm that digital innovation has a positive effect on organizational performance. Digital innovation enables organizations to maintain the attractiveness of their core offering, generate new sources of revenue and quickly adapt to changing market conditions (Yoo Y., 2010). Consequently, digital innovation strengthens competitiveness and facilitates the achievement of strategic objectives.

Second, the findings indicate that innovation propensity influences organizational performance through digital capabilities. In other words, when supported by strong digital capabilities, an organization's readiness to embrace new ideas and develop innovations translates into concrete performance outcomes. Innovation propensity creates the foundation for the effective adoption and utilization of digital tools, thereby promoting efficient resource allocation and improved managerial processes.

Third, digital capabilities were found to be a significant and positive indicator of organizational performance. The effective use of digital technologies enhances operational processes, improves decision-making quality and increases overall productivity.

Overall, the study highlights the importance of promoting digital innovation, cultivating an innovation-oriented culture and systematically developing digital capabilities to improve organizational performance. The interaction among these factors enables organizations to achieve sustainable competitive advantages and successfully implement long-term development strategies. In addition, the research findings empirically validate the integrated relationship among digital innovation, innovation propensity and digital capabilities, therefore enriching the current academic literature. From a practical perspective, the results provide guidance for managers in developing strategies that support digital transformations initiatives and enhance organizational performance

Practical implications

According to the results of this study, the implementation of innovative technologies in companies provides effective practical guidance for managers and employees. Companies need to strategically integrate digital technologies into business processes to increase organizational performance. Employee training, the development of modern technologies, and digital infrastructure help maintain competitive advantage. Managers should develop long-term strategies that support innovation-based development. Building an innovation-oriented organizational culture increases employees' readiness to adopt new digital solutions. The results also show that organizations in the manufacturing, trade, distribution and service sectors can benefit from systematic digital transformation practices. Overall, the study highlights the importance of developing digital innovation, digital capabilities, and innovation propensity to improve sustainable development and organizational performance.

Limitations and future research

This study has several limitations that should be acknowledged. First, the research was conducted only within a specific geographical region and involved a limited number of enterprises. Therefore, the applicability of research results to other enterprises is limited. Second, the data were collected using Google Forms, it is not possible to be fully confident in the sincerity and objectivity of the respondents.

Future research should consider expanding sample size by including a larger number of enterprises and respondents from diverse regions and sectors. It is also effective to identify sector-specific characteristics and opportunities through a comparative analysis of different industries. Future research should employ qualitative methods, such as interviews and case studies, as these approaches would provide a deeper understanding of how organizations implement innovation processes. In addition, adopting longitudinal research approaches would allow research to explore the long-term influence of innovative technologies on organizational performance. Such approaches would provide deeper insights into the sustainability and dynamic impact of technological innovation.

Acknowledgements and Conflict of Interest

The authors declare that there are no acknowledgements and no conflicts of interest related to this study.

Author contributions

Conceptualization, T.Z.; Methodology, T.Z.; Software, T.Z.; Validation, T.Z., A.K. and M.E.; Formal Analysis, M.E.; Investigation, A.K.; Resources, T.Z.; Data Curation, T.Z.; Writing – Original Draft Preparation, T.Z., A.K. and M.E.; Writing – Review & Editing, A.K. and M.E.; Visualization, T.Z.; Supervision, A.K.; Project Administration, T.Z. and A.K.

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MILITARY COUPS, CONFLICTS, AND ECONOMIC RECESSION IN AFRICA (2000–2023)

Abstract

Purpose. This study aims to examine the causes and implications of the collapse of representative governments through coups d'état in Africa, with particular focus on the relationship between governance failures, economic challenges, and military interventions.

Design/methodology/approach. The research adopts a qualitative approach based on the analysis of primary documents and secondary data sources. A comparative method is employed to examine selected African countries–Mali, Burkina Faso, Chad, Guinea, and Niger–over the period 2000–2023, enabling cross-country evaluation of political and socio-economic dynamics.

Findings. The findings indicate that military interventions in African politics are not solely driven by military ambition but are largely influenced by economic recession, weak governance, and persistent conflicts. The study reveals that despite transitions to democratic systems, many countries continue to face structural challenges that undermine political stability and economic development. Both civilian leadership failures and military actions contribute to democratic backsliding and the emergence of pseudo-democratic systems.

Originality. This study contributes to the literature by offering a comparative and contemporary analysis of coups in Africa within the post-third wave democratic context. It provides new insights into the interplay between governance quality, economic conditions, and political instability, highlighting the dual role of civilian and military actors in undermining democratic consolidation.

Keywords: Governance, development, leadership, crisis, performance.

Introduction

There have been scholarly debates on African democratic process after the smooth transition to democracy in the post-third wave. The participants revealed that the main obstacle to democratic development in Africa is governance and this constitutes the problem of the study. Ordinarily, governance is transformation of political values to socio-economic development as expectations of the people in the state. The expectation of the people reflects upon a democratic institution through policy framework of the government in power. In Africa, the leadership in power lacks enormous democratic values that can drive the electoral promises and unethical character invited the military intervention in African politics Saka (2024). Many studies have been conducted on governance Bratton and Van de Walle (1997), Abrahamson (2000), and African Union (2022) respectively.

The current study complements other within the prism of democratic breakdown using comparative approach by focusing on Mali, Burkina Faso, Niger, Chad, and Guinea respectively. Therefore, the recent cases efforts add to other studies in African democratic experience. Under this sense, democratisation connotes transition from authoritarian regime to democratic principles by transparent elections. The aforementioned countries have experienced the causes without stability due to overwhelming challenges. One of the challenges is lack of smooth exchange of power from the incumbent party to opposition political parties. The participation and contestation could not pave the way to alternative government (democratic consolidation) Saka and Mngomezulu (2023). However, the recent democracies in Africa have attempted democratic breakdown as a radical change to autocratic leadership. Democratic breakdown is a relative of political erosion occurs through coup d'tate organized by group of soldiers and failed elite

overthrowing democratic government in power Maeda (2010). The military intervention in politics is triggered by the action of the civilian governments not conforming to democratic ethics after post independent. Regrettably, the occurrence of military coups in Africa is caused by unethical political process creating opportunity for violence to become the decisive reason.

The recent research suggests that what Africa needs is liberal democracy not democratization. The transition to representative democracy receives high volume in the post-third wave democratization. Fukuyama (1992) argues that liberal democracy marked the end point of mankind's ideological authoritarian power and it established democratic governments in history. The earlier forms of authoritarian government are characterized by danger which resulted in malfunction that led to final collapse. Liberal democracy is hitherto a relative of electoral participation and contestation for the power. The process maintains the contribution of Huntington (1991) who emphasizes on the authoritarian leaders deliberately conducting elections for political development. The transition process witnessed enormous efforts of the military leaders in power and supports of the people advocating for representative government both campaigning against the autocratic regimes in Sub- Sahara Africa. However, the era marked socio-economic development in post-third wave Africa in 1991. For example, Ghana 1993, South Africa 1994, Nigeria 1999 and many more countries joined the leadership of democratic nation-states in the world. There was a substitute of autocracy for democracy, meaning that there is possibility of representative government everywhere Ake (1992). Therefore, the study conversely responds to possibility of democracy as a new trending issue in Africa. The practice of representative democracy was a concern issue in the post-third wave and this works upon sustainability through socio-economic performance in Africa.

The aim and objective of this study seeks to fill empirical gaps in democratic breakdown in Africa particularly in the post-third wave democratization. It supports the study to explain the rationale behind the military intervention in African politics and its implications. Part of the implication is governance crisis that triggered to civil war after the political independence. Nigeria, Ghana, Rwanda, Liberia, Serra Lion, Togo altogether have experienced either long or short period civil war in different circumstances due to unethical democratic process. Therefore, leadership problem among the various ethnic groups resulted in power struggle in Africa. The persistence in the struggle gave the majority ethnic group access to power in some countries.

In the preceding section, the political leaders in Africa are clearly preoccupied with problem of underdevelopment. It is better to understand the notion through the political economy on the perception of social forces after the end of colonialism. The issue of leadership by coup d'état and tenure elongation are unconstitutional in the new states after few years and this frustrated governance. The economic development in Africa is challenged by successive leaders that came through unethical means in each country. In background, leadership in Africa is divided into two political cleavages. The first is big men or dominant elite circulating power among themselves. The second is the antagonist group with collaboration of failed elite to seize power through the barrel of guns. These social forces have fragmented the society upon violence, crisis, war and conflict in the post-third wave democratization Bratton and Van de Walle (1997). The post-third wave leaders are fashioned on neo-patrimonial system under the incumbent party members have political leverage on resources of the country. The ideology of a dominant group in a democratic system creates political antagonism in the political environment. The high celebration of neopatrimonialism by African leaders characterized the social environment into volume of violence which occurs on daily basis. Frequent political violence with zero effort in substitution for peace clearly invites the interest of the military. This issue originated from the post-colonial society where African racial leaders rule upon the ethnicity and religion intolerance. The action which triggered democratic breakdown is influenced by party disunity in some new democracies. The party disunity is an issue that disregards democratization commonly found in the groups of elite defending their interest over others. This political force penetrate to either forming a new party or cross to an opposition parties with the hope of winning the future elections. In view of these practices, campaign promises is neither fulfilled nor leadership performance enmeshing economic development. Rather, the system encourages corruption, mismanagement of the economic for personal use Gill (2000). However, the military as political gatekeepers and custodian of the country are watching every political step to break through by instrument of coup. In the recent democracies, democratic breakdown is an issue in African politics and it makes the continent different from the West that invented democracy Ake (1992).

