The Ripple Effect: Assessing the Economic Implications of Leadership Transition in Authoritarian Regimes. A Case Study of Uzbekistan.

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submitted to

Central European University

Department of Economics and Business

In the partial fulfilment of the requirements for the degree of Master of Arts in Economics

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2023

ABSTRACT

This paper studies the impact of leadership transition on economic growth and business performance in autocratic regimes. The case study involves utilizing the unexpected power shift in Uzbekistan due to the sudden death of the long-ruling President Islam Karimov in 2016. Difference in Differences design and Fixed Effects methods were applied to isolate the post-treatment effect. The analysis shows controversial results as in the existing literature. The results reveal that power shift and the reforms that came with it have positive relationship with economic growth, whereas their impact on the business performance is not statistically significant.

ACKNOWLEDGEMENTS

I express my sincere gratitude to my supervisor, Julius Horvath, for his invaluable guidance and insightful critique throughout this journey. Also, I am deeply grateful to my family for their unwavering support, with special thanks to my spouse, whose love, patience, and sacrifice were indispensable in this process. Thank you for your understanding during the late nights and weekends spent on this project, for taking care of the baby and the family, and for always believing in me. Their faith in my capabilities gave me the strength that was essential to achieve this accomplishment.

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1. Introduction

Increasingly polarizing global politics and the popularity of national leaders, who are striving for more power, makes the research into the complex interplay between political structures and economic development more relevant than ever. Particularly, the economic implications of leadership changes in the authoritarian regimes must be studied since the centralized power and limited political rivalry allows authoritarians to exert greater individual influence on the economy than the leaders of democratic nations (Jones and Olken, 2005; Glaeser et al., 2004). Authoritarian leaders' decisions might have profound impact, not only on the trajectory of national economies but also on global economic trends.

Therefore, this thesis research focuses on a detailed exploration of the economic ramifications of leadership transition in authoritarian contexts, using the case study of Uzbekistan. Such transitions often signal major policy shifts, leading to potential uncertainties and fluctuations in economic performance. Moreover, they can evoke changes in the balance of power within the regime, instigating redistribution of resources and potential economic turbulence. By studying these transitions, and their potential implications, we can extract valuable insights for policy makers and businesses about possible economic scenarios that the country will experience.

The choice of Uzbekistan as the case study is particularly instructive for several reasons. First, Uzbekistan offers an intriguing example of leadership transition within an authoritarian regime. The case allows us to estimate the true impact of the leader on the economy, by excluding reverse causality doubts, since the unexpected death could be considered a random treatment not determined by economic conditions. The death of the one and the only President since the Independence, Islam Karimov, in 2016 led to the long-awaited leadership change in the country and started political and

economic transition under the new leadership of Shavkat Mirziyoyev. Even though the political system remained intact, the new administration embarked on a wide range of reforms, emphasizing a marked departure from Karimov's highly centralized and autarkic rule.

Second, power transition in Uzbekistan is recent enough to offer contemporaneous, time-relevant insights yet sufficiently distant to allow for an analysis of observable consequences. Considering the time lag the economic policies need to take effect, the past 6 years are crucial to assess the short-to-mid-term outcomes.

President Mirziyoyev's administration has been engaged in launching extensive package of economic reforms, most of which were introduced in 2017-2018, that encompass significant transformations in government services, private sector development, exchange rate unification, visa-free entry for tourists, tax reforms to reduce the scale of shadow economy, and social protection.

The Asian Development Bank (2023) views these efforts as part of Uzbekistan's attempts to overhaul its economic conditions. However, Yusupov (2021) argues that issues related to state control over the economy, weak institutions, and an underperforming banking sector undermined the effectiveness and speed of economic reforms. He believes that the long-lasting Uzbek economic model had devastating consequences for the economy, creating "extremely inefficient economy, low levels of economic growth, high unemployment and external labor migration, and rampant corruption".

	1995	2018	Growth		1995	2018	Growth
China	610	9771	16,0	Moldova	477	3227	6,8
Azerbaijan	397	4721	11,9	Mongolia	632	4122	6,5
Vietnam	277	2567	9,3	India	374	2010	5,4
Armenia	456	4212	9,2	Belarus	1371	6290	4,6
Lithuania	2169	19153	8,8	Russia	2666	11289	4,2
Georgia	578	4717	8,2	Tajikistan	214	827	3,9
Latvia	2322	17861	7,7	Kyrgyzstan	364	1281	3,5
Kazakhstan	1288	9813	7,6	Ukraine	936	3095	3,3
Estonia	3131	23266	7,4	Uzbekistan	586	1532	2,6

Table 1. GDP per capita, in USD, nominal growth[2]

Source: Yusupov (2021), World Bank

Overall, the fact that these economic changes have been undertaken within a mainly unchanged political system makes Uzbekistan case unique. Even though the power shift did not lead to considerable changes in the political regime, the new leadership has nevertheless initiated economic reforms that was even interpreted as moving from autarky to autocracy or upgraded autocracy by the international media (Anceschi, 2019; Schiek, 2018). This provides a rare opportunity to evaluate the economic implications of a power transition within a stable political framework, a scenario that has been under-researched in existing literature.

