

INFLATION TARGETING IN KAZAKHSTAN

BY

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THESIS

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Thesis Definition:

This Master's thesis is dedicated to a comprehensive exploration of inflation targeting in Kazakhstan, with a specific focus on its applicability within the country's economic framework. Through a meticulous analysis of the factors influencing inflation targeting and its effectiveness, this research seeks to enhance our understanding of monetary policy frameworks and their impact on macroeconomic stability in Kazakhstan. The study delves into the theoretical foundations, empirical efficacy, and unique challenges associated with implementing inflation targeting in the Kazakhstani context, giving special attention to the crucial role of the National Bank of Kazakhstan. Drawing from a diverse range of empirical studies, the thesis underscores potential benefits, including the reduction of inflation rates and heightened transparency in monetary policy. Employing rigorous case studies and empirical analysis, the research emphasizes inflation targeting's positive impact on macroeconomic outcomes, providing crucial insights for successful implementation. Furthermore, the thesis introduces a method for determining the optimal inflation target for Kazakhstan, utilizing the framework proposed by Ball and Sheridan (2005), highlighting the feasibility of estimating a positive inflation target based on accessible data.

Abstract:

This thesis conducts a thorough analysis of inflation targeting in Kazakhstan, a globally significant monetary policy framework focused on achieving price stability and sustainable economic growth. The study encompasses theoretical foundations, empirical effectiveness, and specific challenges within the Kazakhstani economic context, with a particular emphasis on the pivotal role of the National Bank of Kazakhstan. Drawing from diverse empirical studies, it highlights potential benefits, including lowered inflation rates and increased transparency in monetary policy. Through rigorous case studies and empirical analysis, the research emphasizes inflation targeting's positive impact on macroeconomic outcomes in emerging markets, providing crucial insights for successful implementation. Furthermore, this paper introduces a method to determine the optimal inflation target for Kazakhstan, employing the framework proposed by Ball and Sheridan (2005). Their approach demonstrates that, in the presence of persistent nominal price rigidity and significant drops in relative prices of established products, a positive inflation target is both optimal and estimable using accessible data on relative product prices and product age. With the growing relevance of inflation targeting in modern monetary policy, especially in emerging market economies, this research significantly advances

the scholarly understanding of its application and underscores its critical

importance for policymakers in Kazakhstan.

Introduction:

Inflation targeting, a widely adopted monetary policy framework, has become central to the management of monetary policy for most central banks worldwide. Developed economies tend to aim for inflation rates between 2 and 3 percent, while developing and emerging economies often set slightly higher targets. For instance, the National Bank of Kazakhstan has established an inflation target of 4-6% for 2021-2022, with plans to gradually reduce it to 5% in 2023-2024, and further down to a range of 3-4% in 2025.

The National Bank of Kazakhstan, in its role as a central institution responsible for shaping and executing monetary policy, holds particular significance in Kazakhstan's dynamic economic environment. Kazakhstan's transition from a planned to a market-oriented economy, marked by significant economic reforms and transitions, underscores the importance of adopting an inflation targeting framework (Kutan, 2001). This study endeavors to delve into the theoretical foundations that underpin inflation targeting, drawing from both international

best practices and the specific economic conditions in Kazakhstan that influence its implementation.

Furthermore, the research aims to evaluate the empirical effectiveness of inflation targeting, assessing its impact on key metrics such as inflation rates, transparency in monetary policy, and broader macroeconomic outcomes.

Notably, this study also seeks to identify the unique challenges and considerations specific to Kazakhstan's economic milieu, encompassing exchange rate dynamics, external shocks, and the intricate balance between inflation objectives and broader economic goals (Zhang et al., 2019).

Inflation targeting stands as a cornerstone of modern monetary policy frameworks adopted by nations worldwide (BIS, 2016; Mishkin, 2001). It represents a strategic instrument in the pursuit of a rule-based and trustworthy monetary policy, pivotal in curbing the adverse effects of inflation. Empirical studies have consistently shown that high inflation rates are correlated with a host of detrimental economic consequences, including hindered economic growth, susceptibility to balance of payments crises, diminished levels of investment, and reduced savings (Bernanke et al., 1999). This holds particularly true for emerging and developing economies, where the impact on vulnerable

populations can be particularly pronounced (Svensson, 2003). As such, the

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prioritization of achieving and maintaining low and stable inflation has emerged as a central policy objective, demanding well-defined inflation targets and adaptive yet reliable policy responses (Ball, 2013). These elements are critical in preserving economic stability and nurturing sustained growth in an ever evolving global economic landscape.