Literature review

The conceptualization of democratic breakdown (DB) empirically seeks to fill the gaps in the literature. The phenomenon captures the institutional reversal which is organized by the group of soldiers in the state. Beforehand, the institution confronts internal crisis which results in political erosion or reversal due to either bad governance or political ambition of soldiers to take over the power in the state. The widely accepted criterion for democratic breakdown is put forward by Andreas Schedler (1998) that democracy meets its sudden death when institution is fragile with instability in varying degrees. Linz and Stepan (2013) postulated that lack of preference for democracy by the government official and military manipulation of institution for gain of power. A classic example of Latin America between 1945 and 2005 experienced democratic breakdown by non-commitment of political actors, parties, erratic political violence, and lack of civil-military relations metamorphosed into fall of democratic government. In this sense, fall of democratic government is attributed to authoritarian shift or democratic reversal which occurs as emergence of new authoritarian regime and it takes generically approach Somer (2016).

The illiberal process is not driven by overt coup de tats or forceful seizure of power. Rather, democratic breakdown is established through incremental process and execute under legal façade Norman et al (2019). The study argues that institutional breakdown occurs with non-feasibility of the electoral process paraded by failed elite that want power at all costs in Africa. Feasibility of democracy takes its momentum from credible ideas and behavior, rather trivialized by virulent character of the new leaders Ake (1992). Moller et al (2015) opined that democratic breakdown is witnessed from interwar which declines the economic structure; Germany, Austria and Spain are evident of this event. The fall out in economic crisis interfaces with lack of smooth operation in education, health, security, and law.

The concept of governance attempts to put more understandings of working of democratic government from the perspectives of socio-economic development. Good or sustainable development connotes the governmental policy for equitable distribution and managing of the resources for the general well-being of the people Abdelaziz and Butt (2024). Unconstitutional change of government is a consequential event in Africa implicating governance and the ecosystem, African Union (2022). Regrettably, scourge of corruption in Africa has adverse effect on governance and the action penetrates resources for the leverage of the ruling party. However, governance serves as an instrument of assessing campaign promises, leadership performance and the deepening of democracy Ikeke (2024). By and large, understanding of governance as the continuum process of democratization and democratic consolidation of political system is essential. The underpinning notion of good governance is not a monolithic discourse but a comprehensive process of democratic government Huntington (1991) . Good governance is a clear movement from the old practice of governmental affairs to new system which promotes development that makes uniform understanding according to the World Bank views. Good governance serves as new development and social progress in democratic government organised by cultural political groups in the state, African Union (2022). However, the focus is Africa after the post-independence which failed to fulfil campaign promises and leadership performance. African traditional values and institutions can support good governance through understanding of progress with the impression that political institutions adapt as well diffuse for the practice of good governance Abrahamsen (2000).

The understanding of good governance is recognised from the lens of intellectual scholars in explaining its functions from the practice of democratic governments. The focus of political institutions as practice of good governance relates to the deepening of democracy. In doing this, political party struggles for power which starts multiparty competition and government is formed by the electoral participation at regular interval. For example, the target of every successful government in the United States of America is to formulate ideas that touch aspect of human life. In these views, decentralisation of power relates to specific functions of the state according to the three arms of government, such as legislative, executive and judiciary operate from the constitution. Good governance is achieved through recognition of the electoral principles that improve and impact on the three arms of government Gerring and Thacker (2008). Good governance is explained from the platform of human rights as the bedrock of the government for leadership performing and for improving people's welfare in the state. However, human rights are associated with principles that guide the working of democratic government. Social-political function also paves the way for accountability and transparency of democratic government, United Nations (2007).

Methodology

The research question states the challenges confronting the emerging democracies under the post-third wave democratization. The arguments of scholars affirm unethical leadership selection backslide democratic system in the aforementioned countries. The researchers align with the research framework which guide from the introduction and background of the study to conclusion. The current article employed qualitative method and supported with the primary documents which extract information from available data. The researchers adopted descriptive analysis as scientific instrument in social sciences. This stance illuminates by comparing the quality of democracy through the lens of comparative politics in Africa. It advances the character and action that obstruct democratic system in the emerging democracies. The article reveals the unethical character marred governance before election and after in Africa.

Cases of Democratic Breakdown

The nomenclature of democratic breakdown as well as democratic backsliding premises on reversal to authoritarian regimes. The new democracies in Africa have experienced epileptically democratization. Meaning that, the few among them conducted successful elections after years reversed to authoritarian regimes. Thereafter, the civilians bargain to return democracy which is uncertain in the future. Therefore, Africa rotates the leadership between democracy and autocracy due to internal politics that invited the military intervention. Comparative evidences have portrayed African society as theatrical character in post-third wave episode Isaac and Lanre (2015).

Mali

The country is divided by ethnic groups which make it more diverse in decision-making process. The component compose of Babara, Fulani, Sarakole, Senufo, Dogon, Malinke, Bobo, Songhai, Taureg and the first (Babara) among them is the majority group Cserkits (2020). The leadership performance of President Ibrahim Boubacar Keita alias IBK was diminishing by economic decay and corruption. These circumstances forced him to resign in August 2012 and replaced by the interim government. However, the military as the gatekeepers wittingly took over the interim government led by Captain Amadou Sanogo who surrounded the presidential palace in 2012 to take over power Cserkits (2020). The outcome of the coup was smooth and supported by the citizens. Conversely, the France supported the democratic leadership. The military intervention in politics served as the background to Mali political crisis that transit in wave across the state. The second military coup took place in 2020 led by Colonel Assimi Goita. The end of the coup led to arrangement for the interim government headed by Choguel Kokolla Maiga politician who supported the putsch. In May 2021, Malian soldiers arrested and detained transitional President Bah N'Daw and Prime Minister Mocker for allegedly taken unilateral decision over the coup leaders who are in charge of security and defense department, European Parliament (2021). Malian crisis develops day in day out after the removal of democratic president in 2020. The country is fragmented by conflicts and instability by the insurgent groups affiliated with Al-Qaeda networks and Islamic State operating across the borders, European Parliament (2023). The body of international communities rejected the coup as unprecedented vis-à-vis ECOWAS, European Union, France, African Union Klatt (2020), Afro Barometer (2013).

Burkina Faso

The country achieved her political independence in 1960 from France. Six years (1966) after the first military coup terminated democratic government led off to numerous subsequent coups. Historically, the country is ridden by conflicts and instability which posed danger in the state, Congress Research Service (2023). The pandemic nature of the military coup is political ambition of soldiers succeeding one another to gain power since political independence. The pattern of first coups factored in subsequent coups in 1980 Saye Zerbo, 1982 Quedraogo, 1987 Thomas Shankara, 1983 led by Blaise Compaore who spent 11 year under the military power and 22 year as democratic leader. However, most of the coups were not popular in nature except late Thomas Shankara's coup in 1983 worth different among others. Thereafter, there was a constitutional reform on transition to democratic rule in 1998. In the election, Blaise Compaore was declared the winner, House of Common Library (2022). Few years later, the incumbent president won successive elections through rigging. His election was condemned by the international communities and national opposition parties. However, the new electoral law banned long serving leaders including Blaise Campaore from contesting in further elections in the country. In September 2015, there was unsuccessful coup attempt led by Lt-Col Mamadu Bamba the presidential guard to Blaise Campoare due to disbandment of the presidential guard unit. Afterword, another round of election was conducted

in 2015 won by former Prime Minister Roch Marc Christian Kabore who defeated Blaise Compaore. President Kabore was re-elected in 2020, the election was suffocated in the north region where the people could not vote due to Islamic extremists Sten (2015). As a result, in 24 January 2022 a fresh coup led by Lieutenant Colonel Sandaogo Damiba reversed the country to military rule. In this stance, a counter coup led by Army Captain Ibrahim Trare and his entourage removed Damiba from office in September 2022. As a result of the two coups, the country is not settled and there have been conflicts which claimed about one hundred and thirty (130) lives and sixteen thousand (16,000) left as refugees, UNDP Reports (2023).

Niger

The country got her political independence in 1960 from France. Ever since, the country is characterized by numerous coups and counter coups which started in 1974. The tray of history has identified five military coups having the same patterns in overthrowing democratic government, European Parliament (2023). The 1996 coup preceded other rounds of coups 1999, 2010, 2023 and 2021 was unsuccessful among other coups. In this stance, six military coups have taken place after the political independence. However, the 2023 putsch was led by the presidential guard commander General Abdourahamane Tchianni who unseat democratic leader Muhamed Bazoum Doukhan (2023). The action of the military junta was not silent upon detaining the elected president. The international actors, United States, France, Germany, African Union (AU), ECOWAS Peace and Security Council and European Union have thrown more discussions on restoration of the constitutional president. In addressing the issue, there have been numerous sanctions that could weaken military leadership in the country Obasi (2023). Part of the sanctions, closure of borders, withdrawer of foreign aids, suspends financial and commercial transaction, travel ban and not tolerating military regime in the ECOWAS and AU conferences/meetings. The reason for military intervention in politics is lack of security apparatus is a major concern in the country Mannino (2023). The state has experienced multiple Islamic extremists attacks affiliated with Al-Qaeda networks. The reason was supported by the international leaders and organisations as not tenable. The democratic government is trying its efforts in checking the Al-Qaeda networks and other insurgent penetrating the country, Congress Research Service (2023).

