



KYRGYZ REPUBLIC

SELECTED ISSUES

March 2024

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January 19, 2024

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Approved By
**Middle East and
Central Asia
Department**

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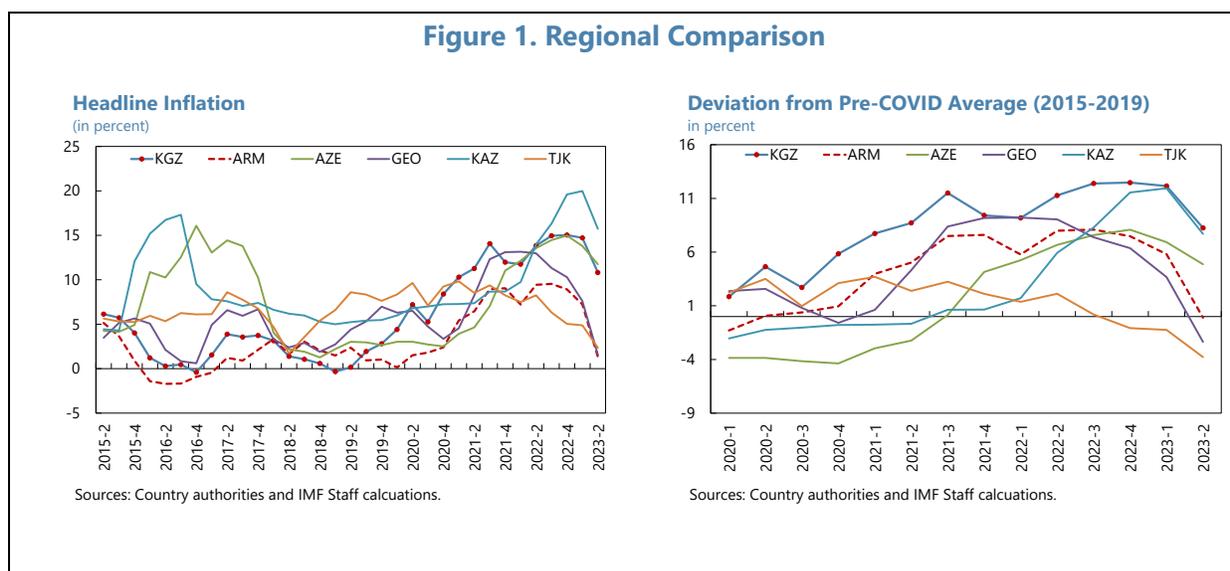
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INFLATION: DEVELOPMENTS AND DRIVERS¹

Utilizing an augmented Phillips Curve framework and a structural VAR approach, the study identifies domestic and external determinants of inflation in the Kyrgyz Republic. It introduces a comprehensive measure of inflation expectations, and finds that global food prices, the exchange rate, and domestic demand play significant roles in shaping the inflation dynamics. In general, excess liquidity and price controls tend to undermine the effectiveness of the interest rate channel of monetary policy transmission. Consequently, reducing excess liquidity and aligning it with policy interest rates would strengthen monetary policy transmission and central bank’s ability to manage inflation. Prudent fiscal and public wage policies would also lend support to the central bank.

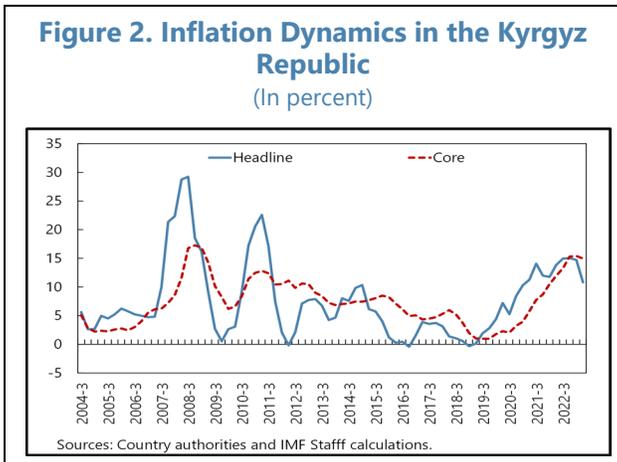
A. Introduction

1. The Kyrgyz Republic’s persistent inflation contrasts with regional trends. The country experienced a notable inflation surge in 2022, initially triggered by global food and energy prices during the COVID pandemic and subsequently exacerbated by Russia’s war in Ukraine. Inflation rose from about 6 percent in 2020 to 16.2 percent by February 2023, which represents a ten-year peak for the country and surpasses both the global average of 8.7 percent and the Caucasus and Central Asia (CCA) average of 13 percent for 2022 (Figure 1). While some countries in the region witnessed a moderation of inflation pressures from the second half of 2022, in the Kyrgyz Republic they only began receding from March 2023 with headline inflation reaching single digits in August. However, core inflation (excluding food and energy) has remained persistently in double digits.

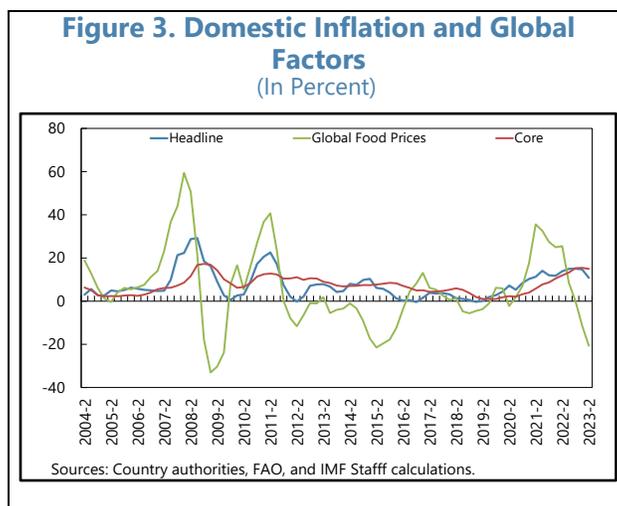


¹ Prepared by Nasir Rao with support by Anvar Muratkhonov and Nihal Haider.

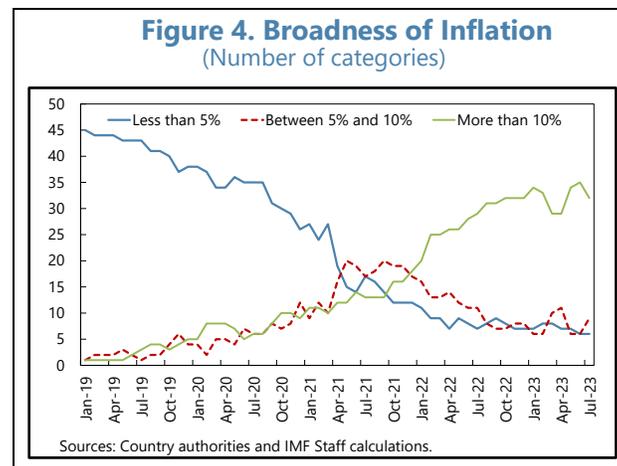
2. External shocks have historically caused inflation spikes in the Kyrgyz Republic. The first notable increase in inflation in last two decades occurred around the 2007-08 global food crisis. The second surge was witnessed in 2014, following the substantial depreciation of the Russian ruble. The most recent inflation spike occurred in the wake of the COVID pandemic and was further amplified by the war in Ukraine (Figure 2). In each of these episodes, there was a notable increase in global food and energy prices.



3. Inflation in the Kyrgyz Republic has been strongly correlated with global food and energy prices. This is because imports of these essential goods account for a significant share of the CPI basket. However, the recent episode of inflation has deviated from this established pattern. While the initial surge in inflation was once again prompted by the rise in global food prices, domestic inflation has shown resilience to their subsequent decline (Figure 3). This suggests the complexity of the current inflation dynamics and warrants a more granular analysis of country-specific drivers of inflation, including possible domestic demand pressures and policies. Indeed, since 2021, the contributions of non-food and services to headline inflation have become more prominent, suggesting increasing influence of domestic demand factors.

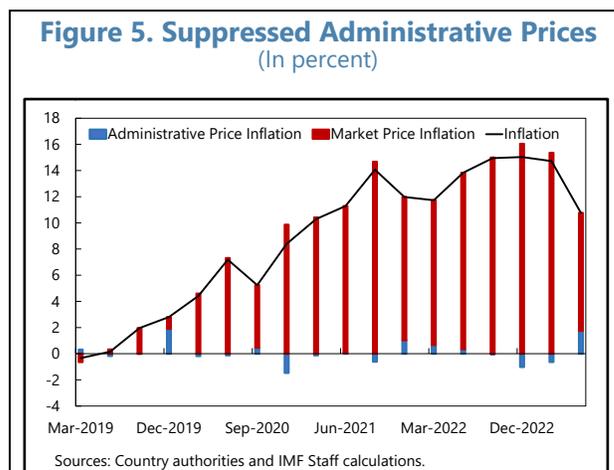


4. Inflation in the Kyrgyz Republic has become more broad-based than before. If in 2019, only 5 out of 47 CPI components witnessed annual inflation of over 10 percent, this number increased to 32 by August 2023. Concurrently, there has been a notable reduction in the number of CPI components with annual inflation of less than 5 percent, from 45 in 2019 to only 6 by August 2023, further underscoring the increasingly widespread nature of inflation in the country (Figure 4).



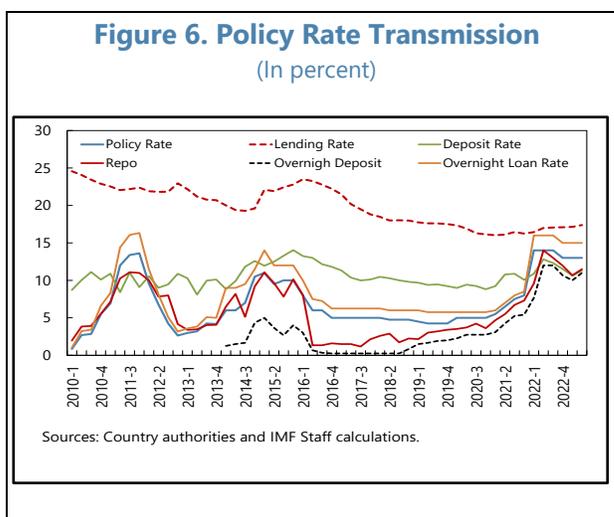
5. The Kyrgyz government periodically employs a range of policy measures to safeguard food security and limit price fluctuations for essential goods.

These include export bans, direct price regulations, and tax incentives on imports. In September 2023, the government earmarked 16 goods for the price regulation, should their prices escalate significantly. Concurrently, temporary export bans were placed on selected agricultural items. Similar measures were enacted in previous years—a six-month export ban on agricultural goods was instituted in March 2022, and a 12 percent import VAT was temporarily abolished on certain grain crops in May 2022. These interventions have resulted in administratively suppressed inflation for commodities subject to administrative price controls (Figure 5).



6. In 2014, the Kyrgyz Republic transitioned to an interest rate-based monetary policy framework.

Under the new framework, the policy rate is established by the Board of the central bank, unlike the previous practice where policy rates were dictated by the yields of central bank notes. The new framework improved the correlation between market rates and the policy rate. Since 2021, the central bank has duly increased the policy rate to bring inflation down. The introduction of the symmetric interest rate corridor earlier this year and the central bank’s successful de-dollarization have helped strengthening the transmission mechanism of monetary policy. As a result, the passthrough from the policy rate to interbank rates improved significantly (Figure 6).



A further passthrough to market rates, however, has been subdued by the marked influx of liquidity which was a product of the authorities’ decision to facilitate sales and export of domestically produced gold through the central bank. The latter has considerably complicated the conduct of monetary policy requiring significant sterilization operations and interventions in the foreign exchange market by the central bank to absorb a large part of this liquidity. Sterilization of this magnitude carries significant costs, but is essential to improve monetary policy. Recently, core inflation seems to pattern well with the amount of liquidity in the system.²

² For the purposes of this paper, liquidity is defined as the sum of short term NBKR notes, overnight deposits, and excess reserves.

B. Inflation in the Kyrgyz Republic: Model Estimates

7. Two complementary approaches are used in this paper to assess the drivers of inflation in the Kyrgyz Republic. First, the paper deploys an augmented Phillips curve framework for headline and core inflation separately, and probes determinants of inflation, such as inflation expectations, the output gap, the exchange rate dynamics, public wages, and global factors. The novelty of the approach is that it utilizes a more comprehensive measure of inflation expectations by blending adaptive and forward-looking expectations. It also incorporates global variables such as food and oil prices, and foreign CPI, after addressing potential endogeneity among them. The analysis reveals that global factors impact headline inflation stronger than domestic factors,³ but persistence of core inflation is closely associated with public wages.⁴ Using a structural VAR (SVAR), the paper further examines the role of domestic policies. It uncovers a misalignment between the central bank's policy rate and market liquidity, which needs to be addressed to improve the interest rate pass-through. The Annex I describes the methodologies, data sources and variables.

Augmentation Phillips Curve

8. The Phillips curve remains a foundational model for studying inflation drivers. The traditional Phillips curve links the output gap, lagged inflation, and inflation expectation. Recent studies (Lall and Zeng (2020)) indicate flattening of the Philips curve, implying a weaker relationship between the output gap and inflation, but these studies also point to the increased role of global factors such as commodity prices, exchange rate, and trade dynamics. Following the work by Gali and Gertler (1999), and others,⁵ this paper enhances the standard Phillips curve by integrating global and domestic factors, including wages. Two versions of the augmented Phillips curve are estimated to gauge the impact of these factors on Kyrgyz inflation.

9. The paper develops a new measure of inflation expectations, which is an integral component of the Phillips curve approach. The objective is to capture inflation expectations of both, households and firms, which tend to exhibit distinct patterns (Coiboin *et al.*, 2020). Unlike financial market participants, they seldom focus on a granular macroeconomic analysis, and form inflation expectations based on historical data and price movements rather than prospective economic indicators. Hence, they are influenced by inflation outcomes, media reports, and recent spending patterns (Kumar *et al.*, 2015; Carvalho *et al.*, 2019; and D'Acunto *et al.*, 2021). To comprehensively measure inflation expectations, this paper follows a conceptual framework by Hamilton *et al.*, (2016) combining recursive autoregressive four-quarter forecasts and the three-year-forward projections from the IMF's World Economic Outlook. The paper then adopts a Principal

³ This is in line with IMF 2022, Kamber *et al.*, (2020), Cohn *et al.* (2023), and Kamber and Wong (2020).

⁴ Consistent with ECB 2022.