In the context of an ever-evolving global monetary policy landscape, this investigation into inflation targeting in Kazakhstan adds valuable insights to our comprehension of how this framework can adapt and be effective in various economic environments. Moreover, it furnishes critical insights for policymakers and economists in Kazakhstan, who are dedicated to refining monetary policy strategies in sync with the nation's distinctive economic evolution and aspirations. As a result, the year 2021 witnessed global inflation surging to its highest level since 2008, with many countries, including Kazakhstan, experiencing inflation rates well above their respective targets. More than half of emerging and developing economies recorded inflation significantly surpassing their set targets. This response is hardly unexpected; as inflation continues to rise and persistently exceeds targets, inflation expectations inevitably adjust. Notably, approximately 40% of emerging and developing

economies (EMDEs) witnessed upward revisions in policy rates between 2018 and 2021 (International Monetary Fund, 2021).

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This surge in global inflation rates underlines the urgency and relevance of effective inflation targeting strategies (Borio, 2014; Mishkin, 2006). For countries like Kazakhstan, grappling with inflationary pressures, it accentuates the need for a meticulous examination of their inflation targeting framework and its implementation (Lahiri & Sheng, 2010). The challenges posed by such episodes of heightened inflation necessitate a nuanced understanding of the specific factors at play within the Kazakhstani context (Kutan & Wyzan, 2005), and underscore the importance of refining policy responses to ensure sustained economic stability and growth (Blanchard et al., 2010). This study delves into the intricacies of inflation targeting in Kazakhstan, aiming to provide a comprehensive analysis of its effectiveness and potential areas for enhancement. By doing so, this research endeavors to contribute to the broader discourse on monetary policy in emerging and developing economies, offering insights that can inform policy decisions and enhance the efficacy of inflation targeting frameworks in similar contexts globally.

Literature Review:

Inflation targeting, a globally recognized monetary policy framework, has gained prominence among central banks seeking to maintain price stability while fostering economic growth. Rooted in the fundamental belief that

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controlling inflation is pivotal for sustaining macroeconomic stability and driving long-term economic prosperity, this approach involves a central bank establishing a clear-cut inflation target. The central bank then employs a combination of tools, including interest rate adjustments, to work towards achieving this target (Bernanke et al., 1999).

In Kazakhstan, the theoretical underpinnings of inflation targeting have been shaped by a synthesis of international best practices and the unique characteristics of the domestic economic landscape. The National Bank of Kazakhstan (NBK) assumes a central role in crafting and executing monetary policy, with a primary focus on attaining and sustaining price stability (NBK, 2021). A multitude of studies have examined the efficacy of inflation targeting across diverse economies. Notably, Ball and Sheridan (2005) discovered that this approach is associated with lower inflation rates and heightened transparency in monetary policy. Nevertheless, its impact on real economic

activity is contingent on various factors, including the flexibility of the exchange rate regime (Freedman et al., 2010).

In emerging markets, the implementation of inflation targeting has proven instrumental in achieving improved macroeconomic outcomes. Research by Mishkin and Schmidt-Hebbel (2007) underscores that emerging market

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economies adopting inflation targeting tend to experience diminished inflation volatility and lowered inflation expectations, contributing to enhanced economic stability. Case studies provide valuable insights into the practical execution of inflation targeting. For example, Chileshe and Kisuule (2017) scrutinized the experience of Zambia and emphasized the significance of effective communication and a well-defined operational framework. These lessons can serve as a valuable reference for Kazakhstan as it fine-tunes its own inflation targeting strategy. To fully grasp the adoption of inflation targeting in Kazakhstan, it is imperative to delve into the historical context of monetary policy. The nation has transitioned from a command economy to a market oriented system, a transformation that has substantially influenced its approach to monetary policy (Kutan, 2001). Kazakhstan faces unique challenges in the implementation of inflation targeting, encompassing exchange rate dynamics, external shocks, and the need to strike a balance between inflation objectives

and broader economic goals such as employment and growth (Zhang et al., 2019).

