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ANALYSIS OF MACROECONOMIC INDICATORS OF UZBEKISTAN, THE IMPORTANCE OF MACROECONOMIC STABILITY

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Abstract

The article explores various perspectives on the concept of macroeconomic policy, attempting to define it within the framework of strategic activities implemented by the state. In our view, the primary objectives of macroeconomic policy include controlling unemployment and inflation, balancing macroeconomic indicators, preventing economic crises, and ensuring the stable and efficient functioning of the economy. Efforts have been made to analyze the impact of state-implemented measures on improving macroeconomic indicators and stabilizing the economy, as well as to examine the measures aimed at promoting stability.

Keywords: Macroeconomic policy, unemployment and inflation, macroeconomic indicators, economic crises, stable economy, state measures, economic stability, strategic activities, balanced development, efficient management.

Introduction

Macroeconomic stability is a cornerstone of sustainable economic growth and development. It encompasses a range of factors, including stable inflation rates, low unemployment, balanced trade, and consistent economic growth. For Uzbekistan, a country undergoing significant economic reforms and transitioning towards a market-oriented economy, maintaining macroeconomic stability is crucial. This introduction sets the stage for a comprehensive analysis of Uzbekistan's macroeconomic indicators, the importance of stability, and the measures needed to address existing challenges. By examining key aspects such as inflation, unemployment, trade balance, and foreign investment, we aim to provide insights into how Uzbekistan can achieve long-term economic resilience and prosperity.

The analysis of macroeconomic indicators is pivotal in understanding the economic health and trajectory of a nation. For Uzbekistan, a country undergoing profound economic reforms and integration into the global economy, key indicators such as GDP growth, inflation, unemployment, trade balance, and foreign direct investment (FDI) provide critical insights into its economic performance and stability. Over recent years, Uzbekistan has demonstrated robust GDP growth, averaging around 5-6% annually, driven by structural reforms, increased

investment, and enhanced trade relations[1]. However, challenges such as elevated inflation rates, hovering near 10-12%, and persistent trade deficits underscore the complexities of maintaining macroeconomic equilibrium. Additionally, while unemployment rates appear relatively low, underemployment and informal labor remain pressing concerns, particularly in rural areas[2].

The exchange rate dynamics, marked by the depreciation of the Uzbekistan, further complicate the economic landscape, impacting trade competitiveness and inflationary pressures. Meanwhile, FDI inflows have surged, reflecting growing investor confidence, yet the economy's reliance on commodity exports exposes it to external shocks. This analysis delves into these significant macroeconomic indicators, examining their interplay and implications for Uzbekistan's economic stability and growth. By identifying strengths and vulnerabilities, this study aims to provide a comprehensive understanding of the factors shaping Uzbekistan's economic trajectory and to offer actionable insights for policymakers striving to achieve sustainable development and resilience in an increasingly interconnected global economy[3].

Economic stability forms the bedrock of sustainable development, with inflation and unemployment acting as critical barometers of a country's macroeconomic well-being. For Uzbekistan, a nation in the midst of profound economic transformation and increasing integration into the global economy, the significance of macroeconomic stability transcends mere economic metrics. It plays a pivotal role in shaping broader societal dynamics, including social cohesion, poverty reduction, and the mitigation of income inequality. As Uzbekistan navigates its reform agenda, ensuring macroeconomic stability becomes essential not only for fostering economic growth but also for promoting equitable and inclusive development.

In contrast, poverty and income inequality underscore systemic disparities that undermine equitable resource distribution and social justice. Although these concepts are distinct, they are intricately intertwined, with macroeconomic stability acting as a critical determinant of their outcomes. Elevated inflation erodes purchasing power, disproportionately affecting lower-income groups and widening income gaps. Likewise, unemployment undermines income stability, deepens poverty, and weakens the social fabric by disrupting communal ties. For Uzbekistan, which is navigating a path of economic modernization and global integration, comprehending these interconnections is vital to ensuring balanced and inclusive development.

This study seeks to examine the multifaceted effects of inflation and unemployment on social poverty, and income inequality within the context of Uzbekistan. By employing advanced econometric models and analyzing recent empirical data, the research aims to elucidate the complex relationship between macroeconomic stability and social outcomes. The findings will provide a robust foundation for evidence-based policy recommendations, offering actionable strategies to mitigate these challenges and promote sustainable development.