This thesis research aims to leverage this unique opportunity to contribute to the current understanding of how leadership transitions in authoritarian regimes affect economic development. By employing a Difference-in-Differences methodology, this study will explore how the leadership change in 2016 impacted the GDP growth and firm revenues in Uzbekistan. To accomplish this task, I will check if Uzbekistan's GDP growth rate and firm revenues behaved differently compared to the same indicators of other authoritarian nations, namely, growth in Tajikistan, Azerbaijan, Russian Federation, Belarus, Kazakhstan, and firm revenues in Tajikistan, using Enterprise Surveys 2013 and 2019 as well as World Bank macroeconomic data.

The goal of the paper is to answer the following questions:

Research Question 1: How does change of the leadership affect economic growth in autocratic regimes?

Research Question 2: How does power transition affect business performance in the country?

The subsequent chapter will provide short historical and socio-economic context of Uzbekistan, which is followed by the review of existing theories in the literature on the topic. Chapter 3 introduces the data and methodology employed in this research. Finally, the remaining chapters will present the results and discussions, wrapping up the findings with conclusion and limitations of the taken approach.

2. Literature Review

Research into the causal relationship between political structures and economic development is never-ending and multidimensional. Statistical "proof" of impact of the leadership on the economic prosperity is important for both the multi-party democracies and authoritarian leaders. While the leaders in the former could happily use it in their election campaigns, the latter needs this "proof" to assert their benevolent dictator image.

This thesis topic was inspired by Jones and Olken (2005), who studied the impact of national leaders on economic growth, using the death of the leaders in the office since World War II till 2000 as randomized treatment. They found that leaders have strong influence on growth in autocratic settings, where their power is barely restrained. They demonstrate how economies experienced immediate high growth rates following the death of the autocrats. However, findings of Easterly and Pennings (2020) contradict this view by demonstrating that only few leaders' contribution on growth is statistically significant and likelihood of autocrats having statistically significant impact on growth is not greater than that of the democratic leaders. They echo Jones and Olken's argument that leadership might have a vital role in the economic development, but they claim that the leadership tenure is too short to identify the individual effect on growth or too long to differentiate the leader qualities from country effects.

On the other hand, Rodrik (2000) explores which institutions enable high-quality growth and concludes that participatory democracies tend to handle crises best and lead to higher growth by gathering and processing country-specific local knowledge. This suggests that benevolent dictators might carry out the reforms or policy implementation faster, yet the democracies can still perform better thanks to

knowledge-driven decision-making when multiple participants contribute to the process with their expert knowledge.

Faust (2007), Stockemer and Kailitz (2020), and Geddes (1995) provide additional nuance, examining how different types of autocracies navigate economic development and liberalization, the scenarios that remind of Uzbekistan's ongoing reforms. Particularly, Stockemer and Kailitz (2020) highlight economic development assists the ideocracies and personalist autocracies to survive longer. This might explain why autocratic regimes tend to overstate their growth rates by using various monetary and financial tools because providing economic security in exchange for political compliance lies at the core of the "authoritarian bargains" (Desai, Yousef, and Olofsgård, 2007).

Glaeser et al. (2004) argue that the role of human capital is more important for growth than of institutions, besides, it is the dictators who get the poor countries out of poverty though good policies, which subsequently lead to emergence of inclusive institutions. Unfortunately, not all the dictators are benevolent, thus, human and social capital deteriorate during the rule of the authoritarian leaders due to the healthcare and education sectors being neglected intentionally or unintentionally, which makes it hard for the economies to recover fast after power transition, taking years for the economic growth to boom (Khan, Batool, and Shah, 2016; Carden and James, 2007).

When discussing economic prosperity and failure, citing the hypothesis proposed by Acemoglu and Robinson (2012) in "Why Nations Fail," which suggests that inclusive institutions are critical in fostering economic prosperity, is a must. Although they do not clearly state what exactly engenders the inclusive institutions, their arguments spin around how different factors and historical turning points lead to emergence of inclusive institutions in various countries. Could the death of the long-ruling president be the turning point that created the right moment and right conditions in Uzbekistan's history to move towards inclusiveness?

Overall, the existing literature offers diverse, sometimes controversial perspectives on the interaction between political regimes, leadership and economic outcomes, which emphasizes the value of the case study on Uzbekistan to expand our understanding of these dynamics.

2.1 Economic and political context in Uzbekistan

Islam Karimov, the first president of independent Uzbekistan, maintained a tightly controlled, centrally managed economy that emphasized stability over reform over his entire presidency of 25 years. By opting for gradual transformation reforms towards market economy, Karimov tried to avoid the chaotic privatizations and economic shocks experienced by many other post-Soviet countries in the 90s. For this purpose, he heavily propagated Uzbek model of economic development, which seemed to be effective as the country enjoyed high growth during the first two decades of its independence. However, these protectionist policies led to chronic inefficiencies, corruption, and low productivity, which in turn resulted in economic stagnation and a decline in living standards, causing millions of blue-collar workers to migrate to Russia, Kazakhstan and other countries in search of work.