Guinea

The Guinea was the first French Colony in Sub-Sahara Africa to gain independence in 1958. Several years afterword, the state is governed by patron client leaders under a single political party. Starting from the leadership of Ahmed Sekou Tuore led-administration was an independent leader. Ahmed Sekou Tuore fell sick and died in 1984 after his death military officer Lansana Conte took advantage of the chaos by leading a coup. The coup leader notoriously executed the opponent for opposing the coup. The radical authoritarian leader plans toward democratization through multi-party system in 1990, European Parliament (2021). However, there was a transition to democracy in 1993 which elected Lansana Conte but the elections were not smooth. He was re-elected in 1998, and 2003 winning each time despite international challenged his re-election mal-practices. However, Alpha Conde a major opposition candidate in the country returned to political arena challenging the administration of President Lansana Conte for ordering soldiers killing 90 people. The despicable leader was condemned nationally and internationally Arief and Cook (2009). In 2008, he gave up the ghost through ailment nursing for several years in power. Therefore, the death of Conte in 2008 changed the political atmosphere through a fresh coup led by Army Captain Moussa Dabis Camara promising transition to representative democracy. The army decentralized the public administration through military personnel in Guinea. The regime of Camara was filled with arson, assassination and political unrest which claimed many lives in the opposition stronghold areas. The civil unrest in the country destabilized some top military officers taken quick action shot Camera on his head in 2009 Noel and Zulueta (2021). The military leader fled to Morocco for treatment at his absence a transitional government was established headed by his rival General Sekouba Konate. The representative election were conducted in 2010 and 2015, Alpha Conde defeated his opposition Cellou Dalein Diallo who accepted defeat. Before the end of second tenure, amendment on tenure elongation for the third term bid in 2020 was a political project. The Conde was re-elected in 2020, the post- election generated conflict which invited the military coup led by Mamady Doumbouya Benedikter (2022).

Chad

Chad gain political independence in 1960 from France with weak governmental structure managed by 200 ethnic groups. However, the country is defined by conflict which started in 1960s intertwined

with Libya and Sudan conflict. The long drive of conflict in the state divided the leadership into rebel groups and each group claiming legitimacy Jawo (2022). One of these constitutes religious affiliation between the Islam and Christianity dictate opposition in Chad. President Tombalboye led the country in 1965; his government was terminated by a coup in 1975 Marchal (2021). The country was polarized into two factions, the supporters of late Tombalboye Chadian (National Liberation Front) and Hissene Habre who controlled the central government between 1975 and 1990. The putsch led by Idris Deby supported by the Sudan and Libya changed the political platform. Numerous coups attempted failed between 1990 and 1996 but dictator maintained the power. There was a transition to democracy in 1996 which favoured Idris Deby changing from military head of state to democratic leader. He was re-elected in 2001, 2006, 2011, and 2016 with overwhelming electoral rigging and opposition party boycotts elections Ayangafac (2009). Despite the long serving tenure by one -party hegemony, Idris Daby was killed while defending his country against incursion by the Libya-based rabels in April 2021. After his death, the ruling elite protect their power-hold by successfully installed Mahamat Daby (son) as interim president in 2022. The dynasty succession is fundamentally significant to hold power for the elite and ethnic group over other groups. The France plays significant impact in democratic transition after Idris Daby (father) death and succession of Mahamat Daby (son) Gnanguenon (2012).

Table 1
Showing the history of African democratization and reversal Process

Country	Surviving	Breakdown	Founding Election	Years of Coups	Independence	Colonized
Nigeria	Surviving	Active	1999	1966, 1967, 1975, 1978, 1983, 1985, 1990, 1993	1960	British
Ghana	Surviving	Active	1993	1966, 1967, 1972, 1979,	1958	British
Benin	Surviving	Active	1989	1963, 1972, 1977	1960	France
Burkina Faso	Crisis	Breakdown	Military	1966, 1980, 1982, 1987, 2022	1960	France
Guinea	Crisis	Breakdown	Military	1984, 2008, 2021	1960	France
Mali	Crisis	Breakdown	Military	2020, 2021	1960	France
Niger	Crisis	Breakdown	Military	1974, 1996, 1999, 2010, 2021, 2023	1960	France
Togo	Surviving	Active	2005	1963, 1967	1960	France
Guinea Bissau	Surviving	Active	2014	1980, 1998, 1999, 2012,	1974	Portugal
Mauritania	Surviving	Crisis	2009	1978, 1979, 1980, 1984, 2005, 2008	1960	France
Ivory Coast	surviving	Crisis	2000	1999	1960	France
Senegal	Surviving	Very active	Active		1960	France
Sierra Leon	Surviving	Active	1996	1992	1961	British
Liberia	Surviving	Active	2004-2005	1980	1847 free land	America
Gambia	Surviving	Active	2017	1994	1965	British
Chad	Not surviving	Breakdown	Military	1975, 1990, 2021	1960	France

Source: *Created by author using the primary data from: Ziankahn, D.D. (2001), Barka, H.B, and Ncube, M (2012).*

The beginning of the 21st century witnessed renewed hope about the birth of democratization in Africa. The process was actively supported by the national and international communities promising to support them through financial aids Gyimah-Boadi (2021). The democratic achievement was a share common ground on fall out of autocratic regimes vis-à-vis one party system, and military regimes in the post-third wave. Each country in Africa conducted founding election (first), Nigeria 1999, Ghana 1993,

Benin 1989, Togo 2005 including other countries. Democratic experience is based on leadership performance, campaign promises, and the deepening of democracy. It corroborates the quality of democracy that is in practice after the founding elections (first) saka (2020). From the table above, Senegal is the only country that has not experienced military coup after the political independence in 1960, rather other countries reversed to authoritarian regimes. Conversely, the political journey in Nigeria, Ghana, Benin, Guinea Bissau, Mauritania, Ivory Coast, Liberia, Togo and Gambia altogether have not reversed after the founding elections (first) due to active democratization. Except, Ivory Coast, and Mauritania are witnessing electoral crisis after the founding elections (first). Recently, democratic breakdown occurred in Mali, Guinea, Burkina Faso, Niger and Chad Ibrahim (2023). In view of these analyses, the francophone countries are prone to either democratic breakdown or electoral crisis in the table. Nigeria has recorded the highest coup, follows by Niger and Mauritania in the West Africa Sub-region after post-colonialism.

Rationales for military intervention in Politics

The military intervention in African politics grossly frustrating democratic growth in the post-third wave democratization. Few countries in the West and central Africa have reversed to authoritarian and some are grilling under conflicts among these, Mali, Burkina Faso, Niger, Guinea, and Chad. They are struggling to survive democratization Ziankahn (2011). However, the rationales for the successive military coups are in varying degrees. Economic decayed in the institutional structures are attributed to weak policy framework of democratic governments. The inhabitants are resource citizens that drive political affair for the socio-economic development. Rather, economic recession compels the environment to underdevelopment by the failed elite that come to power through undemocratic process Hagberg et al (2018). The democratic leadership is maneuvered either by the military cabals or the civilian counterparts to serve their interests. As a result, the political structures are affiliated to patron client networks and the process generates underdevelopment in Africa. For example, the structural dilapidation was due to economic recession in Niger and Chad including other countries invited the military incursion into politics. Infrastructural facilities such as airports, roads, schools, hospital altogether are at dismal, European Parliament (2023). This is due to failure of democratic principles which challenge accountability and campaign promises for the interest of the people. The failure of democratic principles in Mali, Burkina Faso, Guinea, Chad including other African countries exposed democracy to risk which serves as advantage for the military cabals Cold-Ravnkild (2013).

Democratic breakdown in recent cases is caused by crisis which is designed by ethnic power bloc against the constitutional democracy. This approach projects election procedures to maintain one party hegemony power under a system not tolerating the opposition parties in the state. Election is cooked by the majority ethnic group to have political advantage and accommodate patronage of the supporting groups. In normal practice, liberal democracy adapts under competitive of political groups participating in decision-making process. In Africa, this principle is overturned by the majority ethnic group to maintain leadership advantage which triggered to large-scale crisis in Guinea, Mali, and Burkina Faso are typical examples Okon (2023). The general reasons for democratic breakdown in the post third wave inform economic mismanagement, corruption and embezzlement of the big men (elite) in power. The current leaders penetrated through corrupt election which works against campaign promises and leadership performance. The campaign promises are limited to serving the cabinet members who support the government in power as leadership performance Maclachlen et al (2015).