⁵ Gali *et al.*, (2001), Gali and Monacelli (2005), Gali (2010), IMF (2022), Auer *et al.*, (2017), Boranova *et al.*, (2019), Alvarez *et al.*, (2022), Kamber *et al.*, (2020), and Binici *et al.*, (2022)

Component Analysis (PCA)⁶ to create an inflation index, merging past inflation and IMF forecasts with minimal loss of information.

10. The empirical analysis shows a strong positive relationship between headline inflation and inflation expectations (Annex I). This result holds for the Phillips curve models estimated in levels as well as in unit standard deviations with zero means, which allows comparison of relative contributions. The former yields a coefficient of 0.3 for inflation expectations and the latter suggests that relative contribution of inflation expectation exceeds 22 percent. These findings imply a high degree of inflation persistence.

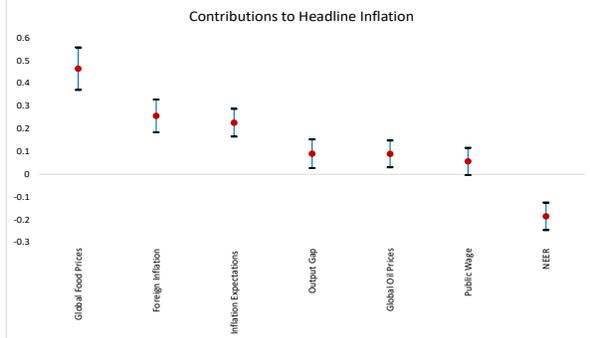
11. The relationship between the output gap and headline inflation is positive, but exhibits weak statistical significance. In the augmented version of the Phillips curve, the inclusion of foreign factors further diminishes this association. In contrast, average pass-through from exchange rate depreciation to inflation is estimated at 25 percent, which is consistent with the findings by Poghosyan (2020). Importantly, global food prices emerge as the primary inflation determinant, and a significant positive association was also found between domestic and foreign inflation. Global oil prices, on the other hand, show a much weaker relationship with inflation, possibly due to longer-term supply contracts with Russia. In terms of relative contributions to headline inflation, domestic variables including the output gap, inflation expectations, and wages have a lesser influence than foreign factors. Specifically, a unit increase in global food prices or foreign CPI corresponds to 0.62 and 0.34-point increases in headline inflation, respectively, compared to 0.30 and 0.12-points for inflation expectations and the output gap (Panel 1).

12. The findings for core inflation are similar to those for headline inflation. A strong positive correlation is observed between core inflation and inflation expectations with a coefficient over 0.5, pointing to an even higher degree of inflation persistence than for headline inflation. Contrary to headline inflation, however, domestic factors, especially inflation expectations and wages, have stronger impact on core inflation. Contributions of foreign factors to core inflation is comparatively subdued.

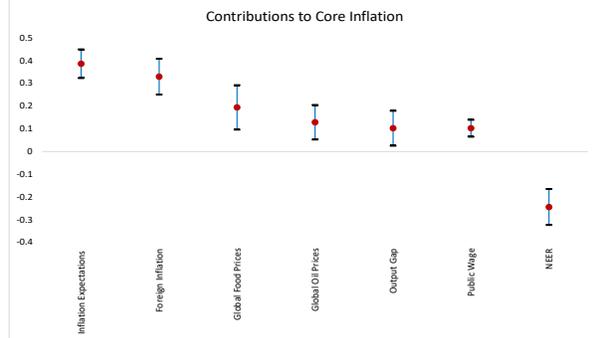
⁶ Following Jolliffe and Cadima (2016).

Figure 7. Augmented Phillips Curve—Determinants of Inflation

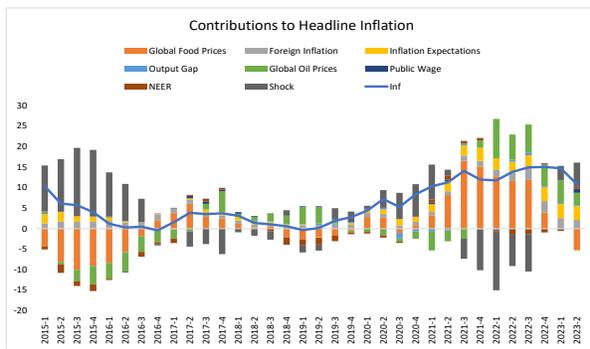
Foreign factors shaping the headline inflation...



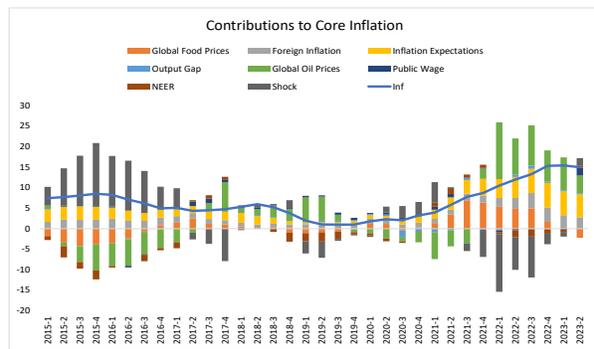
...but core inflation is more expectations-driven.



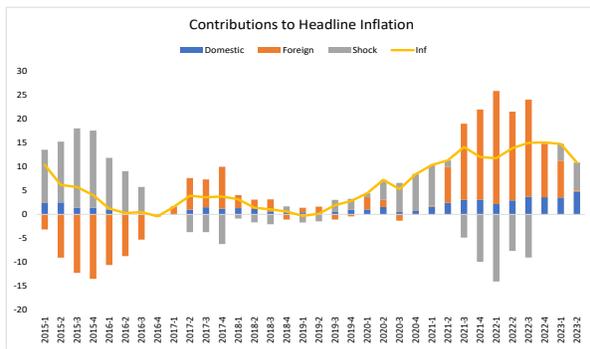
Global food prices slowing down headline inflation recently...



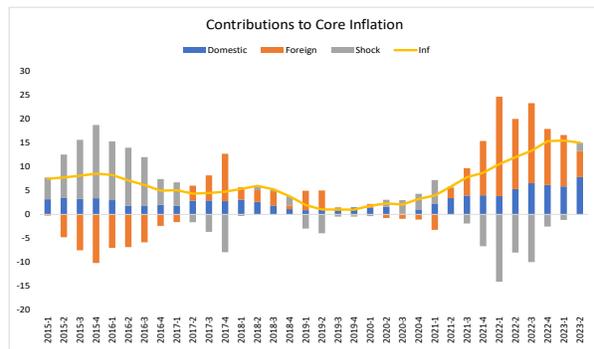
...inflation expectations keeping core inflation persistent.



Global food and oil prices have neutralizing effects recently...



...domestic factors have more pronounced effect recently.



Source: Authors' estimations and calculations.

Structural Vector Auto-Regression Approach

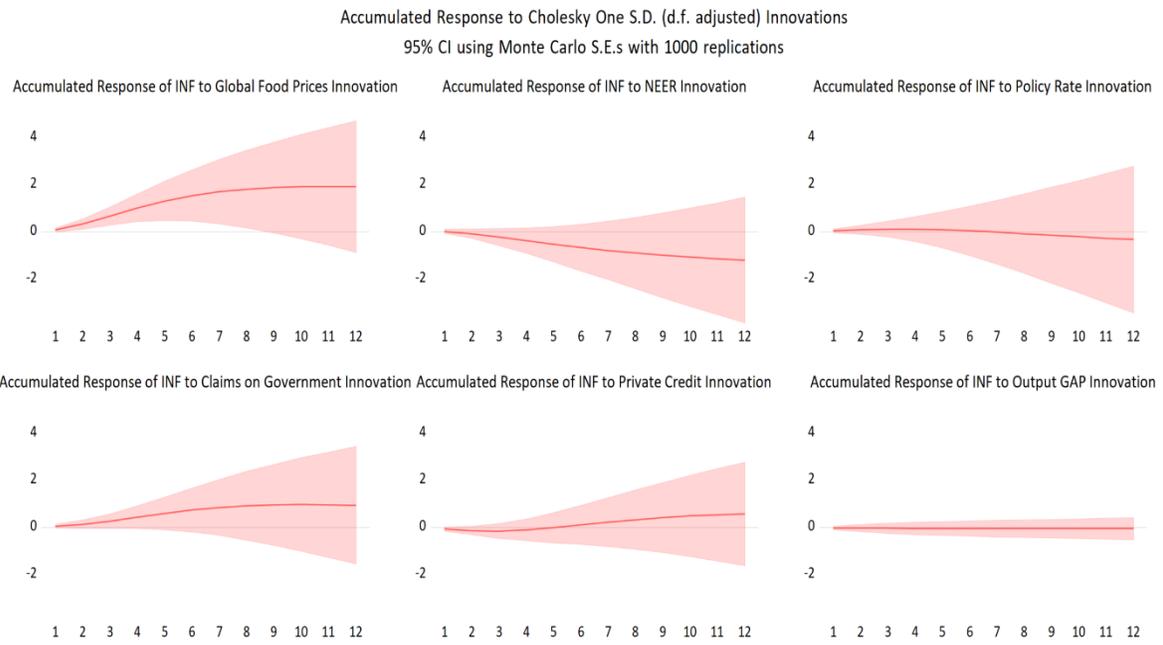
13. SVAR allows to expand the analysis of inflation in the Kyrgyz Republic by introducing monetary and fiscal policy variables (Annex I). Unlike regular VAR, which treats all variables as endogenous, SVAR also permits using exogenous variables such as global food prices and global CPI which are unaffected by domestic factors. The baseline model includes headline and core inflation, global food prices, the nominal effective exchange rate, the central bank policy rate, market lending rates, government borrowing from the domestic banking sector, private sector credit and the output gap. Alternative versions are then estimated by using quantity variables instead of price variable (interest rates) to get deeper insights in the pass-through mechanism. The paper relies on Cholesky decomposition (Stock and Watson, 2001) for assigning different levels of endogeneity.

14. Cumulative impulse responses for standardized variables are shown in Figure 7. They confirm the sensitivity of headline inflation to global food price fluctuations and the exchange rate, as found by the augmented Phillips curve analysis. Specifically, a one standard deviation in global food prices raises headline inflation by nearly 1.5 standard deviations in six quarters. Headline inflation is also found to respond strongly to the exchange rate movements. A one standard deviation increases in claims on the government—a proxy for fiscal policy—leads to roughly a 0.8-unit surge in headline inflation. Interestingly, although there is a some pass-through from the policy rate to bank lending rates,⁷ inflation shows limited sensitivity to either lending and deposit rates or to the changes in private sector credit and the output gap (Figure 8).

15. The estimates of the impact of monetary policy on inflation are of particular relevance. Although the central bank's policy rate does not appear to have a strong impact on inflation in the baseline model, substituting the policy rate with quantity variables yields different results. Specifically, an alternative specification of the SVAR with liquidity conditions (excess liquidity over broad money or reserve money), indicates that Kyrgyz inflation responds strongly to the changes in monetary policy. These results suggest a likely misalignment between the key policy rate, which was increased considerably since 2021, and market liquidity, which has also expanded significantly. In other words, market liquidity and the policy rate, which under market conditions tend to exhibit inverse relationship, have moved in tandem. The main implication of these results is that the effectiveness of policy interest rates can be strengthened by further reducing excess liquidity.

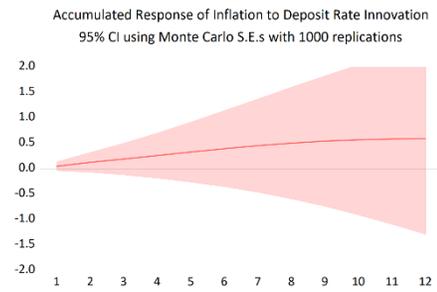
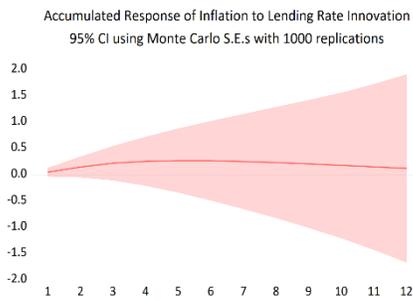
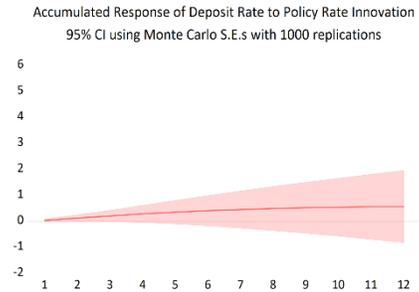
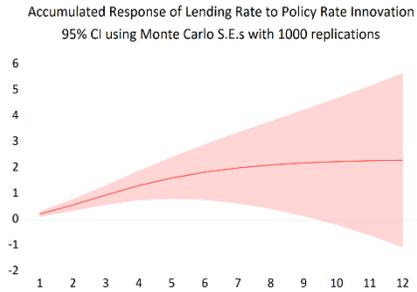
⁷ The pass-through to deposit rates is less pronounced and has longer lags than for lending rates.

Figure 8. Impulse Response Function—Structural VAR Baseline Specification

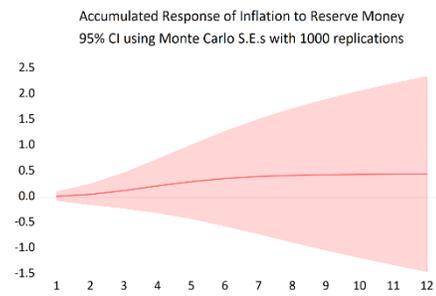
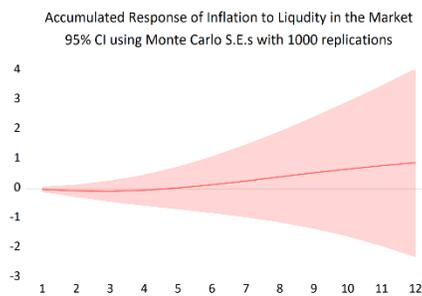


Source: Authors' estimations and calculations.

Figure 9. Impulse Response Function—Structural VAR Alternate Specifications Interest Rate Channel—Lending Rate vs Deposit Rate



Monetary Policy Instrument – Policy Rate or Monetary Aggregates



Source: Authors' estimations and calculations.

C. Conclusion and Policy Recommendations

16. This paper has undertaken a detailed analysis of the inflation dynamics and its determinants in the Kyrgyz Republic to shed light on the unprecedented inflationary surge since 2021. It employs two complementary methodologies—an augmented Phillips Curve framework and a structural VAR approach—to model a complex interplay between domestic and global factors, and policy variables. The paper constructs a new comprehensive measure of inflation expectations, encompassing both adaptive and forward-looking components, and as an additional novelty introduces external variables to the Phillips curve framework.