The unexpected death of President Karimov in 2016 was met with fear that it might engender political unrest. His successor, ex-Prime Minister Shavkat Mirziyoyev, peacefully came to power and immediately embarked on a series of ambitious and transformative economic, legal and foreign relations reforms, marking a significant departure from the Karimov-era policies (Anceschi, 2019). Mirziyoyev's administration initiated comprehensive reforms aimed at liberalizing the economy, enhancing transparency, stimulating private sector development, improving governance, and integrating Uzbekistan into the global economy (Asian Development Bank, 2023). He proposed to replace the Uzbek economic model with Development strategy of new Uzbekistan. In broad terms, the following table summarizes how the two models compare with one another:

Karimov's Uzbek Economic Model	Mirziyoyev's New Uzbekistan			
	Strategy			
Import substitution, protecting the local	Reforms of banking sector and money			
economy by limiting imports through high	circulation			
tariffs and non-tariff measures				
Self-isolation, minimal volume of foreign	Removal of various administrative			
trade and capital controls (restricted FDI)	barriers to cross border flow of goods			
	and people (primarily with the			
	neighbours of Uzbekistan) and reduction			
	of customs charges			
Limited space for private	Gradual privatization of various sectors			
entrepreneurship, oversized public	of economy, attracting foreign			
sector	investment			
Price setting for key commodities (e.g.,	Reduction of various administrative			
cotton, wheat, fuels)	costs of doing business			
Controlled foreign exchange, which led	Unification of exchange rate and			
to double exchange rate: black market	introduction of conversion for current			
rate twice as high as the official rate	operations			

High	taxes	and	government	Radical tax reform to reduce the size of
expendit	ures			the shadow economy

Basically, Mirziyoyev's economic reform program has included significant changes to the business environment, aiming to foster entrepreneurship and stimulate private sector growth. These reforms have sought to reduce the role of the state in the economy, improve the regulatory environment for businesses, foster competition, and improve access to finance for small and medium-sized enterprises.

Yet, when we look closer at the graph generated by the Asian Development Bank, we see that even though the GDP slowly grew, the annual growth rate started falling.



In sum, Yusupov (2020) illuminates challenges in the country's economic reform process, highlighting the continuing presence of state control, weak institutions, and underperforming banking sectors. Similarly, the Asian Development Bank (2023) recognizes Uzbekistan's attempts at economic reform, hoping for favorable outcomes, whereas Bellefontaine (2021) implies that the nation still has a journey to undergo to

fully realize a multidimensional transition when successive external shocks such as the pandemic and Russian-Ukraine war are testing the resilience of the new administration.

At the same time, Schiek (2018) and Anceschi (2019) view the reforms associated with Uzbekistan's political transition more skeptically, suggesting that, within the framework of authoritarian modernization theory, the changes should be seen as "upgrading the local authoritarian practices" rather than true liberalization. Therefore, deeper analysis of the growth trends in Uzbekistan would resolve these controversial views.

2.2 Impact of leadership transition on business environment

Since the accuracy of incredibly high GDP growth rates is frequently questioned, I will use World Bank Enterprise Surveys to evaluate the effect of leadership change on business performance.

On the firm-level, Dahl and Reichstein (2004) and Bonanno, Ferrando, and S. P. (2020) shed light on determinants of firm efficiency and revenue growth that can be used as an indicator of economic development. For instance, they find that firm growth is not random and that it strongly depends on the industry and geography. Finally, Estevão et al. (2020) emphasize the relevance of Doing Business ranking in predicting GDP, a crucial factor to consider given Uzbekistan's economic reforms.

3. Data and Methodology

3.1 Data

Uzbekistan's GDP was growing at 7%-9,5% range in from 2004 till 2015. In 2016, the growth rate slowed down to 6,1% and continued to fall in the subsequent year. In 2016, the Statistics Office implemented a revised methodology for computing GDP using the production approach, which led to further reduction of the previously incredible figures of growth. They revisited the growth rates starting from 2010 and later. The adjusted numbers are in Table 2 below.

Table 2. Revision of GDP 2010-2016

Years	GDP	(current soum	s)	6		
	before revision	after revision	change	before revision	after revision	change
2010	62 388,3	74 042,0	+11 653,7	108,5	107,3	-1,2
2011	78 764,2	96 949,6	+18 185,4	108,3	107,8	-0,5
2012	97 929,3	120 242,0	+22 312,7	108,2	107,4	-0,8
2013	120 861,5	144 548,3	+23 686,8	108,0	107,6	-0,4
2014	145 846,4	177 153,9	+31 307,5	108,0	107,2	-0,8
2015	171 808,3	210 183,1	+38 374,8	107,9	107,4	-0,5
2016	199 993,4	242 495,5	+42 502,1	106,2	106,1	-0,1
2017	254 043,1	302 536,8	+48 493,7	105,2	104,5	-0,7

Considering the doubts about further manipulation of the statistics as well as possible inaccuracy in reporting certain indicators, I collect data on four major macroeconomic indicators that are relatively free from bias of the state authorities. These indicators

co-move with the GDP and can explain variation in GDP growth to some extent: electricity consumption growth, credit growth to domestic market, imports growth, exports growth. The goal is to predict relatively unbiased GDP growth in Uzbekistan before and after 2016 and assess if the growth showed any abnormal behavior in the post-2016 period compared to other authoritarian countries such as Azerbaijan, Belarus, Kazakhstan, Russian Federation, Tajikistan.

All these countries are under authoritarian regimes, with Tajikistan and Russia considered as anocracies due to the potential civil unrest. The leaders of these nations have been in power for decades. The leader of Tajikistan, Imomali Rahmon, has been in power since the independence, which makes it a suitable match for parallel trend in Uzbekistan, i.e., if Karimov did not die, he could still be in power as Rahmon.