The political machineries (supporters) are established to maintain undemocratic structure of the corrupt leaders in all situations such as mass media, court, military, and police. In this practice, democratic breakdown (reversal) is characterized into two groups. The first group is attributed to robust arrangement between the top military officials and the civilian counterparts to seize power. The collaboration of the civilians in the government prolongs the military administration through corrupt practices in the state. The second group holds on failure of democratic leaders with pervasive political crises metamorphosis into military coup Matlosa and Zounmenou (2023). The radical top military officials mobilize for a revolutionary coup to rescue the state from anarchy. The reversal to authoritarian regime in Africa is supported by the public to lend legitimacy to the ruling regime. The successive of military coups in Africa frustrated the practice of liberal democracy after the political independence. The ritual exacerbate counter military coups which resulted in civil wars, examples are Nigeria in 1967-1970, Burundi 1993-2005 and Liberia in 1990- 2002 including other countries Benedikter (2022). Many countries experienced much violence that led to crisis during the process of electoral sys-

tem which ploughed them to unresolvable conflicts. In the process of electoral competition, the incumbent party incorporates political ideology that stands against the opposition political parties in order to get, maintain and retain power Otte (2023).

Implications of Democratic Breakdown

The issues in democratic breakdown (reversal) in Sub-Sahara Africa centre on power struggle that every ethnic group is concerned about to gain. The practice polarized the region into power blocs. Some African leaders struggle for power in suppression of the political opponents which trivialized socio-political development. The socio-political development is bargained by the reactionary forces, the out power elite are hostile to incumbent power elite to harassment and assault Ake (1996). Thereafter, conflict, war, violence and arson are contagious in Africa after the attainment of political independent in the respective countries. The post-third wave leaders use ideology to maintain power as well retains power in the successive elections. They retain power by shifting the political goal post through tenure elongation. The practice was evidence in Nigeria during President Obasanjo, Guinea Alpha Conde, Burundi Pierre Nkurunziza, and Idris Deby Chad. These African leaders have neither obeyed the electoral principles nor accepting the model of liberal democracy. It means that election outcome either positive or negative is for the interest of the people that establish government. In view of this process, the people are the end of democracy by the consent but trivialized in Africa Ake (1992).

Regrettably, election process in Africa is not smooth and unfair poll in different circumstances. Therefore, the recent democracies suffered under mass poverty, violence, and economic decayed are syndicate of democratic breakdown in Africa Eriksson & Hagstromer (2005). The electoral virtue is lost after the assumption of power for amassing of wealth becomes the political homour of African leaders. The celebration of the practice under the new democracies translates to frequent coups and counter coup in Africa political environment. For example, Niger, Mali and Burkina Faso witnessed overthrown of government by the presidential guards. This political interplay put the country into successive pandemic coups. Those in power of authority either military or the civilian government are struggling to gain power that could not address good governance, IPSS (2021). Rather, political crisis is inherited in every successive government not tolerating opposition in the state. The human rights and rule of law are not followed properly by the people to the detriment of democracy. The authoritarian rule is embedded in democratic government as each political leader engage in virulent and dubious character to appropriate security by means of state power Lancher (2022).

The civilian rule and the military cabals both share a common ground on democratic breakdown to authoritarianism. In this sense, the recent coups and counter coups in Africa was as a result of reactionary forces (ethnic, Islamic, Christian ideology) that overwhelmed the politics after the political independence Tar (2010). The reality in Niger, Guinea, Chad, and Mali including other African countries show that all attempts to return to democratic process were aborted. The military junta in power became more vicious and desperate move for repression of opposition vis-a-vis maiming, incarceration and assassination of political enemies. Suspension of the constitution, political parties and politicians were banned from contestation and participation in democracy Umaru (2016). The tension in the state is delay of transitional programme in each country that experienced coup d'état. Even within the limit notion of democratization. The military junta led administration, and political allies have all embarked upon actions and processes that have led to democratization but failed due to lack of democratic wheels.

Results and discussion

This section reveals that good governance has been problematic in the recent African democracies due to unethical action and character that could not transform political power into socio-economic development. The case of Mali, Burkina Faso, Chad, Guinea and Niger altogether are challenged by the military coups, to a large extent that the ethnic political groups was a weight in the process of holding the state power. Therefore, there is hope in the future democratization process with viable electoral system that could select leadership among the political groups in Africa.

Conclusion

We observed leadership in Africa is diluted by undemocratic ideologies which are not working for the system. This gave the military cabals advantage in parading the corridor of power as alternative government which lacks developmental values. Democratic breakdown implies death of democracy at an interval and democratization connotes either transi-

tion to democracy or long journey of democratic government. The central institutions are monopolized by autocratic African leaders with supporting culprits to gain access to treasury in the state. Therefore, the demise of Mali, Burkina Faso, Guinea, and Chad is a lesson learned for other African countries. My conclusion concerning the military incursion into democratic process in Africa in the post-third wave is unending practice. The rivalry among the soldiers supports the military coups and counter coups and this episode is clear after the political independence. The continuous military coups in Africa 21st C have devastated the principles of democracy, governance and socio-economic development. However, the soldiers changed to civilian government in order to lend legitimacy. This paradigm shift posed more danger to democratic process in Africa.

Acknowledgements and Conflict of Interest

The authors declare that there are no acknowledgements and no conflicts of interest related to this study.

Author Contributions

Conceptualization, M.S. and N.S.; Methodology, M.S. and N.S.; Software, M.S. and N.S.; Validation, M.S. and N.S.; Formal Analysis, M.S. and N.S.; Investigation, M.S. and N.S.; Resources, M.S. and N.S.; Data Curation, M.S. and N.S.; Writing – Original Draft Preparation, M.S. and N.S.; Writing – Review & Editing, M.S. and N.S.; Visualization, M.S. and N.S.; Supervision, M.S. and N.S.; Project Administration, M.S. and N.S.

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RUSSIAN IMPERIAL STATISTICAL EXPEDITIONS AND THE FORMATION OF THE SOURCE BASE FOR THE HISTORY OF THE KAZAKH STEPPE: THE CASE OF THE "MATERIALS ON KYRGYZ LAND USE"

Abstract

Purpose. This article aims to conduct a source-critical analysis of the multi-volume publication *"Materials on Kyrgyz Land Use"*and to evaluate its significance as a key documentary base for studying the socio-economic and historical development of Kazakh society in the late nineteenth and early twentieth centuries.

Design/methodology/approach. The study applies a qualitative source-analysis approach, combining historical, comparative, and analytical methods. The research examines archival materials collected during imperial statistical expeditions across several regions, including the Syr-Darya, Akmolinsk, Semipalatinsk, Ural, and Turgai oblasts. The methodological framework includes the evaluation of data collection techniques such as standardized questionnaires, field observations, quantitative calculations, and cartographic surveys.

Findings. The findings demonstrate that the analyzed corpus provides comprehensive and reliable data on land use, socio-economic structures, demographic trends, and settlement patterns of the Kazakh population. The materials allow the identification of both regional differences and general trends during a period of significant transformation. Furthermore, the study reveals that the systematic and standardized methods employed ensured high comparability and empirical value of the data, making the source highly relevant for reconstructing historical realities.

Originality. The study contributes to historical and source studies by offering a comprehensive reassessment of the informational and methodological value of *"Materials on Kyrgyz Land Use."* It highlights the role of imperial statistical expeditions in producing structured knowledge about the steppe and provides new insights into colonial governance and knowledge production processes.

Keywords: Materials on Kyrgyz Land Use, source studies, Kazakh society, resettlement processes, imperial statistical expeditions, land use, socio-economic history, historical geography, colonial administration, Russian Empire.

Introduction

In the second half of the nineteenth and the early twentieth centuries, Russian colonial expansion in Kazakhstan entered a new and qualitatively distinct stage. During this period, a series of administrative reforms introduced by the imperial government effectively eliminated the political autonomy of the Kazakh population. At the same time, the authorities initiated a scientifically grounded campaign aimed at identifying and confiscating lands officially classified as "surplus" or "excess" which were subsequently transferred to settler populations.

Within the framework of this colonial policy, a number of large-scale research initiatives were carried out across several administrative regions, including the Akmolinsk, Semipalatinsk, Ural, Turgai, Syr-Darya, and Semirechye oblasts. The empirical data collected in these territories were later processed, systematized, and published in the multi-volume series entitled "Materials on Kyrgyz Land Use" (Tassilova, 2017: 10). Today, the analysis of this corpus

as one of the most important source complexes for the study of the colonization of Kazakhstan provides broad opportunities for identifying and interpreting aspects of national history that remain insufficiently explored.

Before the activities of these statistical expeditions and research teams, no scientific investigations of comparable scale and comprehensiveness had been conducted in the territory of Kazakhstan (Volkova, 1982: 4). Although the expeditions differed in their geographical coverage and chronological scope, many scholars consider them to constitute a unified and interconnected research program. As a result of their work, a substantial documentary corpus titled "Materials on Kyrgyz Land Use" was produced between 1898 and 1915, ultimately comprising twenty-seven volumes.