17. The empirical analysis suggests that in addition to global food prices, which have historically driven inflation in the country, the role of domestic factors have become more prominent. This includes the exchange rate, public sector wages, and inflation expectations which appear to have underpinned the persistence of inflation. The results also reveal an incomplete pass-through from the central bank policy rates to inflation. While changes in policy rates appear to have some impact on market rates, a further transmission to credit growth and output, and ultimately to inflation, is limited.

18. On the other hand, the paper finds a much stronger contribution of liquidity conditions to inflation. This suggests a disconnect between policy interest rates and market liquidity, which needs to be addressed for better functioning of monetary policy transmission. The main policy implication is that to further strengthen the effectiveness of monetary policy and support NBKR's intended transition to an inflation targeting framework, excess liquidity needs to be drained and brought in conformity with the policy rate. This will require discontinuation of central bank's participation in the domestic gold market, which is the main source of liquidity injections. There is also a need for supportive fiscal and public wage policies, and reduced reliance on price controls, which distort markets and undermine transmission channels.

Annex I. Model Specifications

Variables and Sample Coverage

1. This paper utilizes a sample comprising quarterly data from 2001 through the first half of 2023. To ensure comparability across different variables, this paper presents estimates derived from standardized variables, each normalized to have zero mean and a unit standard deviation. Both headline and core consumer price inflation are dependent variables. Independent variables include inflation expectations, global factors, the output gap, the nominal effective exchange rate, public wages, and indicators for monetary and fiscal policies.
2. The measure of inflation expectations is chosen to accurately reflect the factors influencing the expectations of households and firms, and incorporate both forward and historical perspectives. Although financial market actors often align with macroeconomic shifts and policy moves and form their expectations based on forward-looking indicators, households and firms primarily rely on historical perspectives, current inflation figures, news, and recent expenditure experience.
3. Global oil and food prices and foreign CPI are vital determinants of domestic inflation in the Kyrgyz, but their collinearity can cause a bias in the results. To mitigate this, a two-step approach was employed: (i) taking global oil prices as the exogenous factor, the first model was designed to isolate the components of global food prices that are unaffected by oil price fluctuations, and (ii) another model to identify segments of global CPI that are unrelated to both global oil and food price movements. The models, used in this paper, utilizes the isolated components of global food prices and global CPI to avoid model overidentification.
4. Monetary policy is captured by the central bank policy rate, market lending and deposit rates, and monetary aggregates, while fiscal policy is proxied by credit to the government from the banking system.
5. The output gap is measured as a difference between actual output and its trend, determined using Hodrick- Prescott filter with a 1600 smoothing parameter. The nominal effective exchange rate (NEER) is used to capture the exchange rate dynamics. Wage dynamics are modeled using public wage data, assuming the private sector mirrors public sector trends.

Model Specifications

6. The Phillips curve remains a foundational model for studying inflation drivers. Following the work of Gali and Gertler (1999), Gali *et al.*, (2001), Gali and Monacelli (2005), Gali (2010), IMF (2022), Auer *et al.*, (2017), Boranova *et al.*, (2019), Alvarez *et al.*, (2022), Kamber *et al.*, (2020), and Binici *et al.*, (2022), this paper enhances the standard Phillips curve by integrating global factors and domestic wages. Two augmentations of the Phillips curve are estimated to gauge their impact on the Kyrgyz inflation.

$$\pi_t = \beta_1 \pi_t^e + \beta_2 YG_{t-i} + \beta_3 e_{t-i} + \varepsilon_t \quad (1)$$

$$\pi_i = \beta_1 \pi_t^e + \beta_2 YG_{t-i} + \beta_3 e_{t-i} + \beta_4 FCPI_{t-i} + \beta_5 GF_{t-i} + \beta_6 PW_{t-i} + \varepsilon_t \quad (2)$$

$$\pi_i = \beta_1 \pi_t^e + \beta_2 YG_{t-i} + \beta_3 e_{t-i} + \beta_4 FCPI_{t-i} + \beta_5 GF_{t-i} + \beta_6 PW_{t-i} + \beta_7 Oil_{t-i} + \varepsilon_t \quad (3)$$

where π_t denotes year-on-year headline or core inflation for the Kyrgyz Republic in quarter t ; π_t^e denotes expected inflation; YG_{t-i} is the optimal lag of output gap, e_{t-i} is the optimal lag of annual change in the NEER, $FCPI_{t-i}$ is the optimal lag of foreign CPI, GF_{t-i} is the optimal lag of global food prices, PW_{t-i} is the optimal lag of public wages, Oil_{t-i} is the optimal lag of global oil prices, and ε_t is the error term.

7. Direct effects of domestic policies on inflation are assessed using Structural VAR (SVAR). The SVAR allows inclusion of domestic policy variables and permits specific endogeneity levels for different variables. Included variables are headline/core inflation, global food prices, the exchange rate, the policy rate, the market lending rate, government borrowing from domestic banking sector, private sector credit and the output gap. The paper also performed three additional iterations using quantity variables for monetary policy instead of price variables. For the structure, the paper relies on Cholesky ordering (see Stock and Watson (2001) for details) for assigning different levels of endogeneity.

The estimated model takes the following form:

$$AY_t = B(L) Y_{t-1} + \varepsilon_t \quad (4)$$

Where \mathbf{A} is an 8 X 8 matrix representing the contemporaneous effects of the variables on each other. \mathbf{Y}_t is an 8 X 1 vector containing the 8 variables at time t . $\mathbf{B}(L)$ is an 8 X 8 matrix polynomial in the lag operator L , representing the autoregressive and lagged effects. \mathbf{Y}_{t-1} is the 8 X 1 vector containing the 8 variables at time $t - 1$. ε_t is an 8 X 1 vector of structural shocks. As mentioned earlier, the paper utilizes Cholesky ordering, \mathbf{A} is lower triangular with ones on the diagonal, suggesting that the variables are ordered such that the first variable is most exogenous, and the last variable is the most endogenous one. The matrix \mathbf{A} looks like:

$$A = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ a_{21} & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ a_{31} & a_{32} & 1 & 0 & 0 & 0 & 0 & 0 \\ a_{41} & a_{42} & a_{43} & 1 & 0 & 0 & 0 & 0 \\ a_{51} & a_{52} & a_{53} & a_{54} & 1 & 0 & 0 & 0 \\ a_{61} & a_{62} & a_{63} & a_{64} & a_{65} & 1 & 0 & 0 \\ a_{71} & a_{72} & a_{73} & a_{74} & a_{75} & a_{76} & 1 & 0 \\ a_{81} & a_{82} & a_{83} & a_{84} & a_{85} & a_{86} & a_{87} & 1 \end{bmatrix}$$

this framework, the variable in the first column is the most exogenous, unaffected by other variables contemporaneously. Conversely, the variable in the last column is the most endogenous. Lagged effects between the variables are limited by imposing restrictions, adhering to the Cholesky ordering.

Robustness of Findings

8. Findings of this study are based on sample covering over two decades, a period which witnessed notable shifts in the economy of the Kyrgyz Republic.¹ These changes can potentially reshape the principal determinants of the inflation trajectory in the country. To examine the robustness of the findings derived from the models, this paper employs a recursive model with a flexible window. The results validate the consistency of coefficients across the entire sample period. The only significant changes in the magnitude of coefficients are around 2014, when Russia's currency depreciated strongly against major trading partners. Another spike is observed around the COVID pandemic in 2021. Importantly, none of these shocks are statistically significant enough to cause structural break in the model.²

¹ The Kyrgyz Republic has instituted several changes to its monetary policy framework over the past decade.

² Results of Chow breakpoint test failed to reject the null hypothesis of "no break" for both 2014 and 2021 periods.

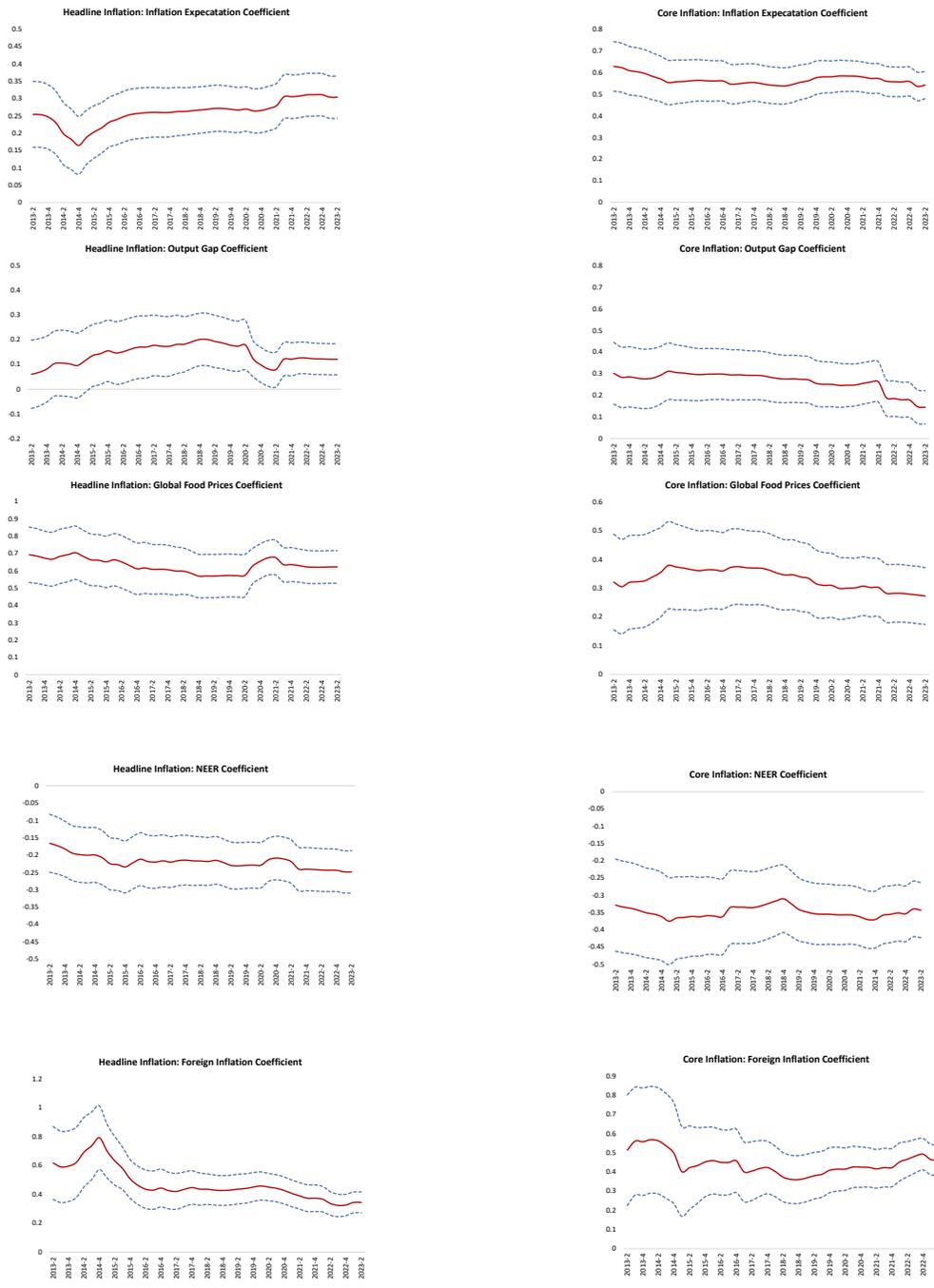
Annex I. Table 1. Kyrgyz Republic: Phillips Curve Estimation – Headline CPI

	Normal			Standardized		
	Baseline	Aug1	Aug2	Baseline	Aug1	Aug2
Inflation Expectations	3.846* (0.000)	2.173* (0.000)	1.968 (0.000)	0.598* (0.000)	0.336* (0.000)	0.304* (0.000)
Output Gap/Lag of	0.652* (0.000)	0.304* (0.007)	0.232** (0.042)	0.361 (0.000)	0.160** (0.011)	0.121*** (0.058)
Nominal Effective Exchange Rate/Lag of	-0.273* (0.000)	-0.301* (0.000)	-0.287* (0.000)	-0.242 (0.000)	-0.261* (0.000)	-0.248* (0.000)
Global Food Prices/Lag of		0.213* (0.000)	0.235* (0.000)		0.567* (0.000)	0.623* (0.000)
Foreign Inflation/Lag of		1.261* (0.000)	1.189* (0.000)		0.365* (0.000)	0.344* (0.000)
Public Wage/Lag of		0.056^ (0.244)	0.053^ (0.265)		0.080^ (0.197)	0.076^ (0.215)
Global Oil Prices/Lag of			0.022** (0.045)			0.120** (0.047)
Adjusted R square	0.603	0.771	0.779	0.603	0.774	0.783
<p>All variables, except output gap, are expressed in year-on-year growth terms. Output gap is calculated as the difference between real GDP and potential GDP calculated through Hodrick-Prescott filter.</p> <p>Baseline: is conventional Phillips curve.</p> <p>Aug1: Phillips curve augmented by including global food prices, foreign CPI, and public wages.</p> <p>Aug2: Phillips curve augmented by including global food prices, foreign CPI, public wages, and global oil prices.</p> <p>Significance levels: *p<0.01; **p<0.05; *** p<0.1; ^ insignificant with p>0.1</p>						

Annex I. Table 2. Kyrgyz Republic: Phillips Curve Estimation—Core CPI

	Normal			Standardized		
	(1)	(2)	(3)	(1)	(2)	(3)
Inflation Expectations	2.417* (0.000)	2.096* (0.000)	2.132* (0.000)	0.0603* (0.000)	0.541* (0.000)	0.543* (0.000)
Output Gap/Lag of	0.246** (0.011)	0.051^ (0.508)	0.185** (0.044)	0.173** (0.038)	0.090^ (0.210)	0.144*** (0.066)
Nominal Effective Exchange Rate/Lag of	-0.213* (0.001)	-0.237* (0.000)	-0.246* (0.000)	-0.225* (0.007)	-0.305* (0.000)	-0.343* (0.000)
Global Food Prices/Lag of		0.084* (0.001)	0.101* (0.000)		0.334* (0.001)	0.273* (0.007)
Foreign Inflation/Lag of		1.125* (0.000)	1.135* (0.000)		0.458* (0.000)	0.463* (0.000)
Public Wage/Lag of		0.091* (0.001)	0.076** (0.027)		0.192* (0.004)	0.144** (0.037)
Global Oil Prices/Lag of			0.021** (0.014)			0.181** (0.019)
Adjusted R square	0.489	0.688	0.708	0.454	0.690	0.679
<p>All variables, except output gap, are expressed in year-on-year growth terms. Output gap is calculated as the difference between real GDP and potential GDP calculated through Hodrick-Prescott filter.</p> <p>Baseline: is conventional Phillips curve.</p> <p>Aug1: Phillips curve augmented by including global food prices, foreign CPI, and public wages.</p> <p>Aug2: Phillips curve augmented by including global food prices, foreign CPI, public wages, and global oil prices.</p> <p>Significance levels: *p<0.01; **p<0.05; *** p<0.1; ^ insignificant with p>0.1</p>						

Annex I. Figure 1. Recursive Augmented Phillips Curve with Flexible Window



Source: Authors' estimations and calculations.