The indicators were collected from World Bank, International Energy Agency, and British Petroleum. These sources provide accurate and reliable macroeconomic indicators. The time frame of the dataset is 2011 to 2021, which encompasses both the pre- and post-treatment periods.

Enterprise Survey datasets for Uzbekistan and Tajikistan was also downloaded from World Bank Microdata and processed for Difference-in-Difference analysis. Four different surveys, namely, Tajikistan Enterprise Survey 2013, Uzbekistan Enterprise Survey 2013, Tajikistan Enterprise Survey 2019 and Uzbekistan Enterprise Survey 2019 were merged based on common variables they have for the current analysis.

World Bank Enterprise Surveys are firm-level surveys of a representative sample of an economy's private sector. They cover a wide range of business environment topics including access to finance, corruption, infrastructure, crime, competition, labor, obstacles to growth, and performance measures. These surveys serve as the basis in calculating the Doing Business rankings.

3.2 Methodology

This study utilizes difference in differences (DiD) analysis to assess the treatment effect (leadership transition in 2016) on economic growth and business performance in Uzbekistan. The following equation is supposed to reveal the answer to the first research question.

$$\begin{split} &GDP_Growth_{it} = \beta_0 + \beta_1 CreditGrowth_{it} + \beta_2 ElectricityConsumptionGrowth_{it} + \\ &\beta_3 ExportsGrowth_{it} + \beta_4 ImportsGrowth_{it} + \beta_5 UZBpost2016 + kazPost2019 + \\ &sanctionsRussia + oilShock + currencyDevaluationKazakhstan + covidShock + \varepsilon_{it}, \\ &where: \end{split}$$

- **UZBpost2016** is a dummy variable that takes the value of 1 for Uzbekistan after 2016 and 0 otherwise. β_5 is the coefficient of interest for us as it captures the treatment effect on the GDP growth of Uzbekistan after 2016.
- sanctionsRussia is a dummy variable that takes the value of 1 for Russia after the annexation of Crimea in 2014 and 0 otherwise. This variable should capture the potential effects of sanctions on Russian economy.
- **oilShock** is a dummy variable that takes the value of 1 for all countries during the years of significant global oil price drop (2014-2016) and 0 otherwise.
- currencyDevaluationKazakhstan is a dummy variable that takes the value of 1 for Kazakhstan during the years of currency devaluation (2014 and 2015) and 0 otherwise.

- **covidShock** is a dummy variable that takes the value of 1 for all countries during the Covid-19 pandemic years (2020 onwards) and 0 otherwise.
- kazPost2019 is a dummy variable that takes the value of 1 for Kazakhstan post-2019 (presidential change) and 0 otherwise.

I include dummies for the above-mentioned external shocks that could have affected countries differently. The choice of the four macroeconomic indicators aligns with the approach employed by Subramanian (2019) and Wei Chen et al. (2019) in their respective examinations of economic growth misestimation in India and China. I rely on these indicators because Uzbekistan also implemented methodological change to GDP calculation that coincided with power transition in 2016. I investigate the correlation between these indicators' changes and GDP growth for the periods 2011-2016 and 2017-2021 to determine whether Uzbekistan's pattern mirrors that of other nations or if it shows any abnormal behavior from the rest.

Parallel trends assumption, i.e., in the absence of power transition, Uzbekistan would follow similar growth patterns in the entire period of 2011-2021 as other countries in the model. We can see that Uzbekistan GDP growth suddenly plunged in 2016-2017, while other countries followed upward trend. However, after 2017, all countries harmonized their growth patterns again.

Figure 2. GDP growth (annual %) - Uzbekistan, Azerbaijan, Russian Federation, Kazakhstan, Tajikistan, Belarus



The Fixed Effects DiD setup allows us to isolate the effects of the leadership transition in Uzbekistan from other concurrent events that might also have impacted GDP growth. The objective is to determine whether GDP growth in Uzbekistan behaved differently than in the control countries after the leadership transition in 2016. The DiD design helps to account for potential time-varying factors that might have simultaneously influenced all countries in the sample.

By investigating these relationships, this research will provide insights into the macroeconomic effects of leadership transitions in authoritarian regimes. This could have significant implications for economic forecasting and policy design in similar contexts.

Since the first model does not represent classical DiD approach, I attempt to evaluate the treatment effect on business performance in Uzbekistan that can be an alternative signal of how the economy is doing. The second model equation is as follows:

 $Firm\ Revenue_{it} = \beta_0 + \beta_1 Treatment_i + \beta_2 Post_t + \beta_3 Treatment_i Post_t + \beta_4 X_{it} + \varepsilon_{it} \ ,$

where:

Firm Revenue_{it} represents revenue of firm *i* at time t.

 $Treatment_i$ is a dummy variable equal to 1 if the firm is in Uzbekistan (treatment group), and 0 if the firm is in Tajikistan (control group).

 $Post_t$ is a dummy variable equal to 1 for the years after the power transition in Uzbekistan (i.e., 2016 and later), and 0 for the years before the transition.

 $Treatment_iPost_t$ is the interaction term of the treatment and post-transition indicators. The coefficient β_3 on this term gives the DiD estimator, which measures the average treatment effect of the power transition on firm performance.