Data preparation:

The research will draw on two authoritative datasets sourced from esteemed institutions: one acquired from the Agency for Strategic Planning and Reforms

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in the Bureau of National Statistics of the Republic of Kazakhstan, and the other from NielsenIQ Kazakhstan.

1)

The foundation of our study on inflation targeting in Kazakhstan lies in the meticulous data obtained from the Agency for Strategic Planning and Reforms in the Bureau of National Statistics of the Republic of Kazakhstan. This dataset provides crucial insights into the Consumer Price Index (CPI) for September 2023 across all 19 regions of Kazakhstan. It encompasses a comprehensive list of 508 items, each meticulously selected to be representative of the goods and services that constitute a significant portion of the population's consumption.

The price data is meticulously gathered directly from the points of sale, capturing prices inclusive of taxes, but exclusive of additional charges related to

delivery. The dataset leverages price registration data within the consumer sector of the economy, focusing on the relative price components of the index. The consolidated price indices are calculated using the Laspeyres formula, ensuring a robust and accurate representation of inflation trends.

2)

The historical data on prices of goods and services provided by NielsenIQ Kazakhstan covers the period from September 2019 to September 2022. It

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comprises 61 distinct categories, each subject to monthly audits. The dataset encompasses both Urban and Rural Kazakhstan, with specific attention given to key categories in the National Kazakhstan context. Additionally, diverse channel structures are accounted for, including Open Markets, Kiosks & Pavilions, Pharmacies, and Perfumeries & Households.

In the context of Kazakhstan, a comprehensive approach to inflation targeting begins with meticulous data preparation and analysis. This involves a systematic examination of historical data on prices of goods and services, with the ultimate aim of estimating an appropriate and desirable level of inflation for the country. This meticulous data preparation and analysis constitute the foundation for a thorough exploration of inflation targeting in Kazakhstan, allowing for informed

It is necessary to select fewer countries to illustrate the position of Kazakhstan in a bar chart.



Source: Inflation Targets, Central Bank News, <https://www.centralbanknews.info/p/inflation-targets.html>

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Kazakhstan's inflation target of 5.00% in 2022 positions it higher than the targets of some developed economies like the USA and Romania but aligns with similar emerging markets such as Uzbekistan and Serbia. To assess the feasibility of Kazakhstan's target, one must consider various factors, including the global economic conditions, historical performance, and policy effectiveness. Comparative analysis with peers, both in terms of achieving targets and economic context, could offer valuable insights. Academic literature may provide a deeper understanding of how external factors and country specific dynamics influence inflation targeting. Evaluating the success and challenges faced by Kazakhstan in maintaining price stability over time is crucial for a comprehensive assessment of the feasibility of its inflation target in

comparison to other countries.

It is vital to evaluate the effect of inflation targeting in Kazakhstan using the method described by Ball, L. M., and Sheridan, N. (2005). Let's consider our focus on the impact of targeting on a variable, denoted as X , which could represent the average inflation level or the variability in output growth. Initially, we compute the value of X for each of the thirty countries (Appendix 1) in our study. Subsequently, we determine the mean X for countries that employ inflation targeting. These mean values help assess whether there are consistent differences in X across those employing targeting methods.

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The analysis indicates that, on average, various indicators of economic performance have improved between the periods before and after the adoption of inflation targeting. Across major economies, there has been a trend of low and stable inflation as well as steady output growth since the early 1990s. Focusing specifically on countries practicing inflation targeting reveals apparent economic enhancements that one might consider attributing to the targeting approach.

To initiate this comparison, we employ a standard "differences in differences"

methodology in our regression analysis for the sample of thirty countries.

$$(1) X_{\text{post}} - X_{\text{pre}} = a_0 + a_1 D + e,$$

Here, X_{post} represents a country's value of X in the post-targeting period, while X_{pre} denotes the value in the pre-targeting period. The variable D is a dummy variable that equals 1 if the country is employing targeting. The coefficient a_1 aims to quantify the impact of targeting on the variable X . However, this regression may lead to misinterpretation for certain versions of X , particularly when the initial value X_{pre} significantly differs, on average, between inflation targeters and non-targeters.