Literature Review

Macroeconomic indicators are key components to get macroeconomic stability and economic development. Many scholars have paid attention to this field so far. For example, Konstantin Kurpayanidi, Alisher abdullayev and Shakhrizoda Mukhsinova have discussed "Analysis of the macroeconomic policy of the Republic of Uzbekistan" [4], Muhammad Eid Balbaa also have conducted research on this field "Macroeconomic stability and social dynamics: analyzing

inflation, unemployment, and their impact on cohesion, poverty, and inequality in Uzbekistan"[5], these scholars Azizjon Qodirov, Dilfuza Urakova, Mirzoxid Amonov, Manzura Masharipova, Ergash Ibadullaev, Fozil Xolmurotov, Feruz Matkarimov have paid attention touristic importance of macroeconomic indicators for the country in their "The Dynamics of Tourism, Economic Growth, and CO2 Emissions in Uzbekistan: An ARDL Approach"[6] article.

Research Methodology

In this article we have tries to use different methods to get reliable results on this field, we have used information of Uzbekistan's static committee to make econometric models. Regression model, correlation model, ARIMA model have been used during the research work.

Results and Discussion

Macroeconomic indicators are fundamental metrics that reflect a nation's strength and position on the global stage. In recent years, the global focus has shifted not only toward improving these indicators but also toward increasing the production of environmentally friendly goods, raising the share of clean and renewable energy sources in the total energy mix, and enhancing their contribution to Gross Domestic Product (GDP) and Gross National Product (GNP). However, as our country is among the developing nations, our primary goal is to strengthen our global standing. Consequently, significant emphasis is being placed on enhancing key macroeconomic indicators, such as increasing GDP, reducing or stabilizing inflation rates, lowering unemployment, boosting export-import volumes, and accelerating international integration processes.

In this article, we aim to conduct an econometric analysis of the factors influencing the growth of macroeconomic indicators. By examining these factors, we seek to provide insights into how Uzbekistan can improve its economic performance and strengthen its position in the global economy. In the following table we can see the main macroeconomic indicators of Uzbekistan and their changes year by year.

Table 1. Main macroeconomic indicators of Uzbekistan from 2014 till 2014 [7]

Indicators	Measuremnt	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
GDP	Growth reat, %	106,9	107,2	105,9	104,4	105,5	106,0	102,0	107,4	105,7	106,0	106,5
	deflyator indeksi,	114,0	110,5	108,9	119,1	126,9	117,8	111,4	113,5	114,9	112,2	113,3
Inflation rate	%	6,1	5,6	5,7	14,4	14,3	15,2	11,1	10,0	12,3	8,8	9,8
Industrial products	Billion soums	84 011,6	97 598,2	111 869,4	148 816,0	235 340,7	322 535,8	368 740,2	456 056,1	553 265,0	655 821,9	885 818,9
	Growth reat, %	104,5	105,3	105,4	105,2	110,8	105,0	100,9	108,8	105,3	106,0	106,8
Consumer goods	Billion soums	33 868,5	42 085,5	48 253,8	59 690,4	83 512,6	110 321,0	129 348,6	155 159,1	145 011,7	189 009,7	x
	Growth reat, %	109,4	109,7	106,0	106,7	114,7	110,3	105,7	113,9	120,7	107,3	
	Billion soums	85 101,7	103 302,0	119 726,7	154 369,4	195 095,6	224 265,9	261 892,2	317 027,6	362 898,0	426 264,0	467 041,5

Agriculture, forestry and fisheries	Growth reat, %	106,1	106,1	106,1	101,2	100,3	103,1	102,9	104,0	103,6	104,1	103,1
Fixed investment	Billion soums	37 646,2	44 810,4	51 232,0	72 155,2	124 231,3	195 927,3	210 195,1	239 552,6	266 240,0	352 064,1	493 652,0
	Growth reat, %	109,8	109,4	104,1	119,4	129,9	138,1	95,6	102,9	100,2	122,1	127,6
Construction	Billion soums	20 060,4	25 423,1	29 413,9	34 698,0	51 129,3	71 156,5	88 130,3	107 492,7	130 790,9	149 864,1	233 832,9
	Growth reat, %	117,6	118,8	107,2	106,0	114,3	122,9	109,5	106,8	106,6	106,4	108,8
Retail	Billion soums	51 033,3	63 027,1	81 278,3	95 952,6	113 971,7	141 385,1	168 649,0	216 694,6	270 687,2	326 160,1	403 431,8
	Growth reat, %	114,0	116,0	119,3	101,3	100,0	108,6	105,0	117,0	110,8	109,1	109,9
Service	Billion soums	68 032,1	78 530,4	97 050,0	118 811,0	150 889,8	193 697,8	219 978,5	284 388,1	366 891,0	470 286,5	818 428,3
	Growth reat, %	114,2	113,4	114,7	110,7	108,9	113,2	103,0	119,5	116,3	113,7	112,9
Foreign trade	US dollars	27 530,0	24 924,2	24 232,2	26 566,1	33 429,9	41 751,0	36 256,1	42 170,5	50 500,3	62 567,4	65 934,0
	Growth reat, %	97,4	90,5	97,2	109,6	125,8	124,9	86,8	116,3	119,8	123,9	103,8
Eksport	US dollars	13 545,7	12 507,6	12 094,6	12 553,7	13 990,7	17 458,7	15 102,3	16 662,8	19 732,6	24 426,2	26 948,2
	Growth reat, %	94,6	92,3	96,7	103,8	111,4	124,8	86,5	110,3	118,4	123,8	108,4
Import	US dollars	13 984,3	12 416,6	12 137,6	14 012,4	19 439,2	24 292,3	21 153,8	25 507,7	30 767,8	38 141,2	38 985,8
	Growth reat, %	100,3	88,8	97,8	115,4	138,7	125,0	87,1	120,6	120,6	124,0	100,8
Balance	US dollars	-438,6	91,0	-43,0	-1 458,7	-5 448,5	-6 833,6	-6 051,5	-8 844,9	-11 035,2	-13 715,0	-12 037,6