 X_{it} is a vector of control variables for firm i at time t. The vector includes firm size, firm age, industry, export orientation, share of state in company ownership, access to credit, and innovation and technology.

 ε_{it} is the error term for firm i at time t.

As in the previous model, this equation assumes that the parallel trends assumption holds, meaning, in the absence of the treatment (power transition), the average firm revenues for the treatment and control groups would have followed the same trend over time. The technique utilized in this analysis is simple OLS regression since the data availability and structure prevents us from applying other techniques such as Fixed Effects.

The data is more similar to repeated cross-section rather than a panel data because (1) Enterprise Survey tries to capture different samples each time, so we do not observe all of the firms in both periods; (2)

4. Results and Discussion

First, I tried to run the usual DiD setup regression. None of the coefficients except uzbPost2016, kazPost2019 and sanctionsRussia are statistically significant. However, the direction of change is captured correctly, showing adverse effects of external shocks.

Fixed-effects (within) regression Number of obs 66 Group variable: country_num Number of groups = 6 R-squared: Obs per group: Within = 0.4007 min = 11 Between = 0.011011.0 avg = Overall = 0.1868max = 11 F(5,5)= • corr(u_i, Xb) = -0.0651 Prob > F

(Std. err. adjusted for 6 clusters in country_num)

gdp_growth	Coefficient	Robust std. err.	t	P> t	[95% conf.	interval]
creditgrowth	.00683	.0455157	0.15	0.887	1101717	.1238317
electgrowth	.0074975	.0526853	0.14	0.892	1279344	.1429294
exportsgrowth	.0311933	.0323737	0.96	0.380	0520259	.1144126
importsgrowth	.0454121	.0328685	1.38	0.226	0390792	.1299033
uzbPost2016	-2.665305	.716569	-3.72	0.014	-4.507304	8233056
kazPost2019	-1.659178	.2161898	-7.67	0.001	-2.214911	-1.103444
sanctionsRussia	-1.212545	.467563	-2.59	0.049	-2.414454	0106356
oilShock	-1.028159	.8200106	-1.25	0.265	-3.136064	1.079745
currencyDevaluationKazakhstan	4390359	.8500844	-0.52	0.628	-2.624247	1.746176
covidShock	8927675	.600981	-1.49	0.198	-2.437638	.6521032
_cons	3.906746	.2999785	13.02	0.000	3.135626	4.677865
sigma u	2.6003303					
sigma e	2.0153967					
rho .62472321 (fraction of variance due to u_i)						

Assuming that the small size of the dataset is causing the statistically insignificant results, I try Fixed Effects regression. Now the regression model includes fixed effects for each country to control for country-specific factors. Cluster-robust standard errors were used to account for potential correlation within each country. The overall model's R-squared value indicates that the independent variables explain 1.00% of the variation in GDP growth across the dataset.

The signs on some coefficients are unexpected. For instance, exports and credit growth contribute to GDP growth, whereas sanctios against an economy should affect

it adversely. In our results, the opposite is true with all of the coefficients being statistically significant. Yet some of the adverse effects could be plausible if we account for the economic context of the changes. For example, high credit growth may indicate increased borrowing and potential financial instability, while higher imports may indicate increased dependence on foreign goods and services, potentially reducing domestic production and GDP growth.

Our main variable of interest uzbPost2016 reveals that being Uzbekistan after the power transition is associated with 3.37 percentage point increase in GDP growth. Similarly, kazPost2019, representing the power transition in Kazakhstan after 2019, has a coefficient of 5.1945, indicating a positive impact on GDP growth. The other important events like Oil price drop and Covid-19 are associated with large negative impact of GDP growth.

The year control variables capture the annual effects on GDP growth. The coefficients associated with different years indicate the estimated change in GDP growth relative to the omitted year (2016) for each respective year. For example, the coefficient for year 2012 is -10.1102, implying a lower GDP growth rate compared to 2016.

The coefficients for the country_num variables, which represent the fixed effects for each country, are omitted from the results. These variables account for the countryspecific factors that are held constant in the analysis.

Overall, the regression results suggest that power transition, as captured by uzbPost2016 and kazPost2019, has a positive impact on GDP growth in autocratic regimes.

ects (within) regression	Number of obs	=	66
iable: country_num	Number of group	s =	6
:	Obs per group:		
in = 1.0000	m	in =	11
een = 0.2290	a	vg =	11.0
all = 0.0014	m	ax =	11
	F(1,5)	=	
Xb) = -0.8701	Prob > F	=	-

(Std. err. adjusted for 6 clusters in country_num)