This collection includes thirteen volumes compiled by the expedition led by F. A. Shcherbina, seven volumes prepared by the statistical team of P.A. Skryplev, and seven volumes produced by the group headed by P. A. Khvorostanskii. Together, these materials represent the outcome of a large-scale investigation covering the territories of the Akmolinsk, Semipalatinsk, Ural, Turgai, and Syr-Darya oblasts, as well as the Fergana and Namangan regions, which are located in present-day Uzbekistan.

The individual volumes within this series vary both in chronological scope and territorial coverage. The expedition led by F. A. Shcherbina conducted research in the Akmolinsk, Semipalatinsk, and Turgai oblasts between 1896 and 1903. The statistical team headed by P. A. Skryplev carried out investigations in the Syr-Darya oblast from 1906 to 1913, while the group led by P. A. Khvorostanskii worked in the Turgai and Ural oblasts between 1904 and 1912. An important feature of this source complex is that the collected materials were not published simultaneously. Instead, the volumes appeared over a prolonged period from 1898 to 1915, reflecting the phased nature and extended duration of the research process.

Literature review

The empirical foundation of this research is formed by materials published between 1898 and 1915 within the multi-volume series "Materials on Kyrgyz Land Use". This corpus represents the outcome of a large-scale and systematic statistical survey of the territory of present-day Kazakhstan conducted by several specialized expeditionary teams operating under the authority of the Russian Empire.

Archival documents from the Central State Archive of the Republic of Kazakhstan (TsGA RK, F. 29, Op. 1, D. 13, L. 65) were extensively employed as primary sources. In particular, materials from a number of archival fonds were introduced into scholarly circulation. Among them are:

№ 362 Administration of State Properties of the Syr-Darya Oblast;

№ 33 Office of the Head of Resettlement Affairs in the Syr-Darya Oblast;

№ 8 Administration of State Properties in the Akmolinsk, Semipalatinsk and Semirechye Oblasts (Ministry of Agriculture and State Properties);

№ 501 Akmolinsk–Semipalatinsk Administration of Agriculture and State Properties;

№ 317 Office of the Head of Resettlement Affairs in Akmolinsk Uezd;

№ 469 Office of the Head of Resettlement Affairs in Semipalatinsk Uezd;

№ 457 Aktobe Uezd Resettlement Administration of the Turgai–Ural Resettlement District;

№ 184 Office of the Head of Resettlement Affairs in Aulieata Uezd of the Syr-Darya Oblast;

№ 479 Pavlodar Uezd Resettlement Administration;

№ 643 Petropavlovsk Uezd Resettlement Administration;

№ 454 Office of the Head of Resettlement Affairs in Chimkent Uezd of the Syr-Darya Resettlement District;

№ 29 Administration of the Turgai–Ural Resettlement District;

№ 25 Turgai Oblast Administration.

Particularly valuable are documents preserved in fonds № 8, № 501, № 317, № 469, № 479 and № 643, which contain extensive materials relating to natural-historical surveys conducted in the Akmolinsk, Semipalatinsk and Turgai oblasts. These sources make it possible to analyze systematically data on the natural and geographical characteristics of the steppe regions, botanical features of the territory, the historical dynamics of regional development, demographic conditions, and the ethnographic composition of the population (TsGA RK, F. 501, Op. 2, D. 33a, L. 14).

In addition, these archival fonds include important supplementary information regarding the composition, objectives, and logistical support of the expedition led by F. A. Shcherbina, as well as the activities of the Ural–Turgai research team headed by P. A. Khvorostanskii. The availability of such documentation significantly expands the possibilities for a comprehensive study of both the history of scientific

expeditions and the broader colonial policies implemented by the Russian Empire in Kazakhstan.

Methodology

The methodological framework of this research is based on a structured analysis of documentary materials preserved in the Central State Archive of the Republic of Kazakhstan, as well as the examination of multi-volume expeditionary publications and other published statistical and ethnographic sources reflecting the practices of the imperial colonial administration.

In the course of analyzing the archival materials, several methodological levels were employed in accordance with the objectives and research tasks. First, a system-based approach made it possible to identify internal hierarchies within the administrative and communication structures of imperial governance, as well as to clarify their operational logic, socio-cultural differentiation, and regional specificities. This approach enables imperial institutions of authority to be examined as a complex and interconnected multi-level system.

To achieve the research objectives, a set of general scientific methods was applied, including logical analysis, a structural-systemic approach, generalization and synthesis of empirical data, as well as interpretative analysis of sources. In addition, comparative analysis was employed to identify both similarities and differences in socio-economic and administrative processes across various regions of Kazakhstan.

Results and discussion

The multi-volume publication "Materials on Kyrgyz Land Use" was produced as the result of a large-scale investigation conducted by specialized research expeditions focused on the study of Kazakh society. Therefore, an examination of this source complex should begin with an analysis of the objectives and historical circumstances that led to the establishment of these scientific expeditions, as well as the methodological approaches they employed in collecting empirical data.

The well-known researcher of traditional Kazakh nomadic society, S. E. Tolybekov, made extensive use of the rich empirical materials generated by these expeditions. He highly valued their scholarly significance while at the same time clearly identifying the underlying political objectives of the research. Tolybekov explicitly acknowledged that the investigations were conducted in the interests of land confiscation for settler colonization and directly characterized the activities of the tsarist administration as colonial in nature. As he noted:

"These expeditions were intended to identify the foundations and forms of Kazakh land use, to analyze the economic conditions necessary for the existence of an average household, and to determine the standard of land provision for a typical Kazakh household in each region. Their purpose was to reveal surplus Kazakh lands in order to transfer them to the resettlement fund" (Tolybekov, 1959: 56).

Despite the availability of such explicit assessments, the underlying mechanisms and practical implementation of the colonial policies pursued by the tsarist government have not yet been fully examined or sufficiently articulated in historical scholarship. The study therefore aims to contribute to the existing scholarship by examining these issues in a systematic manner.

In the scholarship produced within domestic historiography, the resettlement policy implemented in the Kazakh steppe is typically interpreted as a major instrument of imperial colonization. The policy was intended to weaken traditional social structures, advance the process of Russification and integrate the region into the imperial economic system primarily as a supplier of raw materials. Nevertheless, although the colonization of Kazakhstan constituted an overarching strategic objective of the Russian Empire, the ways in which this policy was implemented differed across regions. Such variation was conditioned by geographical factors, strategic priorities, demographic circumstances, transportation infrastructure and the degree of resistance among the local population. Accordingly, the mechanisms and forms of colonization developed differently in different territories.

The publication of "Materials on Kyrgyz Land Use" emerged within the political and administrative framework of the late nineteenth and early twentieth centuries, a period marked by the expansion of settler colonization in the Kazakh steppe. Research initiatives undertaken at that time were largely oriented toward determining areas regarded as "excess" land, which could be removed from Kazakh land use and transferred to the resettlement fund.

Accordingly, "Materials on Kyrgyz Land Use" can be understood as a product of the imperial colonial policy of the Russian Empire. The research expeditions were mainly charged with analyzing the economic life of the Kazakh population, identifying lands regarded as "excess" or "surplus" and facilitating their redistribution to newly arriving settlers.

Through this mechanism, the tsarist administration sought both to establish effective control over the vast territories of the Kazakh steppe and to address the broader resettlement challenges within the empire.

The table presented below illustrates the scale and intensity of the colonization process in Kazakhstan, as reflected in the activities of the research expeditions and statistical teams organized by the tsarist authorities.

Table 1
Expeditions and statistical teams that studied Kazakhstan in the late XIX and early XX centuries.

Researchers and years of expeditionary research	Regions investigated	Materials collected by expeditions and statistical teams
F. A. Shcherbina, 1896-1903	Akmolinsk, Turgai and Semipalatinsk oblasts	"Materials on Kyrgyz Land Use", collected and processed by the expedition for the study of the steppe regions, 13 vols.
V. Kuznetsov, 1907-1909	Akmolinsk oblast	Kyrgyz economy in Akmolinsk oblast. A repeated survey of 1907-1909, 5 vols.
P. A. Skryplev, 1906-1913	Syr-Darya oblast	"Materials on Kyrgyz Land Use", collected and processed by the Syr-Darya statistical team, 5 vols.
P. P. Rumiantsev, 1909-1913	Semirechye oblast	Materials from the survey of indigenous and Russian old-settler households and land use in Semirechye oblast, 7 vols.
P. A. Khvorostanskii, 1904-1912	Ural, Turgai oblasts	"Materials on Kyrgyz land use", collected and processed by the statistical team and the Turgai-Ural resettlement district, 7 vols.
A. V. Perepletchikov, 1910-1911	Semipalatinsk oblast	Materials from the repeated survey in 1910-1911 of Kyrgyz household and land use in Semipalatinsk oblast, 3 vols.

In the late 1870s and 1880s, large-scale peasant migration was taking place in Central Russia, a development closely associated with the agrarian crisis that followed the abolition of serfdom. The deepening contradictions within the agrarian sector, together with the growing intensity of peasant unrest, compelled the tsarist government to search for an urgent solution to the resettlement problem. Imperial authorities viewed migration from the densely populated provinces of European Russia to the peripheral regions of the empire as a potential means of alleviating agrarian tensions. Among the territories most actively targeted for peasant settlement was Kazakhstan.