Source: Developed by the author using the data of stat.uz portal

From the above table it is obvious that in the pandemic time macroeconomic indicator have been decreased significantly, but in the last three years we have stable increase in GDP rate. The GDP growth rate fluctuates over the years, with a noticeable dip in 2020 (102.0%) and a subsequent recovery in the following years.

Inflation peaks in 2017 (14.4%) and remains relatively high before stabilizing in the following years. There is a significant increase in the value of industrial products over the years, indicating industrial growth. The production of consumer goods shows consistent growth, particularly notable in the latter years. The value of the Agriculture, Forestry, and Fisheries sectors also sees growth, contributing to overall economic stability. Investment shows significant growth, especially in the later years, indicating increased capital formation. The value of construction projects increases steadily, reflecting growth in infrastructure development. Retail sales have increased from 51,033.3 billion soums in 2014 to 403,431.8 billion soums in 2024, with steady growth rates, particularly strong in 2016 (119.3%) and 2021 (117.0%).

The service sector has grown from 68,032.1 billion soums in 2014 to 818,428.3 billion soums in 2024, with growth rates generally above 110%, indicating robust expansion. Total foreign trade has increased from 27,530.0 million in 2014 to27,530.0millionin2014to65,934.0 million in 2024. Exports and imports have both grown, with exports rising from 13,545.7 million to13,545.7milliontо26,948.2 million and imports from 13,984.3 million to13,984.3milliontо38,985.8 million. The trade balance has generally been negative, indicating more imports than exports. Exports have grown from 13,545.7 million in 2014

to13,545.7millionin2014to26,948.2 million in 2024, with growth rates peaking at 124.8% in 2019. Imports have increased from 13,984.3 million in 2014 to13,984.3 millionin2 014to38,985.8 million in 2024, with significant growth rates, particularly in 2018 (138.7%) and 2023 (124.0%). The trade balance has consistently been negative, indicating a trade deficit. The deficit has fluctuated, with the largest deficit in 2023 at $715.0 million.

The economy experiences consistent growth across various sectors, despite fluctuations in certain indicators like inflation and GDP growth rate. There is a clear trend of increasing values in key sectors, suggesting an overall positive economic trajectory. The data provides a detailed look at how different sectors contribute to the economy's stability and growth over a decade.

The data illustrates a country with significant economic growth across various sectors, particularly in industry, construction, and services. However, challenges such as high inflation and a persistent trade deficit are evident. The growth in fixed investments and consumer goods indicates a robust domestic economy, while the increase in foreign trade suggests growing integration into the global market.

Now we have discussed some of the macroeconomic indicators and the factor's that can change them.

1. The level of import and the number of enterprises and organizations in Uzbekistan

Import rate also the crucial part of that can increase or decrease the GDP rate. The main reasons why import rate increases every is The number of enterprises and organizations in Uzbekistan. In the following table we can see the import level and the number of enterprises and organizations in Uzbekistan from 2014 till to 2023.