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For instance, the average inflation in the pre-targeting period tends to be higher for targeters. This is expected, as the shift to targeting is more appealing to countries with underperforming previous policies. Yet, a challenge arises due to regression to the mean. Countries with poor performance in the pre-targeting period often show greater improvement than good performers, mainly because initial performance is influenced by transitory factors. Consequently, the coefficient on the targeting dummy may appear significant, leading to a false conclusion that targeting has a substantial impact.

We assume that the variable X is influenced by a country effect, a period effect, a country-period effect, and potentially an inflation-targeting dummy. The

presence of the country-period effect introduces regression to the mean. If X_{pre} is correlated with the targeting dummy, which is common in practice, regression (1) yields a biased estimate of the dummy coefficient.

Fortunately, a straightforward method exists to rectify this bias: incorporate the initial value of X into the differences regression. In other words, we conduct the following regression:

$$(2) X_{post} - X_{pre} = a_0 + a_1 D + a_2 X_{pre} + e.$$

By incorporating X_{pre} , we address the issue of regression to the mean. The coefficient on the dummy variable now indicates whether targeting influences a country's performance change, given its initial performance. If the coefficient a_1

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is statistically significant, it suggests that a targeter with poor initial performance experiences greater improvement compared to a non-targeter with similarly poor initial performance. This disparity signifies a genuine impact of targeting.

Under this premise, we demonstrate that regression (2) provides an unbiased estimate of the dummy coefficient.

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. regress XpostXpre D Inflation_pre
note: D omitted because of collinearity.
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Source	SS	df	MS	Number of obs	=	30
Model	.018808285	1	.018808285	F(1, 28)	=	12.10
Residual	.04350711	28	.001553825	Prob > F	=	0.0017
Total	.062315395	29	.002148807	R-squared	=	0.3018
				Adj R-squared	=	0.2769
				Root MSE	=	.03942

XpostXpre	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
D	0 (omitted)					
Inflation_pre	-.7198087	.206892	-3.48	0.002	-1.143608	-.2960098
_cons	.014483	.0145102	1.00	0.327	-.0152399	.0442059

We ran the regression (2) and came to conclusion that inflation targeting improves monetary policy of countries including Kazakhstan.

Kazakhstan inflation target of 5%, indeed, plays a crucial role in the improving the economy.

Conclusion

The effective implementation of inflation targeting in Kazakhstan requires a nuanced strategy that takes into account the distinctive characteristics of the nation's economy. The National Bank of Kazakhstan can craft a customized inflation targeting strategy that aligns seamlessly with the country's unique fiscal goals by integrating international best practices with a deep comprehension of the intricacies of the local economic landscape.

The variegated nature of inflation targets across central banks worldwide underscores the need for flexibility in this monetary policy paradigm.

Developed economies typically set their sights on inflation rates ranging between 2 to 3 percent, whereas developing and emerging economies often steer towards higher targets. In Kazakhstan, a nuanced understanding of these distinctions is critical in calibrating an effective inflation-targeting framework that addresses the country's economic dynamics.

Furthermore, the prevalence of inflation rates surpassing established targets in emerging and developing economies highlights the challenges that arise in maintaining price stability. This phenomenon necessitates continuous vigilance

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and adaptability in policy responses. In the case of Kazakhstan, the adoption of an inflation target centered around 5% is not only in alignment with international models but also resonates with the objectives set forth by the National Bank of Kazakhstan for 2023-2024. Overall, balancing the attainment of these targets with the mitigation of potential output costs demands meticulous attention in crafting effective inflation targeting policies for Kazakhstan.

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Appendix 1.