A new phase in the colonization of Kazakh lands began with the adoption of the *Statute on the Administration of the Steppe Oblasts* on 25 March 1891. According to Articles 119 and 120 of this statute, nomadic territories together with their land resources, forests and groves were formally declared state property. At the same time, taking customary practices into account, these lands were granted to the nomadic population for perpetual use (Materials…, 1960: 396).

In practice, this legal framework established state ownership over Kazakh lands while placing the Kazakh population in a position comparable to that of tenants using land allocated for their livelihood. The first addendum to Article 120 provided that territories regarded as "potentially surplus" with respect to the needs of the nomadic population were to be placed under the jurisdiction of the Ministry of State Property. The implementation of this regulation marked an intensification of colonization processes in Kazakh territories. Under this framework, individual Kazakh households were granted designated land allotments, while lands classified as "excess" were transferred to a resettlement fund. These territories were later redistributed among peasant migrants from the central regions of the Russian Empire.

At the same time, imperial authorities actively promoted the settlement of Russian peasants in the empire's peripheral regions, including the Kazakh steppe, viewing this migration as a strategic instrument for advancing colonial expansion. To manage this process, a number of administrative institutions were created, among them the Main Resettlement Administration tasked with supervising and coordinating resettlement policy.

Amid these wider political transformations, the imperial authorities launched their first major research expedition in 1896 under the leadership of F.A. Shcherbina. The expedition was tasked with determining and defining territories categorized as "ex-

cess" land that could be reassigned to newly arriving Russian peasant settlers (MKZ, 1898: 1).

To carry out this objective, the expedition had to solve several core research tasks. These included, first, an in-depth analysis of the organizational foundations of nomadic economic practices and, second, the systematic classification of the Kazakh population by aul communities, with households distinguished according to their economic types. Third, calculations were required to determine the number of livestock that could be sustained within each type of household. Fourth, appropriate norms for pasture land had to be established for different categories of livestock. Finally, the ethnic and geographical characteristics of the region were to be examined within the context of their historical development. Such work was highly labor-intensive and required a significant level of methodological rigor and responsibility (Tassilova, 2017: 59).

The head of the expedition, F. A. Shcherbina, who later systematized and prepared the *"Materials on Kyrgyz Land Use"* for publication, outlined the goals and objectives of the research by noting that in 1895 the Ministry of Agriculture and State Properties initiated natural-historical and economic-statistical investigations in the steppe oblasts of Siberia. The purpose of these studies was, first, to determine the amount of land required to satisfy the needs of the Kyrgyz (Kazakh) population under existing natural and economic conditions and, second, to identify territories that could be regarded as surplus and therefore made available for resettlement. According to Shcherbina's own account, the principal aim of the expedition was thus to identify "surplus" lands for inclusion in the resettlement fund and to establish appropriate land-use norms for Kazakh households (MKZ, 1898: 3).

Another participant in the expedition, who later became its head, L. K. Chermak, described the objectives of the research in similar terms, emphasizing the need "to determine the types of nomadic households, to define the scale of traditional economic activity, and to develop appropriate norms corresponding to these forms of economic practice." The work carried out by these expeditions ultimately resulted in the publication of the multi-volume collection *"Materials on Kyrgyz Land Use"*.

In his work *"Sedentary Kyrgyz Farmers on the Chu River and Notes on the Route across the Hungry Steppe"*, Chermak also recorded important observations regarding the historical settlement patterns of the region. As he noted: "I was unable to obtain any definite information regarding the time of settlement of the Chu region; it is only known that these areas have been occupied for a long time and that the grandfathers and great-grandfathers of the present elders lived here, engaging in agriculture" (Chermak, 1898: 8).

Researcher T. P. Volkova notes that the first scholar to subject the data contained in *"Materials on Kyrgyz Land Use"* to systematic academic analysis was the statistician P. P. Rumiantsev (Volkova, 1982: 4). In his work *"The Kyrgyz People in the Past and Present"*, Rumiantsev highly valued the materials collected by the expedition led by F. A. Shcherbina and expressed full support for the methodological principles applied in its research (Rumiantsev, 1910).

At the same time, an important role in the organization of the expedition that initiated the compilation of *"Materials on Kyrgyz Land Use",* as well as in the development of its methodological framework, was played by the well-known statistician A.A. Kaufman. His official field inspections in the Akmolinsk, Semipalatinsk, Ural–Turgai, and Syr-Darya oblasts were intended to determine the objectives and tasks of future research projects led by F. A. Shcherbina, P.A. Skryplev, and P. A. Khvorostanskii, and to define the principal directions of their investigative work (Kaufman, 1905). In his *Reports*, Kaufman provided a detailed examination of the research methods used by Shcherbina's expedition and subsequently relied on data from *"Materials on Kyrgyz Land Use"* in his own studies of the Russian peasant economy (Kaufman, 1908).

Significant attention has also been devoted to interpretations of tsarist colonial policy proposed by T. I. Sedelnikov, a member of the First State Duma who participated in expeditionary studies of Kazakh territories. Sedelnikov argued that land-management policies implemented in the Kazakh steppe, including the identification of so-called "free lands," directly conflicted with the interests of the local population. According to his assessment, the actions of the colonizing authorities, which disrupted traditional forms of nomadic economic life, contradicted the socio-economic dynamics of Kazakh society. As Sedelnikov observed:

"For such 'authoritative researchers' and 'experts' on the steppe as F. A. Shcherbina and A.A.Kaufman, who were engaged in organizing the entirely unlawful seizure of Kyrgyz lands for resettlement plots, it was highly convenient and advantageous to invoke the 'specific conditions of nomadic life' when confronted with the needs and demands of the Kyrgyz population itself, including settled agriculturalists. Otherwise, they would have been compelled to sus-

pend the state-sponsored colonization of the steppe, which in recent years had been profitable for 'truly Russian landowners', and to undertake a far more complex task" (Sedelnikov, 1907: 5).

Overall, *"Materials on Kyrgyz Land Use"* was widely employed in research undertaken by the tsarist administration in connection with the colonization of Kazakh territories, serving as an important methodological and reference source. Issues related to resettlement policies and the land question of the nomadic population were also addressed in the writings of representatives of the Kazakh national intelligentsia. Scholars such as Alikhan Bukeikhan and T. Shonanuly critically analyzed the colonial and exploitative character of the tsarist government's land policies toward Kazakh territories.

After the establishment of Soviet power, "Materials on Kyrgyz Land Use" was not widely used in academic scholarship during the early years. Soviet historians generally assessed this source critically and the statistical information contained within it was treated with skepticism, especially in light of the "average calculations" that had been criticized by Vladimir Lenin. Even so, researchers continued to rely on the quantitative data from the MKZ volumes as a source of statistical evidence.

A renewed interest in *"Materials on Kyrgyz Land Use"* emerged only in the postwar period, beginning in 1945. Scholars of this period relied extensively on these materials in studies of the land and colonial policies of the tsarist government, the economic conditions of the Kazakh population, and agrarian problems. Among the researchers who worked with this source were O. A. Vaganova, Ermukhan Bekmakhanov, B. Suleimenov, A. B. Tursunbaev, L.M.Auezova, T. K. Litvinova, K. M. Tumanshin, S.A. Sundetov, and A. B. Geller.

V. S. Chernikov substantiated the reliability of the expeditionary data concerning livestock breeding, while N. V. Alekseenko attempted to verify the accuracy of the demographic statistics contained in this source through comparison with other statistical materials (Alekseenko, 1981: 55).

In the historiographical study *"An Outline of the History of Ethnographic Studies of the Kazakh People in the USSR"*, published in 1966, E. A. Masanov systematized the development of ethnographic research on the Kazakh population and introduced a considerable body of factual material into scholarly circulation (Masanov, 1966). His work provides general information on the expeditions and research teams led by F. A. Shcherbina, P. A. Skryplev, V.Kuznetsov, P. A. Khvorostanskii, P. P. Rumiantsev, and A.V.Perepletchikov. Masanov offered a comprehensive assessment of the works produced as a result of these expeditionary studies and the ethnographic materials they contained. While emphasizing the colonial character of the tasks assigned to the expeditions, he simultaneously acknowledged the considerable scholarly value of the extensive statistical data collected during their investigations.

Researcher T. P. Volkova was among the first scholars to conduct a comprehensive source-critical analysis of the materials gathered by the expedition led by F. A. Shcherbina (Volkova, 1988: 172). In addition, she published several significant scholarly articles devoted to the composition of Shcherbina's expedition (Petrova, 1980: 52) and to the methodological principles used in calculating budgetary and statistical indicators during the expeditionary surveys.

The PhD dissertation by G. A. Ermenbetova, entitled *"Materials of the V. Kuznetsov Expedition in the Study of Land Relations in Kazakh Villages at the Beginning of the Twentieth Century"*, offers a systematic comparison of statistical indicators obtained from Kuznetsov's expeditions and evaluates the reliability of the data through correlation analysis (Ermenbetova, 2002). The materials collected by the statistical team headed by P. P. Rumiantsev during research conducted in Zhetysu were also examined and highly assessed in the works of F. N. Miimanbaeva, who actively used these sources in her own studies (Miimanbaeva et al., 2019: 771).