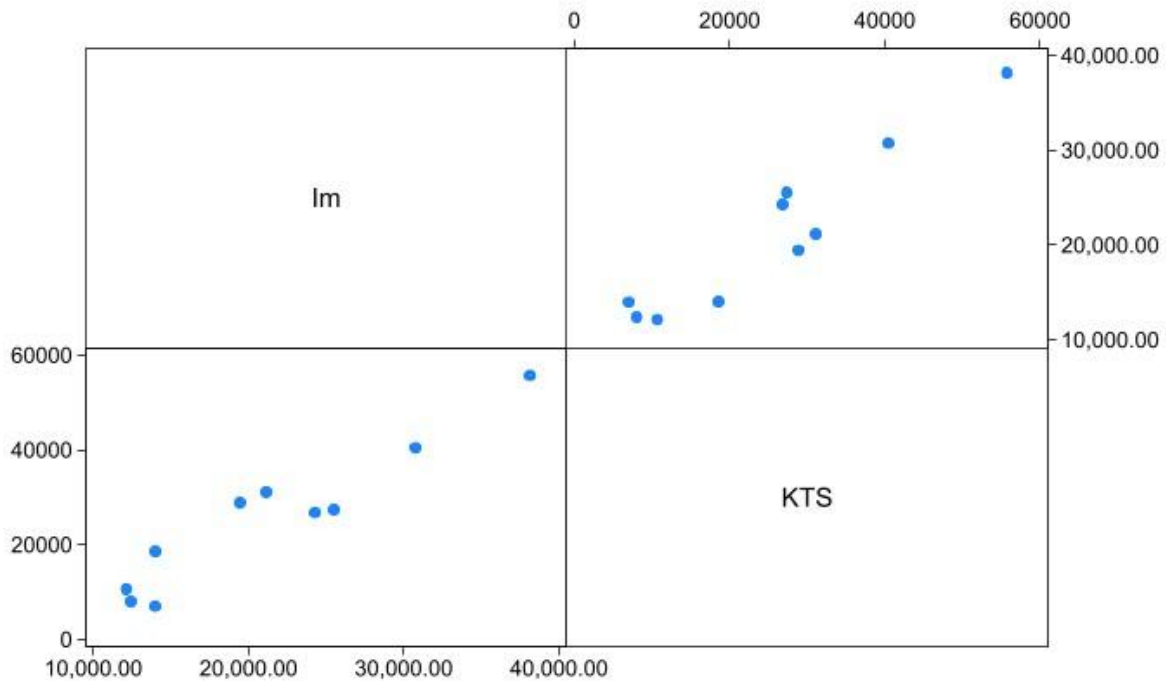
Table 2. the import level and the number of enterprises and organizations in Uzbekistan from 2014 till to 2023 [7]

Years	Import level	the number of enterprises and organizations
2014	13 984,30	7043
2015	12 416,60	8023,6
2016	12 137,60	10688,2
2017	14 012,40	18543,3
2018	19 439,20	28871,5
2019	24 292,30	26811,4
2020	21 153,80	31142,8
2021	25 507,70	27378,6
2022	30 767,80	40451,6
2023	38 141,20	55746,5

Source: Developed by the author according to researches [8]

This table shows a clear trend over the years, with both the import level and the number of enterprises and organizations generally increasing. Here's a brief summary of the key points the import level has increased steadily from 2014 to 2023. Significant jumps can be seen between certain years, such as from 2018 to 2019 and from 2022 to 2023. The number of enterprises and organizations has also seen a significant rise over the years. The most notable

increase is observed from 2022 to 2023. These trends may indicate economic growth and increased business activity over the years.



Graph 1. Graph matrix of Import and the number of enterprises and organizations

This scatter plot matrix is an effective tool for visualizing the relationships between different variables, making it easier to compare correlations and identify trends within the data. It is obvious from the graph matrix that Import and the number of enterprises and organizations has strong correlations.

We have conducted econometric analysis to know the importance of the number of enterprises and organizations in the import rate, and we have get these results.

Matrix of correlations

Variables	(1)	(2)
(1) Im	1.000	
(2) KTS	0.952	1.000

The strong positive correlation (0.952) between Im(investment) and KTS (the number of enterprises and organizations) implies that there is a significant relationship between the two variables. As import levels rise, the number of enterprises and organizations also rises, and vice versa. This can indicate economic growth and increased business activities.

Linear regression

Im	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
KTS	.539	.061	8.84	0	.398	.68	***
Constant	7456.462	1786.043	4.17	.003	3337.839	11575.085	***

Mean dependent var	21185.290	SD dependent var	8645.931
R-squared	0.907	Number of obs	10
F-test	78.219	Prob > F	0.000
Akaike crit. (AIC)	188.848	Bayesian crit. (BIC)	189.453

*** *p*<.01, ** *p*<.05, * *p*<.1

Based on the output from the regression analysis, here are the key findings:

ANOVA Table:

The Model explains a significant amount of variation in the data (R-squared = 0.9072), indicating that approximately 90.72% of the variation in the number of enterprises and organizations (KTS) can be explained by the import levels (Im).