Annex I. Table 3. Kyrgyz Republic: Data Sources

Variable	Source	Notes
Headline Inflation	National Statistics Committee (NSC)	
Core Inflation	NSC, Authors' calculations	Core inflation excludes food and energy products
Output gap	NSC, Authors' estimates	
Nominal Effective Exchange Rate	National Bank of Kyrgyz Republic (NBKR)	
Food Prices	UN FAO Food Price Index	
Brent Crude Oil Prices	Bloomberg	
Foreign Inflation	IMF WEO, Authors' calculations	Constructed using the import weights of US (Rest of the World), CHN, RUS and KZ
Public Wages	NSC	
Inflation Expectations	IMF WEO, Authors' estimates	
Policy Rate	NBKR	
Banking Loan and Deposit Rates	NBKR	Loan and deposit rates are for newly created in local currency.
Banking Liquidity	NBKR, Authors' calculations	
Reserve Money	NBKR	
Private Sector Credit	NBKR	
Credit to the Government by the Banking System	NBKR	

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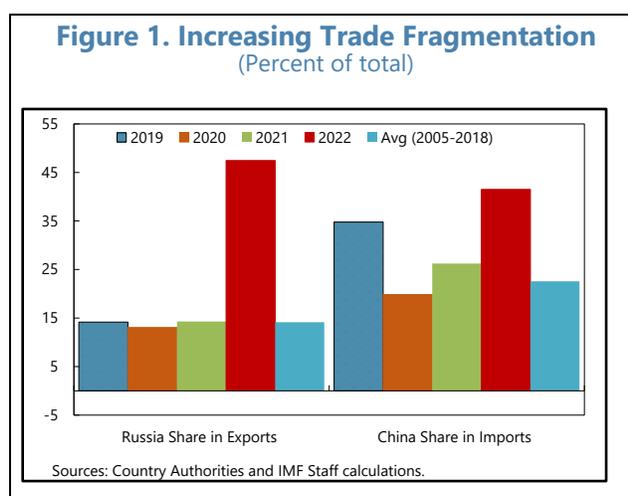
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NEW TRADE PATTERNS AND THE COST OF FRAGMENTATION IN THE KYRGYZ REPUBLIC¹

The war in Ukraine has reshaped trade patterns of the Kyrgyz Republic with greater geographic concentration. China has become the main source of imports, while Russia has emerged as the primary destination for exports, including re-exports, which appear to be significantly under-recorded in official trade statistics. This higher concentration, associated with a more fragmented global economy, could result in significant long-term economic costs for the Kyrgyz Republic.

A. Recent Trade Dynamics in the Kyrgyz Republic

1. Since the start of Russia's war in Ukraine, the Kyrgyz Republic's external trade patterns have changed considerably. Officially recorded exports decreased² by 18 percent while imports increased by 76 percent as compared to 2021, making the economy overall significantly more dependent on external trade. Moreover, trade has become increasingly concentrated in two trading partners. The share of imports from China increased from 26 percent in 2021 to almost 42 percent in 2022, which is considerably above the historical average of 22 percent observed from 2005 to 2018 (Figure 1). Concurrently, Russia has become an even greater export market for Kyrgyz exports. In 2022, Russia received almost 48 percent of the Kyrgyz total exports,³ a substantial increase from the 14.3 percent in 2021 and the historical average of 14.1 percent.



2. In 2022, the external balance deteriorated sharply for the Kyrgyz Republic, primarily because of trade. The current account deficit widened to 43.6 percent of GDP, a dramatic increase compared to the preceding year's 8 percent and more than four times the historical average of 9.2 percent observed from 2005 to 2018. This was driven mainly by the trade deficit which widened

¹ Prepared by Nasir Rao and Jean van Houtte.

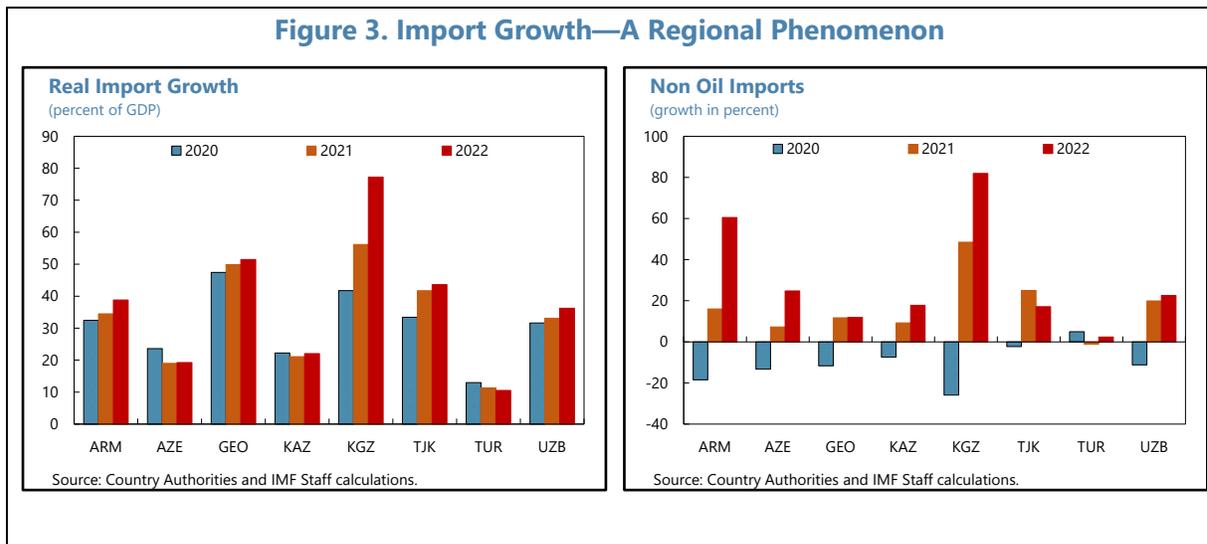
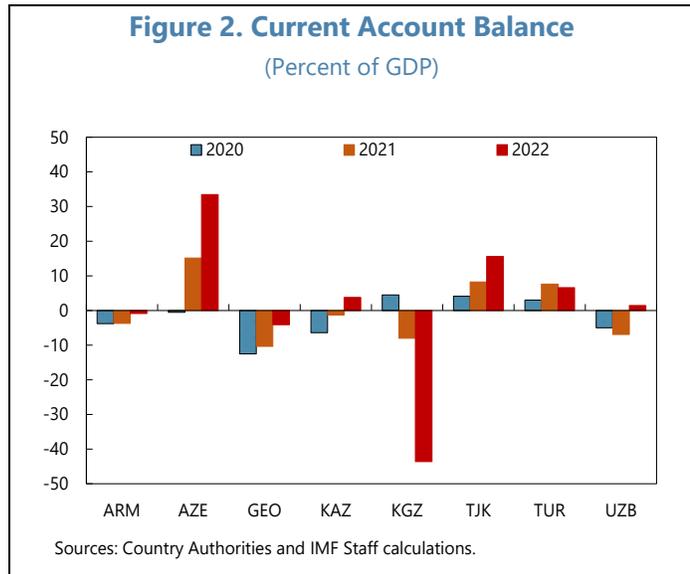
² No gold exports during 2022 was the main reason for the decrease.

³ This 48 percent does not include the unrecorded re-exports to Russia, which is discussed below.

from 26.1 percent of GDP in 2021 to 58.5 percent in 2022. Interestingly, the evolution of the current account and the trade balance in the Kyrgyz Republic in 2022 stood in stark contrast to those of other CCA countries, which either shifted to surpluses or significantly reduced their deficits (Figure 2).

3. The surge in non-oil imports appears to be a regional phenomenon.

In 2022, several countries from the CCA region witnessed substantial growth in non-oil imports. Measured as percent of GDP, all the countries, except for Turkmenistan, experienced an uptick in total imports and sizeable increase in non-oil imports. However, the Kyrgyz Republic had the steepest rise in the region with imports jumping to 77.2 percent of GDP from the 56.2 percent of GDP for the last year and considerably higher than the regional average of 31.7 percent for the CCA region in 2022 (Figure 3). The increase in non-oil imports was even larger reaching 81.9 percent in 2022 as compared to the last year’s 48.5 percent growth and a 22.4 percent increase for the region in 2022.



4. Exports have also grown significantly in the region. The countries witnessing strong import growth also experienced a concurrent increase in exports, predominantly due to re-exports. In 2022, every country in the region observed a remarkable growth in exports, with Armenia, Azerbaijan, and Georgia emerging as frontrunners. In contrast, figures for the Kyrgyz Republic show a downturn in exports (Figure 4), partly attributable to discontinuation of gold exports in 2022, which accounted for 40 percent of total exports and 15 percent of GDP in the previous years. Excluding the role of gold, exports still indicate stagnation in 2022. A granular examination of trade data for 2022 indicate a marked increase in imports of household electronics, and consumption and intermediate goods. Among others, these include dishwashers, sewing and washing machines, apparel, shoes, computers and accessories, construction equipment, cell phones and cars (Figure 5). The official data also show that the same product categories have exhibited fast-growing exports, suggesting that part of imports was re-exported as these goods are not produced domestically. These numbers, however, still do not explain a significant widening of the trade deficit in the Kyrgyz Republic, or its divergence from other CCA countries, which have experienced similar trade spillovers from the war in Ukraine.

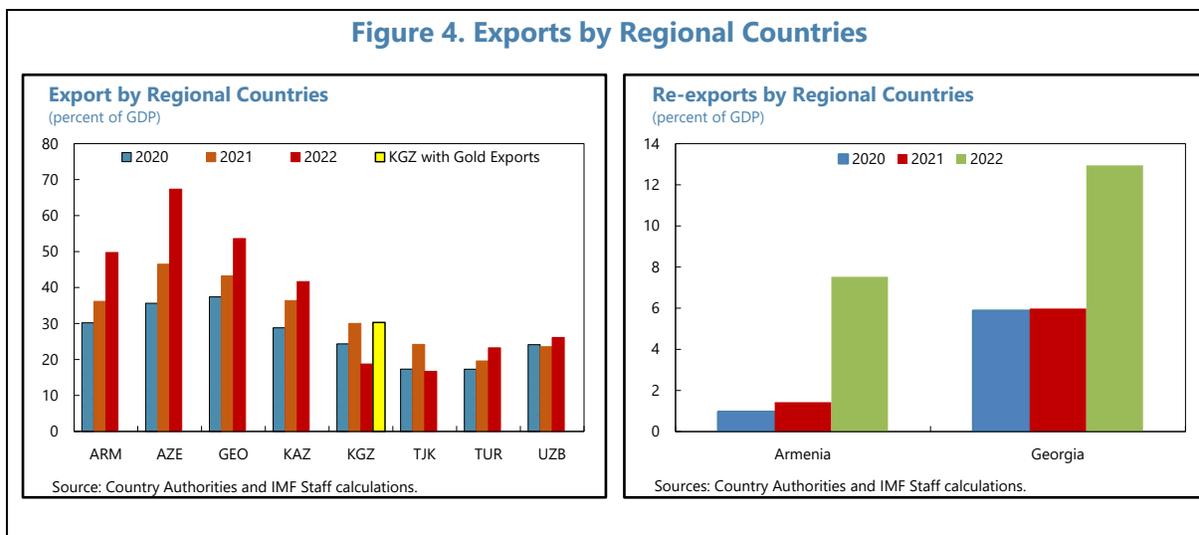
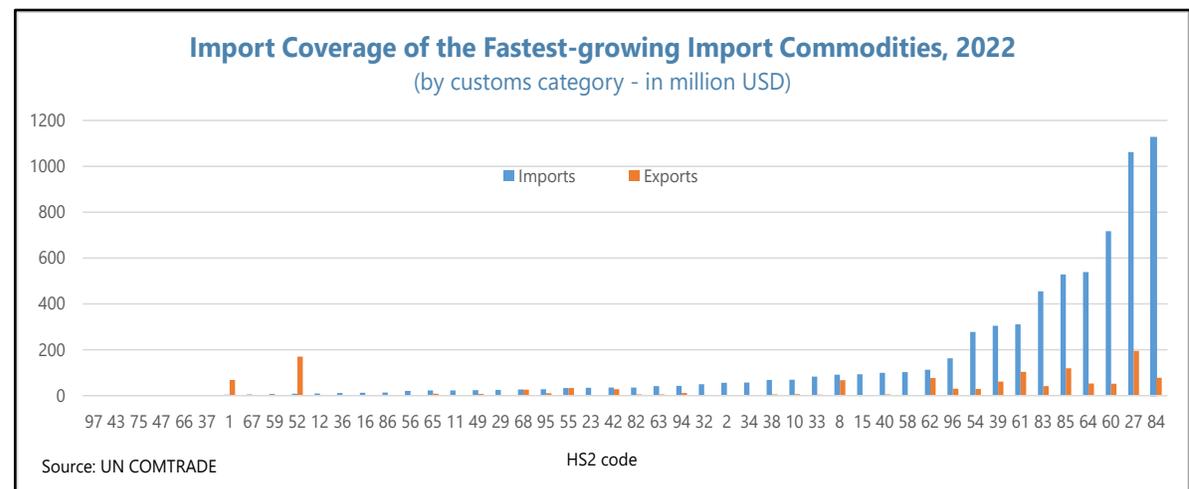
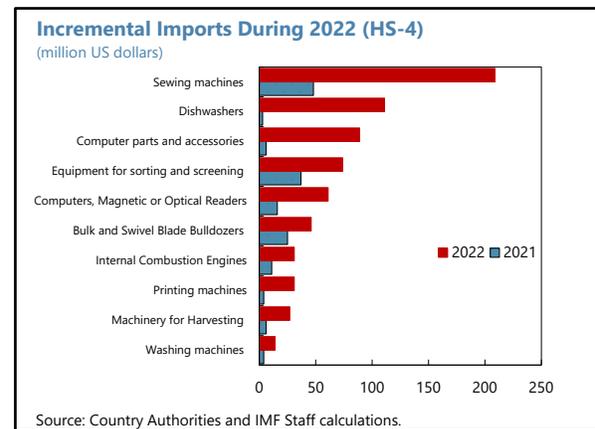
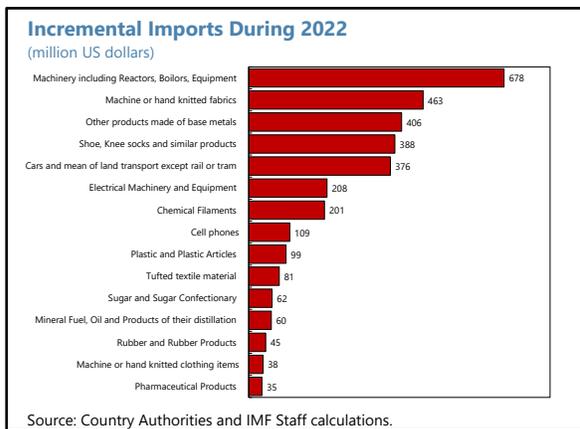
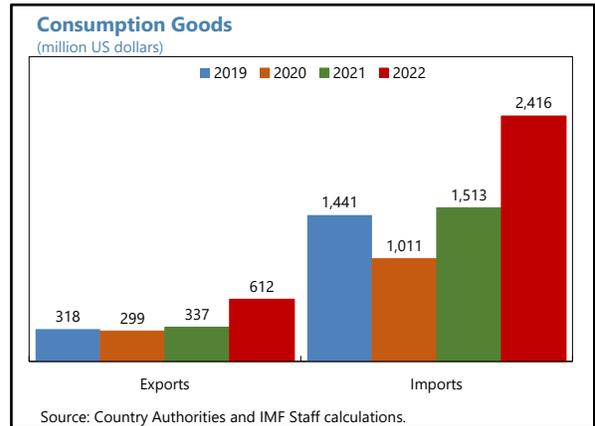
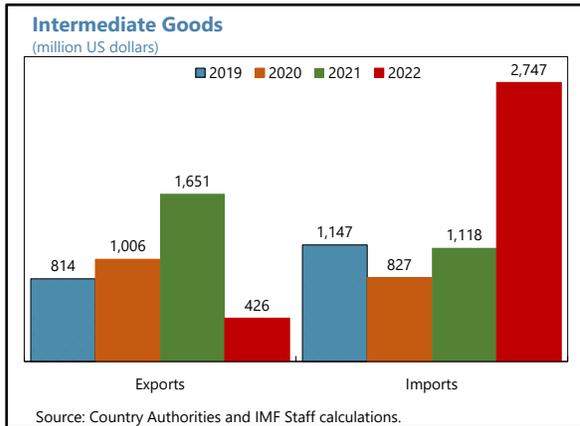
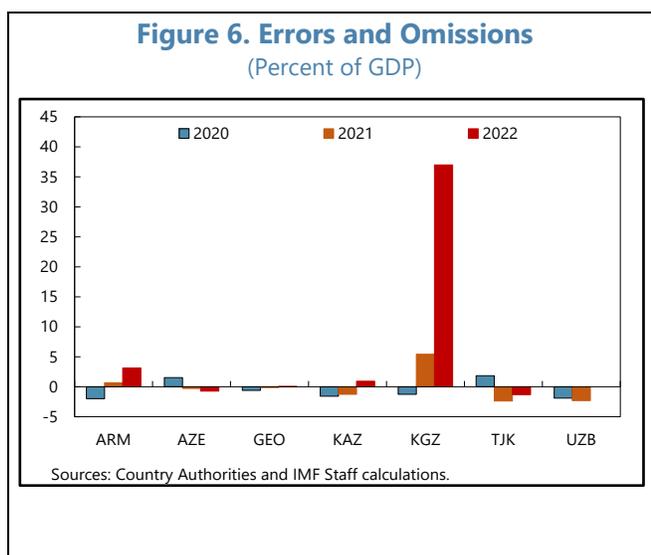