Nevertheless, the expeditions organized under the direction of P. A. Skryplev, P. A. Khvorostanskii and A. V. Perepletchikov continue to be understudied, since they have not yet been analyzed in a dedicated and systematic academic work.

Based on the research materials prepared by the author (Naziya A. Tassilova), M. Alimbai and G.Orynbayeva, along with A. Abil and A. Kuzembaiuly, carried out a critical examination of the "Materials on Kyrgyz Land Use" compiled by the expeditionary teams. Their articles in Bylye Gody demonstrated significant scholarly potential of this collection of sources (Abil, Kurmangazy, 2021: 1463). These publications likewise draw attention to the importance of N. A. Tassilova's monograph published in 2017, which provides an extensive analysis of the statistical expeditions and the documentary materials produced through their activities (Alimbai, Orynbayeva, 2019: 341).

Particularly relevant to the present study are the interpretations offered by scholars working outside the post-Soviet academic space, most notably

Ian Campbell, a specialist in the history of the borderlands of the Russian Empire. In his monograph *"Knowledge and the Ends of Empire: Kazakh Intermediaries and Russian Rule on the Steppe, 1731–1917* (2017)", Campbell argues that the consolidation of tsarist authority in the Kazakh Steppe, despite periodic uprisings and forms of resistance, occurred gradually and cumulatively over time.

According to Campbell, during the early phase of incorporating the steppe regions into the imperial administrative system, the Russian authorities lacked both a coherent plan for governing these territories and an adequate understanding of their socio-economic conditions and spatial organization. Over time, however, as administrative experience and scholarly knowledge accumulated, more stable conceptual frameworks and cognitive models for the colonial governance and economic appropriation of the steppe gradually emerged (Campbell, 2017: 30).

As Campbell notes, by the eve of the reforms of the 1860s a contradictory situation had developed, characterized by the absence of a coherent and systematic vision for the future administration of the region. The establishment of a more ordered and consistent model of governance required an additional period during which the Kazakh Steppe underwent both institutional consolidation and intellectual "appropriation" within the imperial framework.

Even though the expeditions initiated by the Russian Empire were aimed mainly at supporting colonial expansion, the records and data compiled during their activities serve as a significant documentary foundation for investigating the history of Kazakhstan. In particular, the statistical expedition led by F. A. Shcherbina has been widely utilized in the research of Ian Campbell, who convincingly demonstrates the scholarly significance and source value of these materials.

Table 2
Oblasts and uezds investigated by the expedition of F. A. Shcherbina, 1896-1903

Oblasts investigated	Uezds investigated	Members of the expedition who collected materials for the "Materials on Kyrgyz Land Use"	Information on "Materials on Kyrgyz land use" volumes
Akmolinsk Oblast	1. Kokchetav (1896) 2. Atbasar (1897) 3. Omsk (1901) 4. Akmola (1896-1900) 5. Petropavl (1901)	F. Shcherbina B. Baskin A. Dyadichenko V. Vladimirskii N. Dmitriev G. Nyashin I. Gusev A. Darofeev L. Chermak A. Bukeikhanov E. Dobrovol'skii	Vol.1. Voronezh, 1898 Vol.2. Voronezh, 1902 Vol.3. Voronezh, 1902 Vol.11. Omsk, 1907 Vol.12. Chernihiv, 1908
Semipalatinsk Oblast	1. Pavlodar (1897) 2. Karkaraly (1898-1899) 3. Zaisan (1900) 4. Ust-Kamenogorsk (1900-1904) 5. Semipalatinsk (1900)	F. Shcherbina L. Chermak N. Dmitriev A. Bukeikhanov I. Tripol'skii P. Kondrat'ev I. Gusev G. Nyashin V. Vardugin V. Kuznetsov	Vol.4. Voronezh, 1903 Vol.6. Voronezh, 1905 Vol.8. Saint Petersburg, 1909 Vol.9. Saint Petersburg, 1905
Turgai Oblast	1. Kustanai (1898) 2. Aktyubinsk (1898-1899)	F. Shcherbina E. Dobrovol'skii N. Dmitriev G. S. Cherniavskii	Vol.5. Voronezh, 1903 Vol.7. Voronezh, 1903
Total	Budget report for three oblasts	F. Shcherbina	Vol.13. Saint Petersburg, 1906
In total, three oblasts were investigated.	12 uezds, 149 volosts. Of these, 50 volosts were studies in Akmolinsk oblast, 77 in Semipalatinsk oblast and 22 in Turgai oblast.	During the course of the research, the composition of the expedition members changed repeatedly.	Total number of volumes – 13.

The results of the research conducted by expeditionary teams in the Ural and Turgai oblasts were published in Orenburg in the form of volumes of "Materials on Kyrgyz Land Use". The table below lists the publication years of these works, their places of publication and the principal authors involved in their preparation.

Unlike the works prepared by the other two research teams, which were published through a single publishing institution, the volumes produced by the expedition led by F. A. Shcherbina appeared under the imprint of four different publishers. T. P. Volkova explains this situation by noting that the publication of the "Materials…" volumes took place in challenging circumstances. The process was complicated by the lack of a stable typographical base, frequent changes among editors and authors, shortages of qualified personnel and ongoing financial difficulties. These conditions significantly slowed the preparation of the materials and led to delays in the publication of several volumes.

The materials collected by the research team responsible for compiling the "*Materials on Kyrgyz Land Use"* in the Syr-Darya oblast were published in Tashkent (TsGA RK, F. 33, Op. 1, D. 4, L. 6).

The table below presents information on the published volumes of the "*Materials…"* relating to the Syr-Darya oblast, including their years of publication and the principal authors involved in their preparation.

Table 3
Oblasts and uezds studied during the research expedition led by P. A. Khvorostanskii (1904-1912).

Oblasts investigated	Uezds investigated	Members of the expedition who collected materials for the "Materials on Kyrgyz Land Use"	Information on "Materials on Kyrgyz land use" volumes
Turgai oblast	1. Turgai 2. Irgiz 3. Kustanai 4. Aktyubinsk	P. A. Khvorostanskii T. I. Sedelnikov V. P. Semenov N. P. Chevalier	Vol.3. Orenburg, 1911 Vol.6. Orenburg, 1913 Vol.4. Orenburg, 1912 Vol.5. Orenburg, 1912
Ural oblast	1. Ilbishin 2. Ural 3. Temir	P. A. Khvorostanskii T. I. Sedelnikov V. P. Semenov N. P. Chevalier	Vol.7. Orenburg, 1914 Vol.1. Orenburg, 1909 Vol.2. Orenburg, 1910
Total 2 oblasts	Investigated 7 uezds		7 volumes

Table 4
Oblasts and uezds investigated during the expeditions led by P. A. Skryplev, 1906-1913

Oblasts investigated	Uezds investigated	Members of the expedition who collected materials for the "Materials on Kyrgyz Land Use"	Information on "Materials on Kyrgyz land use" volumes
Syr-Darya oblast	1. Chimkent 2. Aulieata 3. Perovsk 4. Kazalinsk 5. Chu and Talas	P. A. Skryplev P. I. Putilov I. I. Rylov V. A. Yakimanskii V. I. Yuferev	1) Vol.1. Tashkent, 1910 2) Vol.2. Part 1. Text. Tashkent, 1910 Vol.2. part 2. Tables. Tashkent, 1910 3) Vol.3. Tashkent, 1911 4) Vol.4. Tashkent, 1912 5) Vol.5. Tashkent, 1913 6) Vol.6. Tashkent, 1915
Total			Total number of volumes – 6. Volume 2 consists of two parts.

Typographical inconsistencies in the source corpus examined in this study are usually indicated either on the same page where they occur, on the opening page, or on the final page of the respective volume. In some instances, such remarks are also included in the preface or introductory sections.

The expedition began its research activities with the development of a preliminary research program and a review of available reference literature and encyclopedic publications concerning the Steppe Region. In addition, the researchers relied on reports issued by the governor-general, materials published by local statistical committees, and other legislative and administrative sources. The research program was subsequently refined and adjusted on the basis of practical methodological experience gained during the initial stages of field observation. The program itself was prepared by F. A. Shcherbina.

The expedition's research framework consisted of 17 chapters and 93 subsections and addressed a wide range of topics, including: (1) clan-based organization; (2) the history of economic auls; (3) forms of land use; (4) animal husbandry; (5) wheat harvesting; (6) land cultivation; (7) horticulture and melon growing; (8) forest and tugai lands; (9) land leasing; (10) industry and wages; (11) taxes and obligations; (12) characteristics of the Kyrgyz (Kazakh) family; (13) general economic affairs; (14) trade; (15) credit; (16) population needs; and (17) natural and climatic conditions (MKZ, 1908: 3–5).

This research program subsequently served as the methodological foundation for all further investigations conducted within the framework of the expedition. The methodological framework developed by F. A. Shcherbina later served as a methodological guide for statisticians undertaking similar studies.

At the same time, the credibility and neutrality of the data presented in this source were conditioned by several external factors and by practical problems arising during fieldwork. F. A. Shcherbina himself identified a number of difficulties encountered by the expedition throughout the research process, among which the following were particularly significant:

1. the vast territorial scale of the region, which required considerable time and effort for travel;

2. the researchers' limited knowledge of the Kazakh language, which made it necessary to rely on interpreters as intermediaries;

3. insufficient familiarity with the geographical and social conditions of the regions under investigation.