The F-statistic (F(1, 8) = 78.22) with a p-value of 0.0000 suggests that the model is statistically significant

Coefficients Table:

The estimated coefficient for KTS (0.5390185) indicates that for every million-dollar increase in import levels, the number of enterprises and organizations increases by approximately 0.539 (or 539 when considering the scale of the data).

The constant term (_cons) is 7456.462, representing the baseline level of the number of enterprises and organizations when the import level is zero. Both coefficients are statistically significant (p-values of 0.000 for KTS and 0.003 for the constant term).

Interpretation:

The strong positive correlation and the significant regression model suggest that import levels have a substantial impact on the number of enterprises and organizations or vice versa. The relationship between these variables is positive, meaning that higher import levels are associated with a larger number of enterprises and organizations. The R-squared value of 0.9072 indicates a high degree of explanatory power, implying that import levels are a strong predictor of the number of enterprises and organizations. From these information, we can write linear regression model in this form.

$$\mathbf{Im = 7456.462 + 0.539*KTS}$$

Here; Im = import

KTS = the number of enterprises and organizations

From the above regression model we can conclude that in order to decrease import rate, we should increase the number of enterprises and organizations in Uzbekistan.

2. The effect of CO2 emissions rate to the investment

Foreign direct investment also one of the main macroeconomic indicators. In order to get more investment from foreigners we should have good air quality, less CO2 emissions rate and so on, so we have tries to analyze the relationship between foreign direct investment and CO2 emissions rate in Uzbekistan. In the following table we can see the rates of CO2 and foreign direct investment from 2014 till 2023.

Table 3. investment and CO2 emissions rate from 2023 till 2023

Years	Investment	CO2 emissions rate
2014	**37 646,20**	1162,1
2015	**44 810,40**	975,1
2016	**51 232,00**	1008,2
2017	**72 155,20**	853,5
2018	**124 231,30**	883,7
2019	**195 927,30**	952,8
2020	**210 195,10**	924,4
2021	**239 552,60**	908,7
2022	**266 240,00**	873,6
2023	**352 064,10**	763,2

Source: Developed by the author according to the researches

The data indicates that increased investments have been effective in reducing CO2 emissions over the years. This positive trend suggests that continued investments in environmentally friendly practices and technologies can further enhance environmental sustainability. So, in our country in order to get more foreign investment we should decrease the CO2 emissions rate or vice versa.

Matrix of correlations

Variables	(1)	(2)
(1) IN	1.000	
(2) CO2	-0.697	1.000

The correlation between IN(investment) and CO2 is -0.697, indicating a strong negative correlation. This suggests that as IN increases, CO2 tends to decrease. This aligns with our previous analysis, where we observed that as investment (IN) increased, CO2 emissions decreased. In the second side in order to get more investment we should decrease the CO2 emissions rate in Uzbekistan.

Linear regression

IN	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
CO2	-714.602	260.25	-2.75	.025	-1314.74	-114.464	**
Constant	824363.83	243593.01	3.38	.01	262637.33	1386090.3	***

Mean dependent var	159405.420	SD dependent var	109227.916
R-squared	0.485	Number of obs	10
F-test	7.540	Prob > F	0.025
Akaike crit. (AIC)	256.710	Bayesian crit. (BIC)	257.315

*** p<.01, ** p<.05, * p<.1

From the above regression table, we can make this linear regression model.

IN= 824363.83 -714.602 * CO2

Here: IN=Investment

CO2 = carbon dioxide rate in Uzbekistan

The linear regression table shows that p value is less than 0,05, this means that our model is true. We can change this regression model in this form. This regression model gives the information that:

a. In Uzbekistan, if the CO2 emissions rate decrease, this will leads us to get more foreign direct investments;
b. Investment will effect positively to the CO2 emissions rate in Uzbekistan, in other words, if foreign direct investment invested to the green economy, CO2 emissions rate will decrease.

The final result from this regression model, if investment increases, macroeconomic indicators also increases.

Conclusions and Recommendations

In our article we have paid attention in some prospects of the macroeconomic indicators in Uzbekistan, they are investment and import and export rate of the Uzbekistan's economy. According to the regression analysis, we have get these conclusions;

- From the first regression model we can conclude that in order to decrease import rate, we should increase the number of enterprises and organizations in Uzbekistan.
- In Uzbekistan, if the CO2 emissions rate decrease, this will leads us to get more foreign direct investments;
- Investment will effect positively to the CO2 emissions rate in Uzbekistan, in other words, if foreign direct investment invested to the green economy, CO2 emissions rate will decrease.

These are the key finding with reliable regression analysis in our article.

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