Figure 5. Product-Level Import Composition



5. Staff analysis suggests that re-exports are substantially under-recorded in the official external accounts.

These re-exports would also explain exceptionally large positive BoP errors and omissions in 2022, which amounted to nearly 37 percent of GDP and exceeds multiple times historical errors and omissions in the Kyrgyz Republic and neighboring countries (Figure 6). Since trade within the Eurasian Customs Union (EACU)⁴ is not subject to mandatory Customs declarations and inspections, it is likely to be significantly under-reported in statistical surveys. Staff estimates that unrecorded re-exports account for about 30 percent of total imports and are primarily destined to Russia, which experienced a significant shortage of imported goods due to the trade restrictions and sanctions. Using these estimates, Russia's share in Kyrgyz trade rises to 43 percent for the total trade turnover and 77 percent for exports.



6. A number of factors underpin the staff assessment. First, a near doubling of non-oil imports in 2022 cannot be explained by domestic consumption even after accounting for additional demand from migrants. Second, other CCA countries which also experienced a surge in imports (Armenia, Georgia, Azerbaijan and Kazakhstan), have also seen concurrent increase in reexports, which are more comprehensively recorded. Staff has not come across any compelling argument for a divergent trend in the Kyrgyz Republic. Third, there is no alternative plausible explanation for the unrecorded inflow of foreign exchange, which is reflected in the extraordinarily large and positive errors and omissions. Net money transfers, including remittances declined by 21 percent; services and income lines in the BoP have remained consistent with the historical trends; the country has a limited access to international capital markets to borrow externally; and staff is unaware of any major FDI in 2022, which even if occurred, would have led to a higher share of investment goods in imports rather than consumer goods.

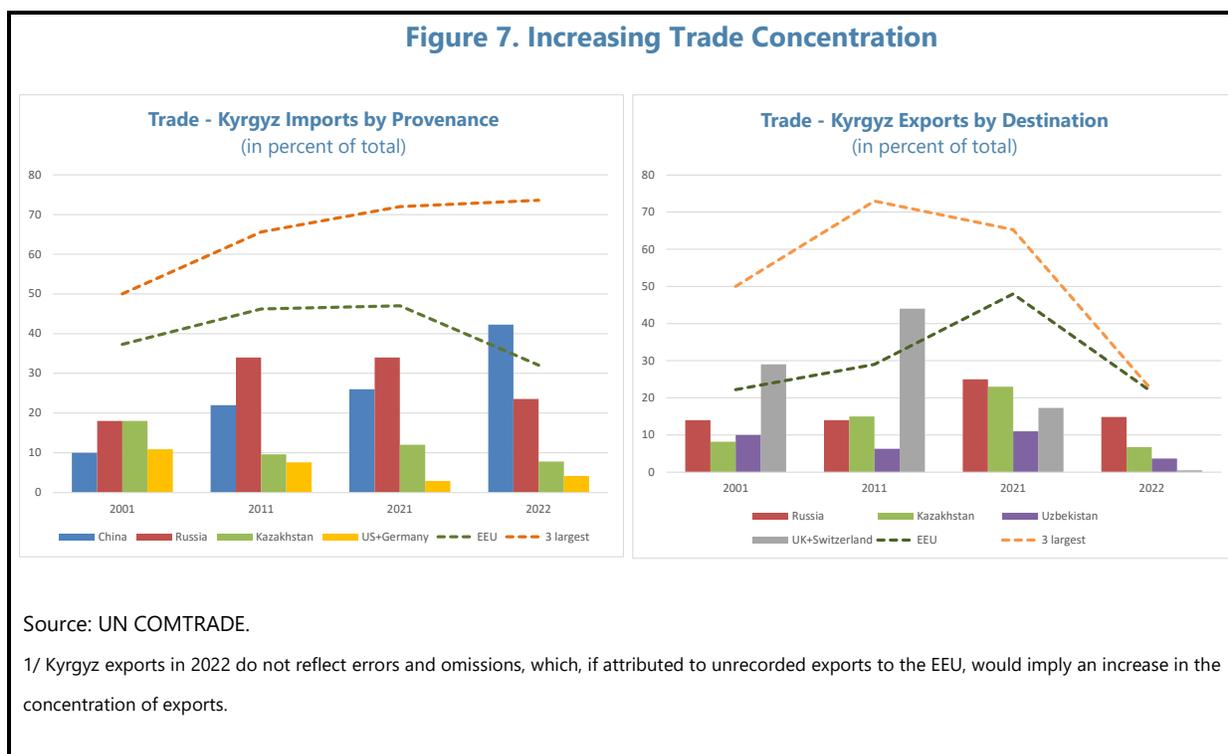
B. Economic Costs of Fragmentation

7. Globalization during the past few decades has brought significant benefits to the global economy. Globalization has progressed hand-in-hand with economic integration through three main channels: trade, capital flows, and migration. Freer trade has generated new markets for countries previously on the periphery of the world economy, benefiting societies through greater efficiency and lower prices, and helping to create new jobs and incomes and thereby reducing poverty. Freer capital flows have allowed investors to consider previously peripheral countries and

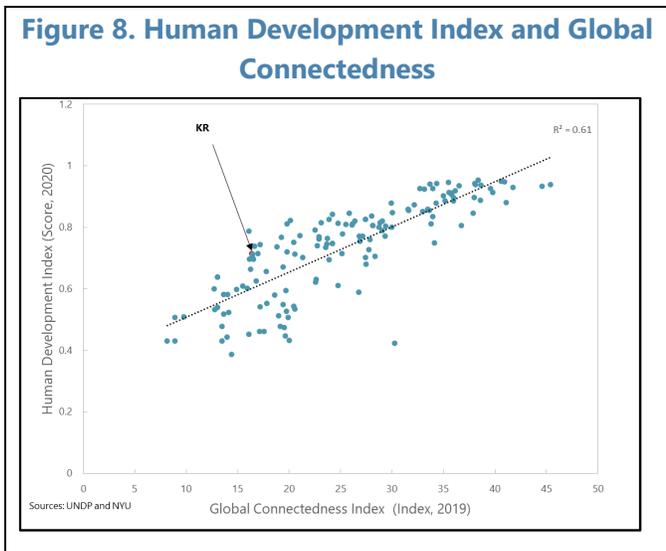
⁴ EACU includes Armenia, Belarus, Kazakhstan, the Kyrgyz Republic, and Russia.

have accelerated the transfer of knowledge and technology, thereby contributing to higher growth and job creation. Migration has helped address mismatches in demand and supply for labor, including in services that could only be provided locally, with the resulting remittances supporting families in home countries.

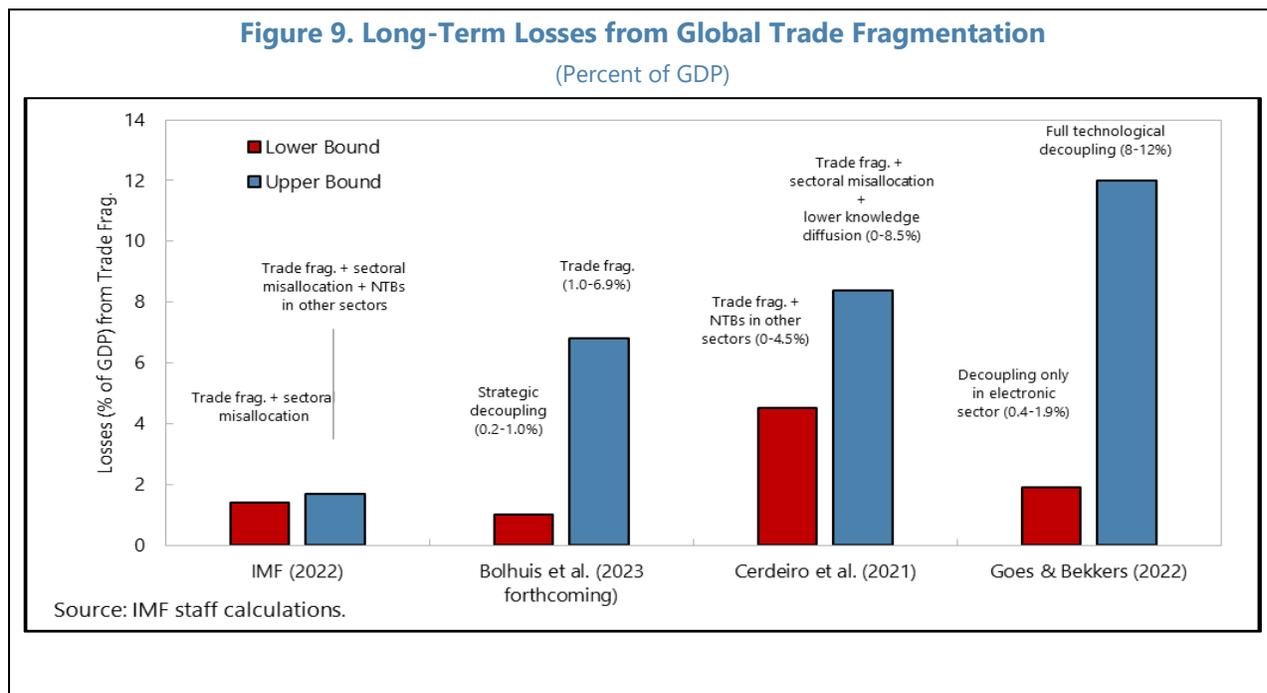
8. Conversely, global fragmentation could generate significant costs. The risks of fragmentation have increased considerably in the recent years. The heightened tensions between China and the U.S. have led to restrictions on trade, which if expanded, could cause reconfigurations of supply chains and higher production costs. The war in Ukraine and the resulting western sanctions on Russia have significantly changed trade, financial and migration patterns, including in the CCA region, and as shown above, have significantly increased the concentration of trade in the Kyrgyz Republic (Figure 7).



9. The degree of country's integration into the global economy is also positively associated with human development (Figure 8). The Kyrgyz Republic ranks higher on the human development index than what its connectedness level would imply. However, it still stands to gain from better integration into the global economy.



10. Costs of fragmentation could be high (Figure 9). The estimates of long-term costs for a large sample of countries range from 1 percent of global GDP for fragmentation stemming from a “strategic decoupling”, i.e., policies aimed at restricting trade in technology-intensive goods (Bolhuis et al., 2023) to around 12 percent of GDP in a scenario where trade disintegrates into blocs, with adverse technological spillovers (Goes and Bekkers 2022). Short-term costs of economic integration are also likely to be high, since short-run elasticities of substitution in trade are considerably lower than the long-run elasticities. This is due to the time and effort needed to reconfigure supply chains and trade routes (Boehm et al., 2023). Bolhuis et al. find that the short-term costs of fragmentation are typically twice the long-term costs.