		Robust				
gdp_growth	Coefficient	std. err	. t	P> t	[95% conf.	interval]
	220205				2222270	2202042
creditgrowth	320386	7.24e-07	-4.4e+05	0.000	32038/9	3203842
electgrowth	.3891/2/	1.41e-06	2.80+05	0.000	.389169	.3891/63
importsgrowth	002944	5.450-07	-1.80+05	0.000	0029449	0029431
uzbPost2016	3 370879	9 969-06	3 40+05	0.000	3 370854	3 370905
kazPost2010	5 194523	9.900-00	2 70+05	0.000	5 194474	5 194572
sanctionsRussia	3 226326	4 74e-06	6 8e+05	0.000	3 226314	3 226339
oilShock	-23 02935	0000435	-5 3e+05	0.000	-23 02946	-23 02924
evaluationKazakhstan	9 889198	0000471	2 10+05	0.000	9 889077	9 889319
covidShock	-6.182654	.0000138	-4.5e+05	0.000	-6.18269	-6.182619
year						
2012	-10.11019	.000038	-2.7e+05	0.000	-10.11029	-10.11009
2013	4.833766	2.55e-06	1.9e+06	0.000	4.833759	4.833772
2014	18.42788	.0000242	7.6e+05	0.000	18.42782	18.42794
2015	15.28202	.0000174	8.8e+05	0.000	15.28197	15.28206
2016	0	(omitted)				
2017	-18.65514	.0000358	-5.2e+05	0.000	-18.65523	-18.65505
2018	-10.43704	.0000207	-5.0e+05	0.000	-10.43709	-10.43698
2019	-7.533958	.0000233	-3.2e+05	0.000	-7.534017	-7.533898
2020	-11.81481	.0000206	-5.7e+05	0.000	-11.81486	-11.81476
2021	0	(omitted)				
country_num	-	(
Belarus	0	(omitted)				
Kazakhstan	0	(omitted)				
Russia	0	(omitted)				
Tajikistan	0	(omitted)				
Uzbekistan	0	(omitted)				
Voap#country num						
2012#Belarus	-7 800538	1 910-06	-4 10+06	0 000	-7 800543	-7 800533
2012#Beial us	17 48131	000058	3 0e+05	0.000	17 48116	17 48146
2012#Russia	9,054366	.0000368	2.5e+05	0.000	9.054271	9.054461
2012#Taiikistan	.1356517	.0000142	9532.78	0.000	.1356151	.1356883
2012#Uzbekistan	3.272254	.0000224	1.5e+05	0.000	3,272196	3,272312
2013#Belarus	-13.00145	.0000122	-1.1e+06	0.000	-13.00148	-13.00142
2013#Kazakhstan	-2.029721	.0000121	-1.7e+05	0.000	-2.029752	-2.02969
2013#Russia	-7.373456	6.05e-06	-1.2e+06	0.000	-7.373472	-7.373441
2013#Tajikistan	-12.10699	.0000231	-5.2e+05	0.000	-12.10705	-12.10693
2013#Uzbekistan	-12.45942	.0000123	-1.0e+06	0.000	-12.45945	-12.45938
2014#Belarus	-1.484008	9.60e-06	-1.5e+05	0.000	-1.484033	-1.483983
2014#Kazakhstan	-4.932784	.0000149	-3.3e+05	0.000	-4.932822	-4.932746
2014#Russia	-4.87851	.000011	-4.4e+05	0.000	-4.878538	-4.878482
2014#Tajikistan	-8.440595	6.64e-06	-1.3e+06	0.000	-8.440612	-8.440578
2014#Uzbekistan	-6.631973	5.91e-06	-1.1e+06	0.000	-6.631989	-6.631958
2015#Belarus	-1.38829	.000025	-5.5e+04	0.000	-1.388354	-1.388226
2015#Kazakhstan	0	(omitted)				
2015#Russia	-13.04082	1.27e-06	-1.0e+07	0.000	-13.04082	-13.04081
2015#Tajikistan	-12.28434	.0000199	-6.2e+05	0.000	-12.28439	-12.28429
2015#Uzbekistan	-5.658109	2.50e-06	-2.3e+06	0.000	-5.658116	-5.658103
2016#Belarus	8.635335	.0000253	3.4e+05	0.000	8.635269	8.6354
2016#Kazakhstan	15.6626	.0000422	3.7e+05	0.000	15.6625	15.662/1
2016#Russia	7.531574	.0000225	3.30+05	0.000	7.531516	7.531632
2016#Tajikistan	9.370962	.00001/3	5.40+05	0.000	9.370918	9.371007
2016#UZDERIStan	11.76086	.0000202	5.80+05	0.000	15 93390	15 83305
2017#Belahus	14 06721	.0000312	5.1e+05	0.000	14 06723	14 06741
2017#Rd2dRIIStdII	12 03895	.0000303	4.10+05	0.000	12 02877	12 03804
2017#RUSSId	6 155152	.0000323	4.00+05	0.000	-6 155204	-6 155094
2017#Tajikistan	-0.155152	.0000203	-5.00+05	0.000	16 56167	16 56196
2017#02DEKISCHI	13 /966/	00000002	5 00+05	0.000	13 /9657	13 /9671
2018#Kazakhstan	8 394028	0000271	3 4e+05	0.000	8 393965	8 394091
2018#Russia	8355596	7 07e-06	1 2e+05	0.000	8355415	8355778
2018#Taiikistan	-6.911111	.0000258	-2.7e+05	0.000	-6.911178	-6.911045
2018#Uzbekistan	17.00494	.00003	5.7e+05	0.000	17.00487	17.00502
2019#Belarus	7722603	7.89e-06	-9.8e+04	0.000	7722806	77224
2019#Kazakhstan	6.772511	.000023	2.9e+05	0.000	6.772451	6.77257
2019#Russia	8451037	.0000136	-6.2e+04	0.000	8451388	8450687
2019#Tajikistan	-10.33102	.0000233	-4.4e+05	0.000	-10.33108	-10.33096
2019#Uzbekistan	6.102629	.0000247	2.5e+05	0.000	6.102566	6.102693
2020#Belarus	8.138313	.0000215	3.8e+05	0.000	8.138258	8.138368
2020#Kazakhstan	3.036816	.0000132	2.3e+05	0.000	3.036782	3.03685
2020#Russia	4.388778	.0000256	1.7e+05	0.000	4.388712	4.388844
2020#Tajikistan	0	(omitted)				
2020#Uzbekistan	0	(omitted)				
2021#Belarus	0	(omitted)				
2021#Kazakhstan	0	(omitted)				
2021#Russia	0	(omitted)				
2021#Tajikistan	0	(omitted)				
2021#Uzbekistan	0	(omitted)				
	40					
cons	12.28404	.0000155	7.9e+05	0.000	12.284	12.28408
cigma ::	7 2507202					
sigma a	,.250,502					
signid_e	· ·	(fraction	of varia	nce due 1	oui)	
110	· ·		vai 18	uue I	~/	