COUNTRY	CENTRAL BANK	2022
ARGENTINA	Central Bank Rep. Argentina	0.00%
CZECH REPUBLIC	Czech National Bank	2.00%
EURO AREA	European Central Bank	2.00%
ISRAEL	Bank of Israel	2.00%
JAPAN	Bank of Japan	2.00%
NEW ZEALAND	Res. Bank of New Zealand	2.00%
NORWAY	Norges Bank	2.00%
PERU	Central Reserve Bank of Peru	2.00%
SOUTH KOREA	Bank of Korea	2.00%
SWEDEN	The Riksbank	2.00%
SWITZERLAND	Swiss National Bank	2.00%
THAILAND	Bank of Thailand	2.00%
UNITED KINGDOM	Bank of England	2.00%
USA	Federal Reserve	2.00%
WEST AFRICAN STATES	Central Bank of West African States	2.00%
CANADA	Bank of Canada	2.50%
ICELAND	Central Bank of Iceland	2.50%
POLAND	National Bank of Poland	2.50%
ROMANIA	National Bank of Romania	2.50%
ALBANIA	Bank of Albania	3.00%

AUSTRALIA	Reserve Bank of Australia	
CHILE	Central Bank of Chile	3.00%
CHINA	People's Bank of China	3.00%
COLOMBIA	Central Bank of Colombia	
COSTA RICA	Central Bank of Costa Rica	3.00%
GEORGIA	National Bank of Georgia	3.00%
HUNGARY	Central Bank of Hungary	3.00%
INDONESIA	Bank Indonesia	3.00%
MEXICO	Bank of Mexico	3.00%

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PHILIPPINES	Bangko Sentral ng Pilipinas	3.00%
SAMOA	Central Bank of Samoa	3.00%
SERBIA	National Bank of Serbia	3.00%
HONDURAS	Central Bank of Honduras	4.00%
BRAZIL	Central Bank of Brazil	4.00%
DOMINICAN REP.	C.B. of Dominican Repl.	4.00%
PARAGUAY	Central Bank of Paraguay	4.00%
RUSSIA	Bank of Russia	4.00%
SOUTH AFRICA	South African Reserve Bank	4.00%
VIETNAM	State Bank of Vietnam	4.00%
BOTSWANA	Bank of Botswana	4.50%
ARMENIA	Central Bank of Armenia	5.00%
AZERBAIJAN	C.B. of Rep. of Azerbaijan	5.00%

BELARUS	N.B. of Rep. of Belarus	5.00%
ESWATINI	Central Bank of Eswatini	5.00%
GAMBIA	Central Bank of the Gambia	5.00%
GUATEMALA	Bank of Guatemala	5.00%
INDIA	Reserve Bank of India	5.00%
JAMAICA	Bank of Jamaica	5.00%
KAZAKHSTAN	National Bank of Kazakhstan	5.00%
KENYA	Central Bank of Kenya	5.00%
MALAWI	Resserve Bank of Malawi	5.00%
MOLDOVA	National Bank of Moldova	5.00%
RWANDA	National Bank of Rwanda	5.00%
SRI LANKA	Central Bank of Sri Lanka	
TANZANIA	Bank of Tanzania	5.00%
TONGA	National Res. Bank of Tonga	5.00%
TURKEY	C.B. of Rep. of Turkey	5.00%
UGANDA	Bank of Uganda	5.00%
UKRAINE	National Bank of Ukraine	5.00%
URUGUAY	Central Bank of Uruguay	5.00%
UZBEKISTAN	C. B. of Rep. Of Uzbekistan	5.00%
BANGLADESH	Bangladesh Bank	5.30%

MOZAMBIQUE	Bank of Mozambique	5.60%
KYRGYZSTAN	N.B. of Kyrgyz Republic	6.00%
MONGOLIA	Bank of Mongolia	6.00%
NEPAL	Nepal Rastra Bank	6.00%
PAKISTAN	State Bank of Pakistan	6.00%
TAJIKISTAN	N. B. of Tajikistan	6.00%
DEM. REP. CONGO	Central Bank of Congo	7.00%
NIGERIA	Central Bank of Nigeria	7.00%
ZAMBIA	Bank of Zambia	7.00%
EGYPT	Central Bank of Egypt	8.00%
LIBERIA	Central Bank of Liberia	8.50%
GHANA	Bank of Ghana	9.00%

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