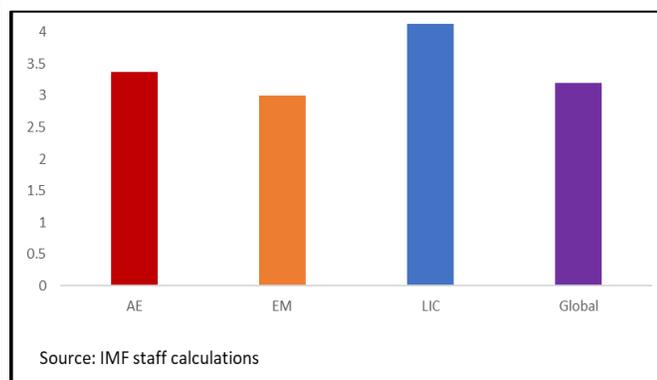
11. Low-income countries tend to be more at risk from trade and technology fragmentation (Figure 10).

They have less diverse and less technology-intensive economies, and may experience more severe setbacks to economic activity if they lose access to sophisticated goods, at least in the short term (Bolhuis et al, 2023 and Aiyar et al, (2023).

12. A long-term cost estimate for the Kyrgyz Republic, based on Bolhuis et al., is 2.7 percent of GDP.⁵ The

average cost for Central Asia is comparable at 2.2 percent of GDP. The higher cost for the Kyrgyz Republic when compared to similarly connected countries in the same region can be ascribed to the low demand elasticities of commodities, including oil, natural gas, and staple cereals that the Kyrgyz Republic needs to import continuously. However, Caucasus countries in the model experience a larger cost of fragmentation (4.4 percent of GDP), due to their significantly higher integration in the world economy, both in terms of depth and breadth (Figure 11).⁶ These cost estimates are based on a production and trade model using 2019 (pre-Covid) data for more than 100 tradable products, and demand and trade elasticities. Goes and Bekkers (2022) find that countries that are closer to China in a fragmented world experience a greater adverse impact on GDP because of forgone technology diffusion from trade with the US-anchored block.⁷

Figure 10. Long-Term GDP Losses Under a “Geopolitical Fragmentation” Scenario
(Percent of GDP)

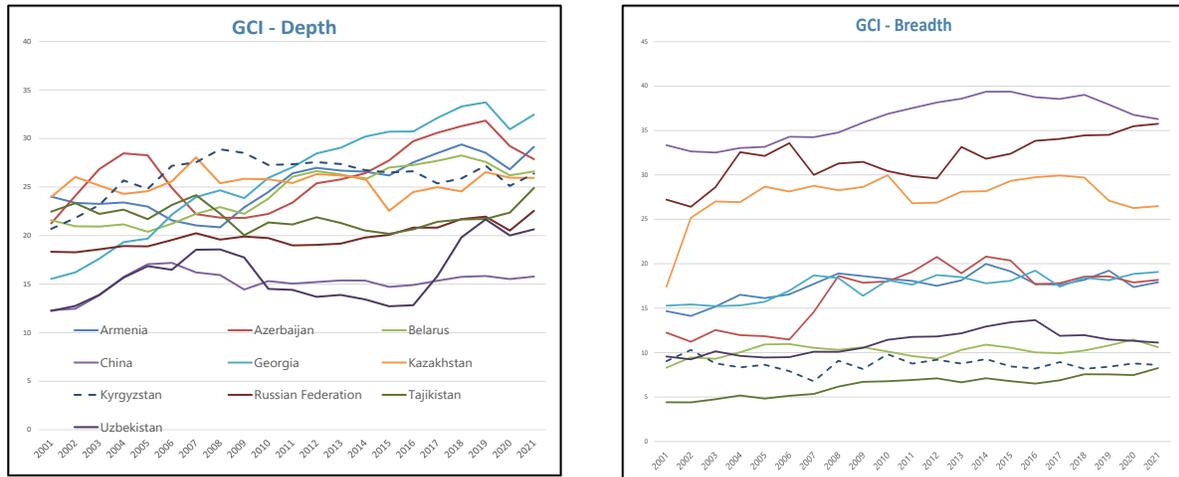


⁵ Fragmentation is defined based on the principle of “political distance” in an arbitrary bipolar world, with the US and China as poles. Countries that align in UN votes more frequently with one of the two poles find themselves in an economic bloc with this pole.

⁶ The Global Connectedness Index is the sum of two indexes (Depth and Breadth) for each country. Depth refers to the size of a country’s international flows as compared to relevant measures of the size of its domestic activity. It reflects how important or pervasive interactions with the rest of the world are in the context of business or life in a particular country. Breadth measures how widely dispersed a country’s international flows are. Specifically, it compares how closely a country’s distribution of international flows across its partner countries matches the global distribution of the same flows in the opposite direction.

⁷ Goes et al (2022) use a trade-based model, augmented by a “technology diffusion” factor associated with the total factor productivity of the different countries. In this model, with fragmentation following the same geopolitical logic as the Bolhuis model, the effects of fragmentation are asymmetric: welfare losses in the US-anchored bloc range between 1–8 percent of GDP, but they grow to 8–12 percent in the other. The underlying factor driving this divergence between the two blocs is a difference in the evolution of productivity: sourcing goods from more productive countries puts managers in contact with better quality designs that inspire better ideas through innovation or imitation.

Figure 11. Global Connectedness Index: Depth and Breadth



Source: NYU

TAX POTENTIAL IN THE KYRGYZ REPUBLIC¹

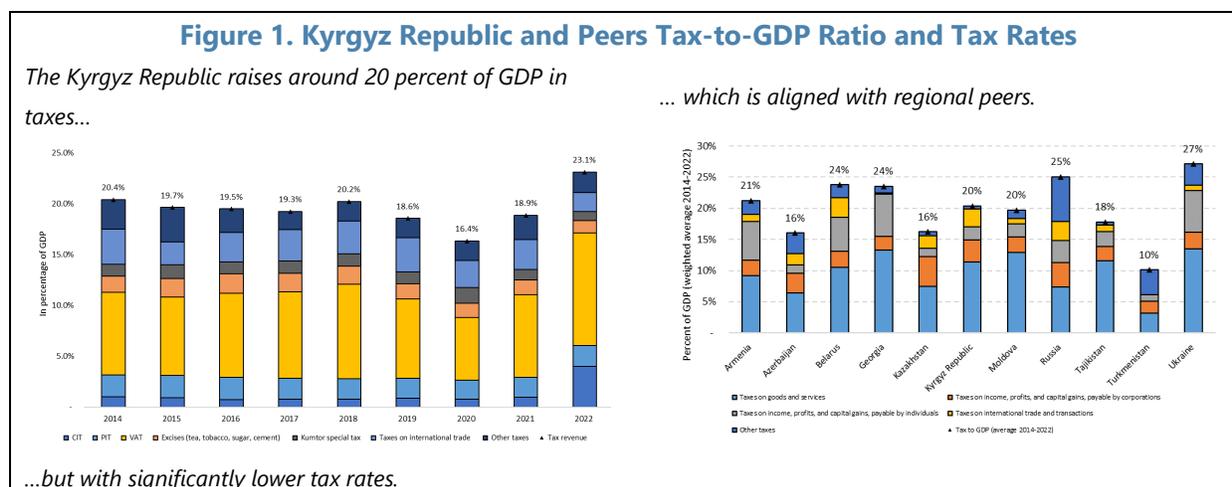
The Kyrgyz Republic's tax system with low tax rates performs well compared to peers but the country needs more fiscal space to accelerate progress against the Sustainable Development Goals, adapt to climate change and invest in infrastructure. The paper presents a tax frontier analysis and a tax-by-tax gap analysis to assess the performance of the tax system before concluding with policy options to mobilize more revenues while improving the efficiency and equity of the tax system. The analysis finds that the authorities could sustainably increase tax revenues by 4 percent of GDP over the next three years while maintaining its attractiveness for new investors by adopting the following measures: 1) Eliminating inefficient Value Added Tax (VAT) exemptions, adequately funding and operationalizing the refund mechanism, rationalizing special tax regimes and removing the sales tax, 2) Increasing the progressivity of the Personal Income Tax (PIT) by introducing graduated tax rates and 3) Improving the efficiency of the revenue administration.

A. Background and Recent Developments

1. The Kyrgyz Republic collects roughly 20 percent of GDP in tax revenues. Tax revenues have remained broadly stable between 19 and 21 percent of GDP since 2014, but in 2022, they increased to 23.1 percent of GDP on the back of higher imports and a one-off payment by Kumtor.² The main sources of tax revenues are the Value Added Tax (VAT), custom duties, and income taxes. The VAT generates the highest share of tax revenue contributing around 8 percent of GDP and over 40 percent of total tax revenue. Taxes on income – the personal income tax (PIT) and the corporate income tax (CIT) – generate around 5 percent of GDP and represent between 25 and 30 percent of tax revenues. Customs duties collected through the Eurasian Economic Union (EAEU) contribute 3 percent of GDP or 15 percent of total taxes. The rest is collected through excise taxes and the special tax on Kumtor.

¹ Prepared by Thomas Benninger.

² Kumtor is the largest gold mine in the Kyrgyz Republic.



2. The Kyrgyz tax system appears to perform relatively well in terms of revenue collection compared to peer countries considering low tax rates.

Regional peer countries³ have been collecting between 10 and 27 percent of GDP on average in the period 2014-2022 with an average of 20 percent of GDP. However, as shown in Text Table 1, peer countries achieve the revenue yield with significantly higher tax rates. For instance, the VAT in the Kyrgyz Republic is 12 percent compared to the average of 16 percent in peer countries. The average tax-to-GDP for low income developing countries was 13.8 percent of GDP in 2020 and 19.7 percent of GDP for emerging market economies (IMF, 2023).

Table 1. Kyrgyz Republic and Peers: Tax Rates

	Tax rates		
	PIT	CIT	VAT
Armenia	22	18	20
Azerbaijan	25	20	18
Belarus	13	18	20
Georgia	20	15	18
Kazakhstan	10	20	12
Kyrgyz Republic	10	10	12
Moldova	12	12	20
Mongolia	10	25	10
Russia	13	20	20
Tajikistan	13	18	15
Turkmenistan	10	20	15
Ukraine	18	18	20
Uzbekistan	12	8	12
Average	14	17	16

Sources: Staff, E&Y, KPMG, PwC and IBFD

Overview of Tax Regimes

3. The Kyrgyz Republic established a new tax system in the years following independence. The 1996 tax code replaced the system inherited from the Soviet era. This code was a first step towards the modernization of the tax system, a necessary condition to the development of the nascent market-based economic activities. In 2006, the authorities significantly simplified the

³ Peer countries are: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, Mongolia, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

tax code, and reduced the CIT and PIT rates from 20 percent to 10 percent.⁴ They pursued this effort further in 2009 by reducing the number of taxes from 16 to 8, decreasing the VAT rate from 20 percent to 12 percent and establishing a sales tax, which replaced the retail sales tax, road tax, and emergency funds. A new tax code was adopted in 2022 and amended in 2023, which contributed to a proliferation of special regimes as described below.

4. The Kyrgyz tax system is fragmented. Apart from the major national taxes (PIT, CIT, VAT, excises and sales tax), there are many special tax regimes. These include:

- **Patent regime:** The patent regime replaces CIT, sales tax and VAT for specific activities. It is available for self-employed persons and companies not engaged in importing or exporting goods with turnover of less than KGS 8 million (US\$ 90,000) over a 12-month period.
- **Single Tax:** The Single Tax is a turnover based tax with rates between 0.5 and 8 percent, and replaces CIT, sales tax and VAT for eligible taxpayers. Until 2023, taxpayers with turnover below KGS 30 million (US\$ 340,000) and all companies in the clothing and textile industry were eligible for the single tax, but the threshold was removed and the regime is now available to all companies.
- **Free Economic Zones:** Currently, there are five free economic zones (FEZ) functioning within the territory of the Kyrgyz Republic: the Bishkek FEZ, the Maimak FEZ, the Naryn FEZ, the Karakol FEZ, and Leilek FEZ. They provide special customs privileges to exporting and importing companies. Companies operating in these zones may import, store, produce or sell goods in the territory of the zone without paying taxes or customs duties. Moreover, the entities may sell goods from FEZs to the domestic market, providing that their products have undergone significant processing in the zone.
- **High Technology Park:** This is a special tax zone available to companies working in software development and exports, and IT service centers, exempting them from CIT, VAT, and sales tax. PIT is paid at the reduced rate of 5 percent.
- **Crypto mining regime:** This tax regime is applicable to companies mining crypto currencies. It is applied in lieu of income tax, VAT on taxable supplies and sales tax and levied at 10 percent on the value of electricity consumed.
- **Electronic commerce regime:** This is a special regime applicable to companies supplying electronic services. These companies are subject to a 2 percent turnover in lieu of income tax, VAT on taxable supplies and sales tax.
- **Gambling activity regime:** The tax on gambling activities is applied in lieu of income tax, VAT on taxable supplies and sales tax and levied as a specific tax based on number of slot machines

⁴ The Kyrgyz Republic also collects social contributions of around 5 percent of GDP. These are out of the scope of this paper as they are not considered taxes. They are however important when considering the effective tax and non-tax burden on corporates and individuals.

and gaming tables for activities with physical presence and at 4 percent of turnover for online casinos.

- **Trading zones regime:** This regime is applicable to trading zones selling goods. The tax is applied in lieu of income tax, VAT on taxable supplies and sales tax and levied at variable rates at around 0.5 percent of the expected turnover.

5. The Kyrgyz Republic joined the EAEU in 2015. The EAEU provides a single market with free movement of goods, services, capital and labor among its members which includes Armenia, Belarus, Kazakhstan, the Kyrgyz Republic, and Russia. The Kyrgyz Republic applies the common external tariff at the external border of the EAEU and receives 1.9 percent of all custom duties collected by the EAEU. Custom policy is not evaluated further in this paper as decision are taken at regional level.

B. Tax Frontier Analysis

6. A country's tax potential depends on its structural characteristics and policies as well as tax capacity - the policy, institutions, and technical capabilities to collect tax revenue.

Countries with larger economic output, more diversified and open economies, and stronger institutions, with few exceptions, have been able to mobilize more tax revenue. Besides institutional factors, differences in revenue mobilization across countries are also driven by differences in economic structures.⁵ This begs a question of how much more revenue the Kyrgyz Republic can potentially raise given its economic and institutional capabilities. Estimates of tax potential, defined as the highest level of tax revenue (excluding Social Security Contribution) a country can mobilize under comparable situations, based on an empirically determined benchmark observed in other countries, provide useful insights.