To see the average treatment effect over the entire period after 2016, I include time_dummy variable which is 1 for years after 2016 and 0 otherwise. The inclusion of the time_dummy and its interactions provides a more nuanced analysis by capturing the potential differences in the relationship between the independent variables and GDP growth across the two time periods. It allows for a comparison of the effects of the independent variables on GDP growth before and after 2016, which can help assess the impact of the change in leadership on economic growth. Unfortunately, none of the coefficients except the kazPost2019 is statistically significant.

However, this model has potential to reveal the true direction of change as the coefficients show: leadership change in autocratic regimes in Central Asia is associated with decline in GDP growth, the external shocks such as oil price drop, pandemics, sanctions and local currency devaluations undermine the GDP growth as the results imply.

Fixed-effects (within) regression	Number of obs	=	66
Group variable: country_num	Number of groups	=	6
R-squared:	Obs per group:		
Within = 0.4235	mir	ו =	11
Between = 0.0329	ave	g =	11.0
Overall = 0.2205	max	< =	11
	<u>F(5,5)</u>	=	
corr(u_i, Xb) = -0.0059	Prob > F	=	

(Std. err. adjusted for 6 clusters in country_num)

gdp_growth	Coefficient	Robust std. err.	t	P> t	[95% conf.	. interval]
creditgrowth	0027783	.0421211	-0.07	0.950	1110539	.1054973
electgrowth	.0077864	.0447249	0.17	0.869	1071826	.1227554
exportsgrowth	.0328533	.0329553	1.00	0.365	051861	.1175677
importsgrowth	.0395825	.0392439	1.01	0.359	0612971	.1404621
uzbPost2016	-1.615916	.934069	-1.73	0.144	-4.017016	.7851852
kazPost2019	-1.324996	.3301036	-4.01	0.010	-2.173555	4764383
sanctionsRussia	5610778	.4831818	-1.16	0.298	-1.803136	.6809804
oilShock	-1.23713	.8098362	-1.53	0.187	-3.31888	.84462
currencyDevaluationKazakhstan	6688507	.8645833	-0.77	0.474	-2.891333	1.553632
covidShock	6436755	.4985105	-1.29	0.253	-1.925138	.6377866
time_dummy	9636793	.505611	-1.91	0.115	-2.263394	.3360352
_cons	4.310507	.4376543	9.85	0.000	3.185481	5.435533
sigma_u	2.5378856					
sigma_e	1.9968076					
rho	rho .61764471 (fraction of variance due to u_i)					

4.2 Analysis of the impact of leadership transition on business performance

In this regression model, we continue to investigate the effect of the leadership transition on economic development in Uzbekistan, by analyzing how firm revenues were affected. The coefficients of interest are of variables post2016, Uzb and their interaction. We also control for firm size, age, access to finance, direct and indirect exports(d3b, d3c), presence of state share in the company ownership (b2c), and industry type.

The coefficient on **Uzb** is 1632781, which is statistically significant at the 5% level. This suggests that all else being equal, firms from Uzbekistan have higher revenues by approximately 1.6 million USD compared to the firms in Tajikistan. Considering the size of the two economies and the domestic market size, this finding is not surprising.

The variables **post2016** and **Uzb#post2016** are not statistically significant. This implies that neither of them significantly affected firm revenues. However, they have negative correlation with firm revenue, suggesting that the reforms that came with leadership change could have adversely affected firm sales.

Linear regress	sion			Number F(11, 1 Prob > R-squar Root MS	of obs = 993) = F = ed = E =	2,005 7.27 0.0000 0.0117 5.7e+07
		Robust				
revenue_usd2	Coefficient	std. err.	t	P> t	[95% conf.	. interval]
1.Uzb	1632781	770879.5	2.12	0.034	120966.5	3144595
1.post2016	-371899.2	707611.1	-0.53	0.599	-1759634	1015836
Uzb#post2016						
11	1971860	2568387	0.77	0.443	-3065145	7008865
size	1704868	841168.4	2.03	0.043	55206.36	3354530
age	-2977.018	2195.727	-1.36	0.175	-7283.179	1329.144
finance	-651272.2	808187.8	-0.81	0.420	-2236254	933709.3
d3b	47157.53	44914.31	1.05	0.294	-40926.39	135241.4
d3c	267864.2	237529.8	1.13	0.260	-197968.5	733696.9
b2c	72689.05	30320.93	2.40	0.017	13225	132153.1
industry						
2	-2033428	1741575	-1.17	0.243	-5448928	1382071
3	-2309391	1789087	-1.29	0.197	-5818068	1199287
_cons	-2291011	1566252	-1.46	0.144	-5362674	780652.2

The coefficient of **size** (1704868) is statistically significant at the 5% level. Larger firms tend to have higher revenues, with an increase in size category being associated with an approximately 1.7 million USD increase in annual revenue. Firm size contributing positively to the revenue aligns with the findings in the existing literature.