Each of these factors, both individually and collectively, slowed the progress of the research and complicated the timely completion of the work (MKZ, 1898: 2).

The structure of each volume of this source complex generally consists of three principal components: (1) textual analysis, (2) statistical tables, and (3) cartographic materials. Although the textual sections were prepared according to a unified research program, the internal structure of individual volumes varies. Typically, they include historical descriptions of each uezd, analyses of land use and territorial extent, accounts of geographical and natural conditions, descriptions of the spatial distribution and migration routes of clans and tribes, as well as tables detailing clan and tribal groupings. In addition, the volumes provide information on local economic conditions at the uezd level and offer comparative assessments with other districts.

The descriptive sections of the sources likewise contain detailed information on land use patterns, agricultural and pastoral activities, craft production, the practice of leasing land and the historical trajectories of particular uezds.

"Materials on Kyrgyz Land Use" constitutes a distinct category of written historical source owing to the particular circumstances of its production. Unlike many other documentary sources, it was not created by an individual author but by a collective of researchers. The collection of empirical data was carried out not by a single investigator but by a team of highly qualified specialists.

This source complex was produced by statistical teams and research expeditions that included professional statisticians, agronomists, registrars, topographers, hydrogeologists, and botanists. These specialists were responsible not only for gathering data using specific methodological approaches and research techniques but also for analyzing, systematizing, and preparing the collected materials for publication in the form of a multi-volume printed edition.

An important role in the identification, accumulation, and interpretation of historical and geographical information is played by cartographic sources. Among the most significant materials in this regard are printed and manuscript maps, drawings, and schematic plans, as well as accompanying explanatory descriptions, including those incorporated into broader historical works.

Another key component of the "*Materials on Kyrgyz Land Use"* source complex consists of statistical tables. Tables are included in every volume without exception. In cases where individual uezds possessed particular characteristics, the basic statistical tables were supplemented by additional tables reflecting these specific regional features.

The table presented below illustrates the types of tables contained in "*Materials on Kyrgyz Land Use"* and outlines the distinctive features of each category.

Table 5
Types of tables and their characteristics.

Types of tables	Characteristics of the tables and the information concentrated in them
Aul-level tables	These tables present information on the number of auls within each volost, the clan affiliation of the inhabitants of each aul and the location of the aul in relation to surrounding terrain or wells and other water sources. The names of auls, winter camps and summer pastures were not given by name, but were indicated only by registration number and the name of the volost. The tables also contain data on population numbers, the time of settlement in the aul, clan affiliation, numbers of men and women, as well as the types and quantities of livestock.
Community-level tables	These tables include information on the auls belonging to a given community, household economy, animal husbandry and agriculture, land leasing and population size.
Regional tables	These tables provide data on the age structure and age-specific characteristics of the population, literacy levels and household economy.
Tables by economic sectors	These tables reflect economic groups, their size, hired labor, crafts and the tools required for economic activities.
Tables on uezd specificity: supplementary and general data	These tables contain additional and general information on the specific features of each uezd.
Clan and tribal tables: a) settler and nomadic clans; b) the main population of the uezds	a) clans that migrated from other areas and their genealogy; b) the names of each clan and their shezhire (genealogy).

These statistical tables emerged from the practical requirements faced by land surveyors and statisticians while addressing specific applied tasks during the course of their research. As a result, the source contains tables that differ significantly in both structure and content. For instance, the aul-level tables include 78 questions that primarily address the economic characteristics of the aul, the location of winter camps, information about the most recent clan head, the approximate age of the aul, the names of nearby water bodies, and population size disaggregated by age and sex. In addition, these tables record data on dwellings, craft activities, the composition of livestock by species and age categories, and the development of animal husbandry and agriculture. Such materials provide valuable information on the settlement patterns of clans and tribes and allow for the reconstruction of the territorial organization of their habitation.

Cartographic sources dating from the nineteenth and early twentieth centuries are even more informative in certain respects, as they present concentrated and visually structured data on the physical geography of Kazakhstan, settlement systems, patterns of population distribution and migration, the development of new territories, and the economic and administrative structure of the region. Maps of this period typically contain a graticule, are oriented according to the cardinal directions, include a defined scale, and are based on geodetic surveys conducted using astronomical reference points. At the same time, it should be noted that some of the information presented on these maps relied on sources that were not always sufficiently verified.

The expansion of cartographic work in the territory of Kazakhstan was closely connected with the intensification of expeditionary activity in the region beginning in the 1820s–1830s. During the expeditions devoted to the study of Kyrgyz (Kazakh) land use, special maps entitled *"Kyrgyz Land Use and Pasture Regions"* were compiled. These maps recorded the boundaries of uezds and identified the main types of pasture lands within the studied territories.

Within the framework of the activities of the Akmolinsk Statistical Team, for example, a map illustrating Kazakh land use in the Akmolinsk uezd was prepared under the supervision of the senior topographer of the expedition, Slavetskii. This cartographic document was produced at a scale of 15 versts per inch.

Maps depicting the historical patterns of clan settlement across the territory of Kazakhstan also possess considerable source-critical value, as they provide important evidence for reconstructing the spatial organization of traditional Kazakh society.

Thus, "*Materials on Kyrgyz Land Use"* represents a multi-volume publication in which each volume is characterized by its own thematic focus and specific research methods. Although these works were produced within the framework of a unified overarching objective, their value for the study of the history of the Kazakh ethnos in the late nineteenth and early twentieth centuries is particularly significant.

Figure 1
Map showing the tribal settlement of Kazakhs in the Omsk uezd (MKZ, 1902: 274)

Figure 2
Map of the Chimkent uezd of the Syr-Darya oblast. (MKZ, 1908: 643)

It should be emphasized that the emergence of "*Materials on Kyrgyz Land Use"* was closely connected with the colonial policy pursued by the tsarist government. This context is clearly reflected both in the content of the source itself and in related legal and archival documentation. At the same time, as a primary historical source covering a wide range of issues related to the history of Kazakhstan in the late nineteenth and early twentieth centuries, this multivolume publication constitutes an exceptionally valuable body of evidence. The materials it contains are based on extensive empirical data collected during large-scale research expeditions and therefore provide a substantial foundation for the study of socioeconomic processes, land relations and the historical geography of the Kazakh steppe.

Conclusion

It can therefore be concluded that "Materials on Kyrgyz Land Use" constitutes a unique and highly valuable source for the study of Kazakh society in the late nineteenth and early twentieth centuries. The materials collected by statistical teams and research expeditions contain extensive information on various aspects of the history of the Kazakh ethnos. These include historical and ethnographic data, geographical and climatic conditions, biological and hydrological characteristics, economic activities and household organization, demographic structure and population size, social hierarchy and clan–tribal organization, topographical features and place names, genealogical information, patterns of clan and tribal settlement, and the processes associated with the colonization of Kazakh territories.

In assessing the specific characteristics and scholarly significance of this source complex, several key aspects should be emphasized:

1. the broad geographical coverage of the research, which encompassed the territories of present-day Kazakhstan, including the Akmolinsk, Semipalatinsk, Ural, Turgai and Syr-Darya oblasts, thereby making it possible to reconstruct regional historical processes in a comprehensive manner;

2. although field investigations were not completed across the entire territory of Kazakhstan, the collected materials were systematically processed and published in book form, ensuring their preservation and availability for scholarly use;

3. the researchers responsible for collecting and preparing the materials, from the early stages of the expeditions to the final publication of the volumes, were highly qualified specialists, including F.A.Shcherbina, Alikhan Bukeikhan, L.K.Chermak, P. A. Skryplev, and P. A. Khvorostanskii, among others, which contributed to the overall scholarly rigor and relative objectivity of the source;

4. after their initial publication, these materials were neither revised nor republished, and therefore have been preserved in their original form; prior to publication, the data contained in the "Materials on Kyrgyz Land Use" were also compared with earlier statistical sources;

5. as a historical source, the "Materials on Kyrgyz Land Use" are particularly valuable for the extensive, detailed, and comparatively objective statistical data they contain on the clan and tribal structures of Kazakh society.

It should also be noted that Alikhan Bukeikhan, who directly participated in the preparation of "Materials on Kyrgyz Land Use", made a significant contribution to the scholarly study of his homeland and to the analysis of the clan–tribal organization of the Kazakh people.

Overall, "Materials on Kyrgyz Land Use" represents an important historical source with distinctive characteristics that make it indispensable for the study of traditional Kazakh society in the late nineteenth and early twentieth centuries.

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The authors declare that there are no acknowledgements and no conflicts of interest related to this study.

Author contributions

Conceptualization, N.T. and B.E.; Methodology, N.T.; Formal Analysis, N.T. and Zh.Z.; Investigation, Zh.Z. and G.M.; Data Curation, Zh.Z.; Writing – Original Draft Preparation, N.T.; Writing – Review & Editing, N.T., B.E. and G.M.; Supervision, N.T. and B.E.; Project Administration, N.T.

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