7. Using a stochastic frontier analysis (SFA), Kyrgyz Republic's tax potential is estimated at around 35 percent of GDP. The frontier is estimated with a Generalized Random True Effect (GTRE) model using agriculture value-added, GDP per capita, trade, natural resources rents, and the Fund's financial sector development index as predictors. This estimate aligns with the estimate of 34.9 percent of GDP published in IMF (2022) and implies a tax effort of around 60 percent and a tax gap of 13 percent of GDP.⁶ The tax gap is interpreted as a "technical inefficiency" that can vary over time and could reflect the difference in tax legislation (e.g., the level of tax rates and exemptions) and shortcomings in revenue administration. The estimated tax potential does not necessarily correspond to a desirable level of tax revenue. Societies have different preferences in terms of the role and size of the state whose financing in turn has an impact on the role of the private sector and

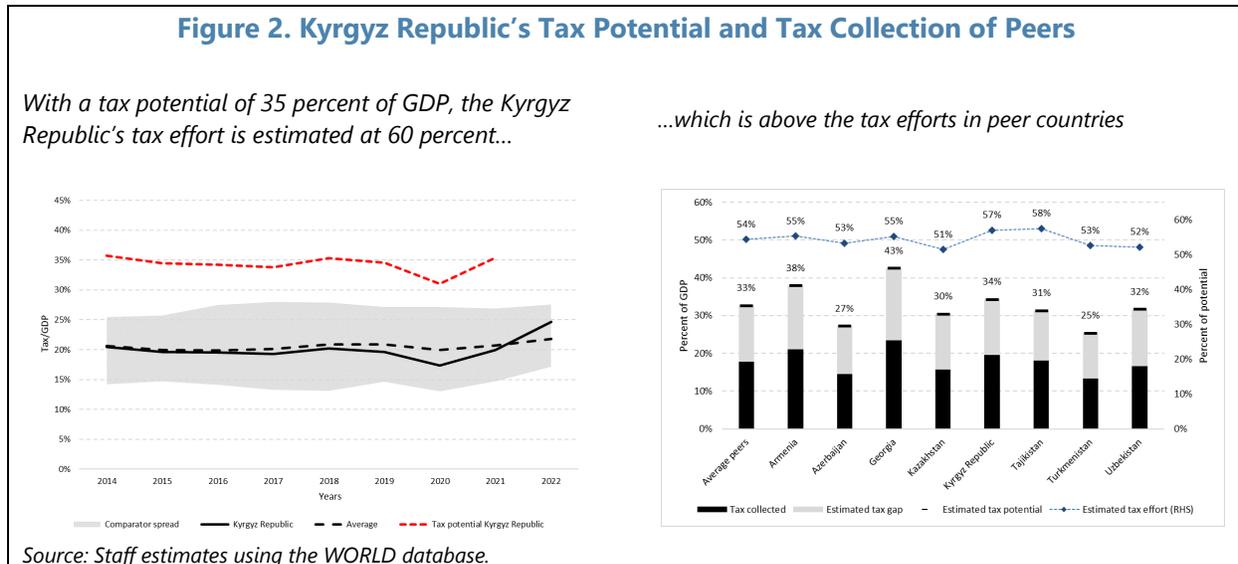
⁵ Research finds that higher income per capita, openness of the economy to trade are positively correlated with higher tax collection levels while the share of agriculture is negatively correlated. Results of multiple studies are discussed in UNU WIDER (2021)

⁶ Tax effort is defined as the actual tax revenue as a share of estimated potential tax revenue. The tax gap is the difference between actual tax revenue and estimated potential tax revenue.

incentives to provide work or pursue a business opportunity. These can imply an optimal level of tax collections that's below the tax potential.

8. Tax effort in the Kyrgyz Republic is above regional peers. The average tax potential for peer countries over the period 2014-2021 is estimated at 33 percent of GDP and tax effort at 54 percent of their tax potential, compared to the Kyrgyz Republic's tax effort of 60 percent. This can be a result of higher compliance thanks to lower tax rates, stronger revenue administration or lower tax expenditures.

9. Reducing the gap by one third over three years would generate 4 percent of GDP in additional revenues and increase the tax effort from 60 to 75 percent. The tax-to-GDP ratio would sustainably increase from 20 percent of GDP in 2021 to 24 percent of GDP. This could be achieved through a combination of reforms as discussed in the next section.



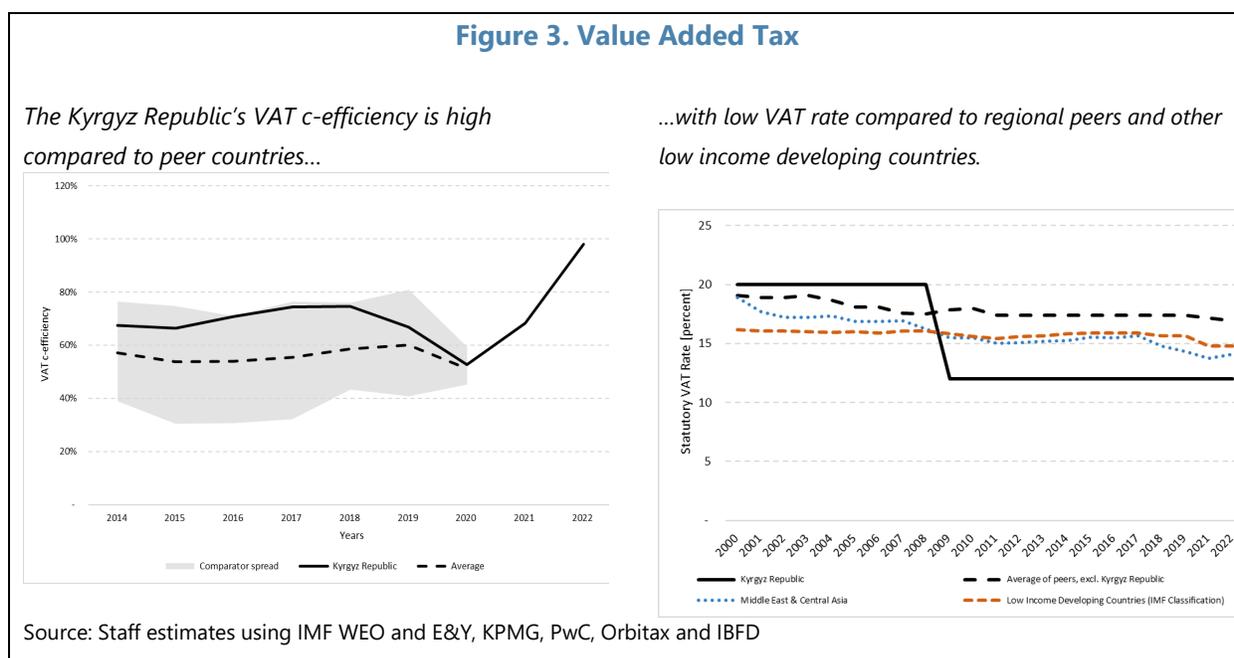
C. Estimated Tax Gaps and Qualitative Analysis

10. This section assesses how much the Kyrgyz Republic could improve its tax effort. While the SFA approach provides a solid estimation of the tax potential, it does not allow for a decomposition of the tax gap by tax type nor by policy versus administrative gaps. For this, a more granular analysis is required, which follows below. Estimation of the tax gap⁷ can provide tax policy makers and tax administrators a measure of the foregone tax revenues due to noncompliance, avoidance, and the impact of policy choices regarding the tax base.

⁷ For example, under the IMF's tax gap program, the Fiscal Affairs Department has developed methodologies to estimate tax gaps for [VAT](#), [CIT](#) and [PIT](#). See IMF (2017), IMF (2021a) and IMF (2021b) for details.

VAT and Sales Tax

11. The VAT appears to perform well. Since 2014, the VAT on average generated 8.5 percent of GDP in revenue with a tax rate of 12 percent. This implies a c-efficiency⁸ of 70 percent, which is at the upper bound of the comparator range while the tax rate is considerably below regional and income group peers as shown in Figure 3. The registration threshold is KGS 30 million, equivalent to US\$340,000.



12. The authorities and the IMF estimate VAT tax expenditures at around 2 percent of GDP.⁹ Preferential tax treatments in the 2022 Tax Code relate to the exemptions of targeted supplies and zero-rating of imports for a large number of commodities. IMF VAT modelling indicates that the majority of tax expenditures are related to the exemption of the supply of agricultural goods and services, passenger transportation and pharmaceutical products. It also points towards an additional compliance gap which could be as high as 1 percent of GDP.

⁸ The VAT efficiency is defined as: $VAT / (consumption - VAT) * VAT\ rate$.

⁹ Tax expenditures are generally defined as a reduction in tax liability compared with a “benchmark tax system.” They may take different forms, can be temporary or permanent, and can be included in tax laws or other laws, such as free and economic zone laws, investment codes, and so on. All tax expenditures figures in this note are drawn from the estimate published by the authorities as an annex to the 2024 budget. Latest estimates are for 2022 and therefore do not take into account changes to the tax code introduced in 2023. Estimates should be treated with caution as calculations have not been verified.

Table 2. Kyrgyz Republic: Tax Expenditures

The authorities estimate total tax expenditures at around 6 percent of GDP

[in percent of GDP]	2016	2017	2018	2019	2020	2021	2022
PIT	1.50%	1.39%	1.35%	1.29%	1.47%	1.50%	1.33%
CIT	0.16%	0.11%	0.13%	0.26%	0.22%	0.31%	0.41%
VAT	2.30%	2.01%	1.80%	1.72%	1.89%	2.62%	2.62%
Sales tax	0.70%	1.04%	1.08%	1.12%	1.63%	1.64%	1.76%
Property tax	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
Land tax	0.07%	0.06%	0.06%	0.05%	0.05%	0.04%	0.07%
Total	4.75%	4.64%	4.43%	4.46%	5.28%	6.13%	6.20%

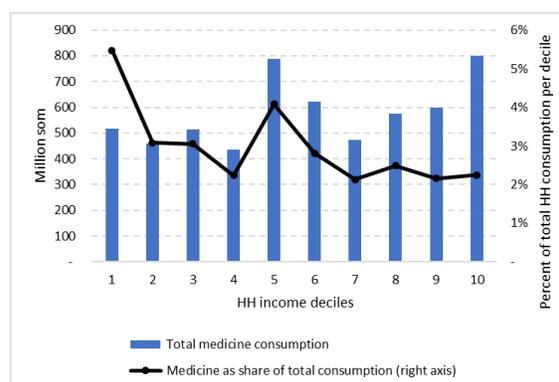
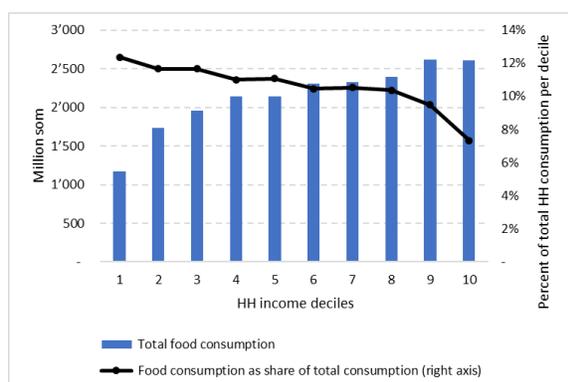
Source: Authorities

13. Tax expenditures estimates should be used to inform tax policy. Exemptions are granted on consumption of basic goods and services. However, this is an inefficient way to implement a redistributive policy as figure 4 illustrates for the examples of food¹⁰ and medicine. While food and medicine make up a large share of the poorest households (lowest 2 deciles) total consumption—12 and 4 percent respectively—they only consume 14 and 17 percent of all food and medicine, respectively, while the richest households (highest 2 deciles) consume 25 percent of all food and medicine and hence enjoy greater benefits from ill-targeted VAT exemptions. While these exemptions appear targeted to low-income households, compensation through a targeted means-tested cash-transfer program would achieve a better protection of the poorest households at a lower cost.

Figure 4. Distribution of Consumption of Food and Medicine

Poorest households spend around 12 percent of their total consumption on food but consume only 14 percent of all food in the economy.

Poorest households spend around 4 percent of their total consumption on medicine but consume only 17 percent of all medicine in the economy.

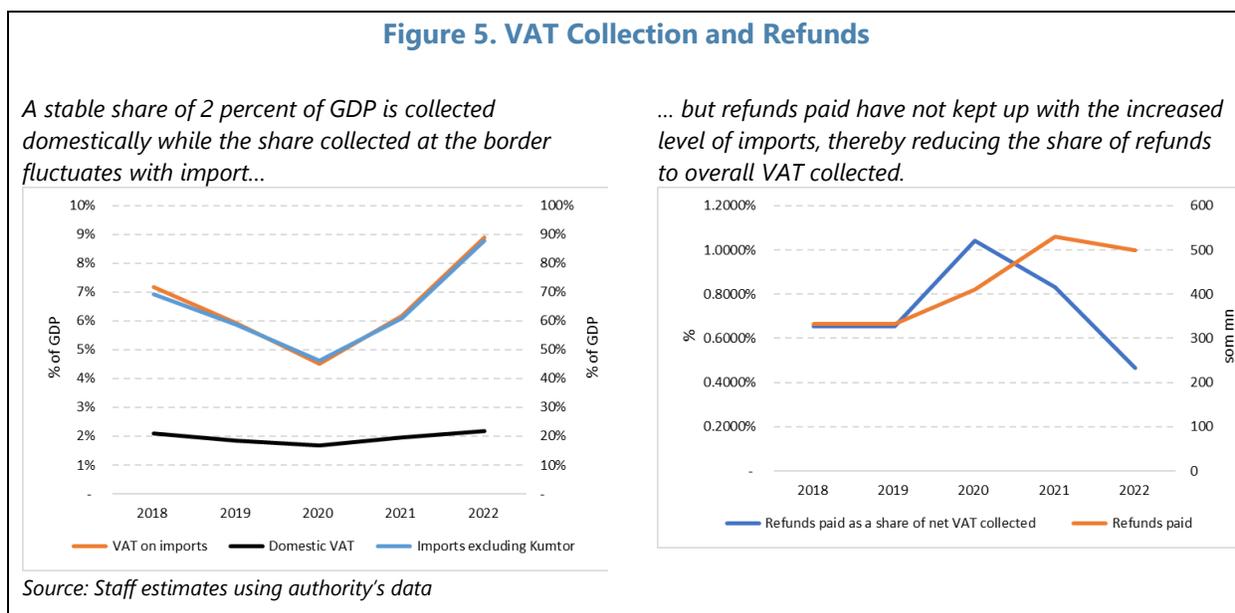


Source: Staff estimates using Kyrgyz Republic’s Household Survey 2019

¹⁰ Food consumption is used as a proxy for the consumption of VAT exempted agricultural products.