The variable **age** is not statistically significant, indicating that firm age does not have a measurable impact on firm revenues in this model.

The variables **finance**, exports (**d3b**, **d3c**) are not statistically significant. This suggests that these factors do not have a significant independent impact on firm revenues.

The state share (**b2c**) variable is statistically significant at the 5% level, implying that firms with higher state share in the company have higher revenues, with an increase in **b2c** being associated with an approximately 72,689 USD increase in revenue.

The industry indicator variables for industry 2 (Retail) and 3 (Other services) are negative and not statistically significant, indicating that these industries do not have significantly different revenues compared to the reference industry, which is Manufacturing.

Finally, our model explains approximately 1.17% of the variation in firm revenues (R-squared=0.0117). This suggests that while some of our variables are significant, there is still a large portion of the variation in revenues that is not explained by our model. The lack of fit might be due to omitted variables or non-linearity in the relationships between the independent and dependent variables. Further research could benefit the model by exploring these areas.

4.3 Discussion

The results demonstrate how complex the relationship between political changes and economic development is even in autocratic systems where manual governance occurs frequently. Even though it did not produce statistically significant results, the DiD approach showed that leadership change in autocracies does not immediately lead to economic boom as suggested by Jones and Olkens (2005). The reforms that came with the power shift cannot take effect instantly due to the insufficient economic conditions to prosper. For instance, education of human capital and infrastructure in the country require years to develop and even more years to actually contribute to production tangibly. Therefore, it is difficult to claim that the liberalization of the economy after the leadership change led to economic prosperity or did not have any effect. The reasons for the reforms not showing immediate impact are multifaceted. As Yusupov (2020) and other experts on Central Asia note, the shadows of the past are too huge not to hamper the effects of the reforms. On top of that, the inexistent or old infrastructure, healthcare and education systems demand vast investment which is a sunk cost in the short term since their benefits will not surface until the generation who benefited from them start contributing to the economy. Finally, the disruptions caused by the reforms will likely have adverse effect on business performance in terms of revenues. Sudden tax reforms, price increases and exchange rate unification require time from the firms to adjust to the new reality and extract the benefits that comes with the changes.

5. Conclusion

In this paper, I examined the impact of power transitions on economic growth and business performance in autocratic regimes, with a focus on Central Asian countries, taking Uzbekistan as a case study.

Regarding the impact of power transitions on economic growth, the findings indicate that the change in leadership had a positive effect on GDP growth in both Uzbekistan and Kazakhstan. The coefficients associated with the post-transition periods (uzbPost2016 and kazPost2019) were statistically significant, suggesting that these leadership changes were associated with increased GDP growth rates. However, it is important to note that the direction of change of some other coefficients was unexpected, such as credit growth and exports, which showed negative relationships with GDP growth contrary to my initial expectations. These findings highlight the complex and context-specific nature of economic dynamics and the need for further analysis to understand the underlying mechanisms driving these relationships.

Furthermore, the analysis of the impact of leadership transitions on business performance, specifically focusing on firm revenues indicated that firms from Uzbekistan, after the power transition, exhibited higher revenues compared to firms in Tajikistan. However, the variables representing the post-transition period and their interaction were not statistically significant, suggesting that the reforms accompanying the leadership change might not have had a significant independent impact on firm revenues. Interestingly, the firm size and the presence of state share in the company ownership were positively associated with higher revenues, aligning with existing literature, which suggests that political changes have greater impact on state-owned firms.

Overall, this study contributes to the understanding of the relationship between power transitions, economic growth, and business performance in autocratic regimes. The findings suggest that leadership changes can have important implications for economic outcomes, but further research is needed to better understand the underlying mechanisms and contextual factors that drive these relationships.

5.2 Limitations

There are several major limitations of this research that should be acknowledged. First, the small size of the macroeconomic indicators' dataset limited the statistical power and generalizability of the findings. Additionally, the availability of data on many other relevant variables was limited, potentially leaving out important factors that could influence the relationships under investigation. As with any observational study, there is a possibility of omitted variable bias and endogeneity, which could impact the accuracy of the estimated coefficients.

In terms of methodology, DiD approach in the first model did not produce statistically significant and reliable results due to the extremely small size of the dataset, whereas the use of fixed-effects regressions allowed me to control for country-specific factors and capture within-country variation. However, this approach assumes time-invariant effects of independent variables, which might not hold in dynamic economic environments. The inclusion of time dummies allowed for some analysis of temporal changes, but further exploration of the time-varying relationships could provide more robust insights.

Finally, the choice of datasets was based on availability and may not fully capture the complexity and nuances of the economic dynamics in the region. Future research

could benefit from expanding the dataset and incorporating additional variables that are specific to the socio-economic context of autocratic systems.

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