14. Fast increasing imports have driven the VAT collection in 2021 and 2022. Domestically collected VAT has remained stable at 2 percent of GDP over 2018-2022 as shown in Figure 4. However, VAT collected at the border increased from 7 percent of GDP before the pandemic to 9 percent of GDP in 2022, in tandem with the increase of imports. This increase in VAT revenue is only sustainable if the additional imports are domestically consumed. However, staff believes that part of the additional imports is reexported, which should result in higher VAT refunds due to the destination principle of the VAT.

15. C-efficiency increases if VAT refunds are denied, generating significant deficiency. VAT refunds have dropped as a share of VAT collected which cannot be easily explained. Refundable credits are primarily determined by the levels of investment and the shares of zero-rated VAT items (including exports). Both variables have not substantially changed over the last years (except during 2020 when investment dropped temporarily due to Covid lockdowns), indicating that the level of refunds compared to VAT collected should have remained broadly stable. Figure 4 shows that paid refunds increased nominally from KGS 333 million in 2018 to around KGS 500 million in 2022 while the ratio of refunds to net VAT collected which was stable at around 0.6 percent before the pandemic, jumped to over 1 percent in 2020 when VAT collected collapsed and then dropped to 0.4 percent in 2022, when the VAT collected increased to 12 percent of GDP.

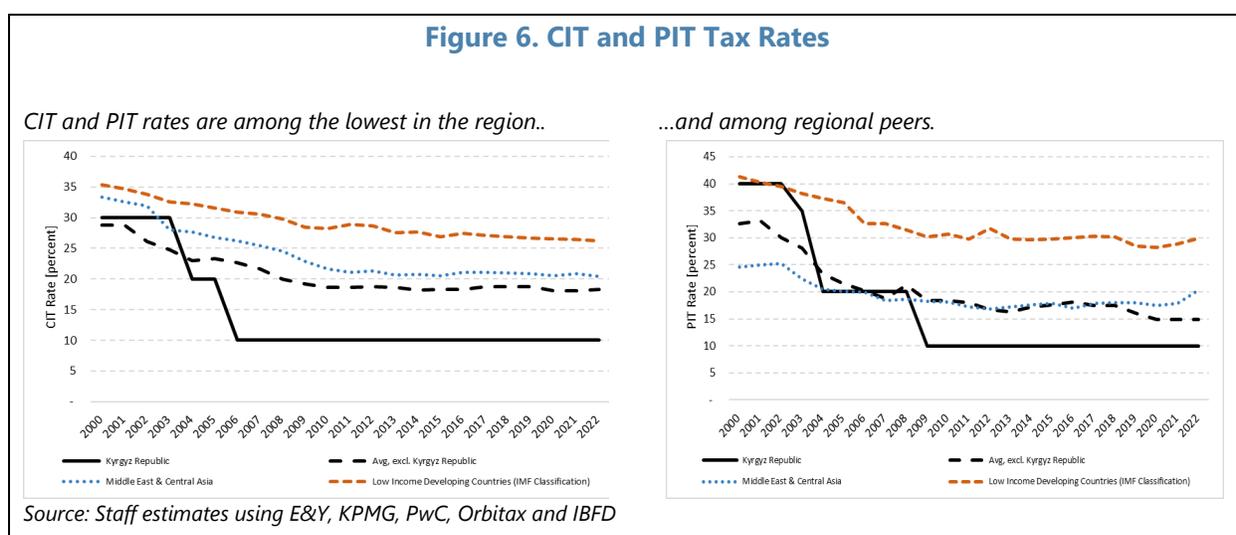


16. The sales tax, initially introduced as a temporary compensatory measure, is inefficient. It is a particularly inefficient form of indirect tax with a low revenue productivity (about 0.8 percent of GDP), high tax expenditures (estimated at 1.5 percent of GDP), and a difficulty to assess incidence. It breaches internal neutrality—as cascading costs of the tax incentivizes businesses to vertically integrate—as well as external neutrality as domestically produced goods, including exports, are taxed more heavily than imported products that are not subject to the sales tax. The elimination of

the sales tax could be compensated by bringing the VAT rate to around 15 percent which would still be below regional and income group peers.

Income Taxes

17. Personal and corporate incomes taxes at a flat 10 percent rate are low compared to peers. The PIT and CIT rates are among the lowest worldwide and considerably below regional peers as shown in Figure 5. The flat tax rate applied in the Kyrgyz Republic is common in former Soviet countries but less common in advanced economies.¹¹



18. Taxes on income generate a limited revenue yield and are fragmented by the number of derogatory regimes. For 2014-2022, PIT and CIT generated around 5 percent of GDP in revenues annually. About $\frac{2}{3}$ of income taxes were paid by corporates and $\frac{1}{3}$ by individuals. This includes revenues from the special regimes described above. Applying different tax regimes to specific sectors or activities carries the risk of base erosion and profit shifting as taxpayers are incentivized to shift profits to the fiscal regime with the lowest marginal tax rate.

19. The authorities estimate tax expenditure at 1.5 percent of GDP for the PIT and 0.3 percent for the CIT but the combined tax gap could be closer to 2–2.5 percent of GDP. For the PIT, the main tax expenditure is estimated to originate from the exemption of income from the sale of agricultural products and the standard deduction. For the CIT, the authorities' analysis focuses on specific revenue exemptions (e.g., non-profit organizations), but does not cover the tax expenditure related to the special regimes nor the ability to switch to the Single Tax. Using data from the national accounts, staff estimates that the tax potential for PIT and CIT combined could be

¹¹ Estonia was the first country to adopt a flat tax rate in 1994, followed by other former Soviet Union countries. Today there are around 20 countries with a flat tax rate: Belarus, Belize, Bolivia, Bosnia and Herzegovina, Bulgaria, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Mauritius, Moldova, Mongolia, Romania, Russia, Turkmenistan, Ukraine, and Uzbekistan.

around 7 to 7.5 percent of GDP under existing policies, suggesting a tax gap of 2 to 2.5 percent of GDP.

Corporate Income Tax

20. Adopting modern anti-avoidance rules can protect the CIT base and raise revenues.

The tax code could be updated with modern anti-avoidance rules. The absence of limitations on interest deductions and the transfer pricing rules are two areas where the code could be modernized to better protect the CIT tax base.

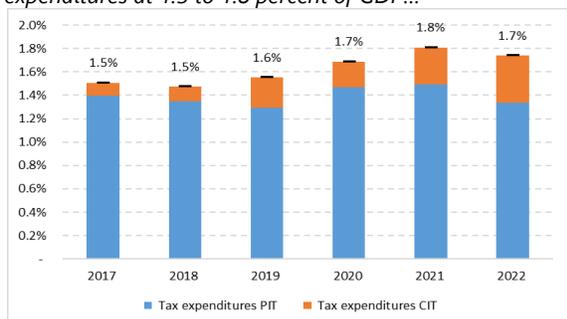
21. The existing presumptive tax regimes could be simplified. The current regimes applicable to small taxpayers include the patent regime for self-employed persons and micro-enterprises and the single tax regime applicable to small and medium size companies. However, the system is overly complex with various thresholds and tax rates. Considering the high informality—estimated at over 30 percent of GDP—having a functioning presumptive regime in place is crucial for tax fairness. Previous IMF technical assistance has recommended to establish two simplified regimes for small and micro-businesses: a patent system for micro-businesses, and a presumptive tax based on turnover for small businesses. At the same time, the general regime should be applied with few or no exceptions.

Personal Income Tax

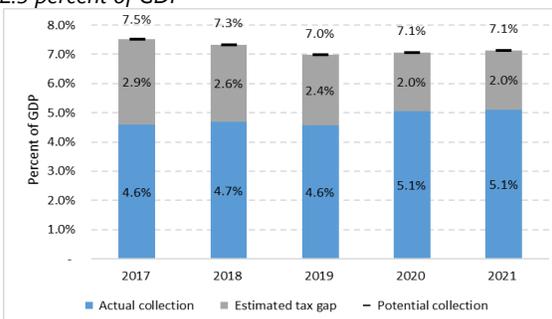
22. A somewhat higher PIT at the top of the income distribution could generate additional revenues and enhance the distributional capacity of the tax system. The current design of the PIT is slightly progressive thanks to the standard deduction. A PIT with a progressive rate schedule could improve progressivity and thereby generate higher revenues and a stronger redistribution. Using household survey data for 2019, staff estimates, that a progressive rate schedule with a 10 percent rate on all income, a 20 percent rate on income above KGS 177 thousand (mean of household income) and 35 percent top rate applicable to income above KGS 229 thousand (household income of 7th decile) could yield up to 1.5 percent of GDP in additional revenue. As capital income is more mobile than labor income, the reform could be combined with a move towards a dual income tax system where capital income is taxed at a lower flat rate and the less mobile labor income is taxed at a progressive rate schedule.

Figure 7. Tax Gap for Income Taxes and Progressive PIT

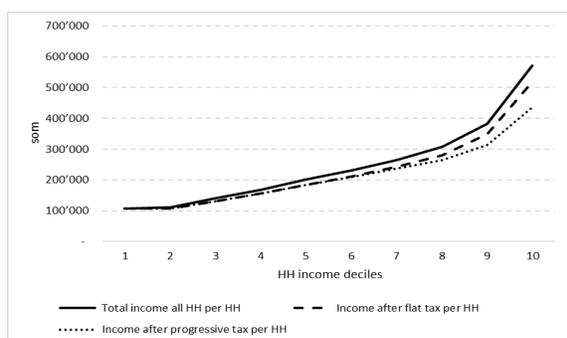
Authorities estimate the combined PIT and CIT tax expenditures at 1.5 to 1.8 percent of GDP...



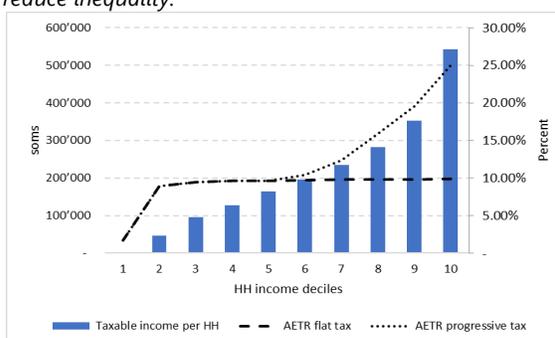
... while staff estimates point towards a tax gap of 2 to 2.5 percent of GDP



Pre-tax income is highly unequal with highest income percentile receiving one third of total income.



A graduated PIT with average effective tax rates (AETR) increasing for households above the mean income could add up to 1.5 percent of GDP in additional revenues and reduce inequality.



Source: Authorities and staff estimates using Kyrgyz Republic's household survey 2019

Mining Sector Taxation

23. Kumtor—the largest mining company—operates under a special tax regime. The Kyrgyz Republic primarily produces gold, silver, copper, and antimony. However, the Kumtor gold mine—now fully state-owned—represents the majority of the mining sector-related contribution to output and exports with 8 percent and 15 percent of GDP in 2021 respectively. Main direct taxes paid by Kumtor include a 13 percent gross proceeds tax, a contribution of 1 percent of gross proceeds to the Issyk-Kul Region Development Fund, a 4 percent of gross proceeds for the replenishment of the mineral reserves fund, a 0.4 percent of gross proceeds contribution to the Fund of Social Partnership for Regional Development and a 0.6 percent of gross proceeds contribution to the Fund for Development of the Naryn Region. In total this adds up to a royalty-type taxation of 19 percent of gross proceeds. With the mine being fully government-owned, any remaining profits should be distributed to the state in the form of dividends.

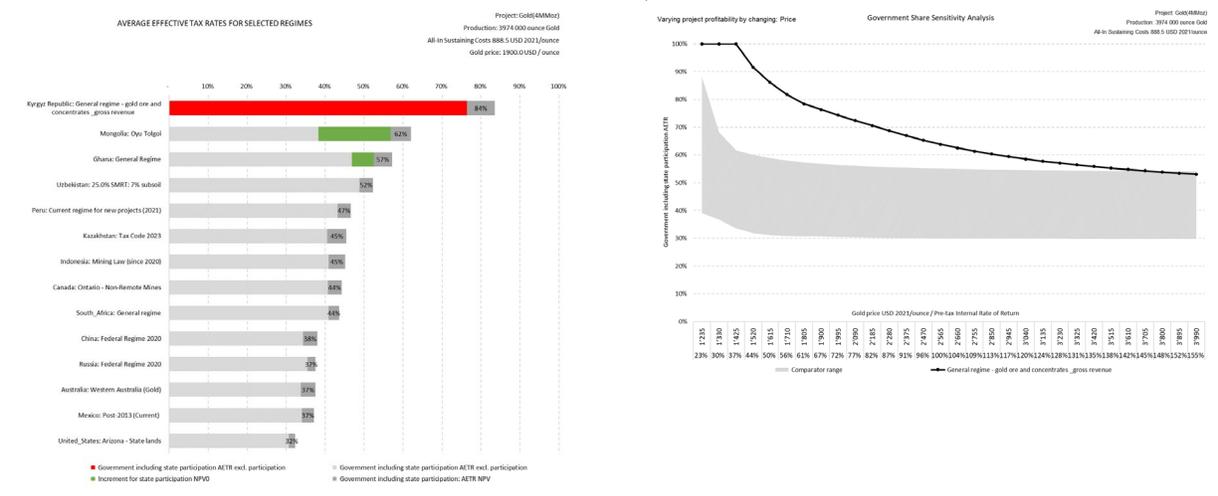
24. The general mining tax regime appears unattractive for new investors. The general tax regime relies on a production-based royalty between 3 and 5 percent of gross proceeds and a variable price-based income tax that ranges between 1 and 30 percent of gross proceeds. Despite

being in the income tax section of the tax code, the income tax for the mining sector does not allow cost deduction and hence effectively takes the characteristics of a production-based royalty. Using the IMF’s Fiscal Analysis of Resource Industries (FARI) fiscal modelling tool¹², Figure 7 shows that the Kyrgyz general mining regime is unattractive for new investors.¹³ In a baseline scenario with a gold price of US\$1,900 per ounce, the general regime’s average effective tax rate (AETR) is close to 90 percent—significantly above peer countries where AETRs between 30 and 50 percent are common. Moreover, without allowing cost deductions the regime is highly regressive requiring a breakeven price well above peers.

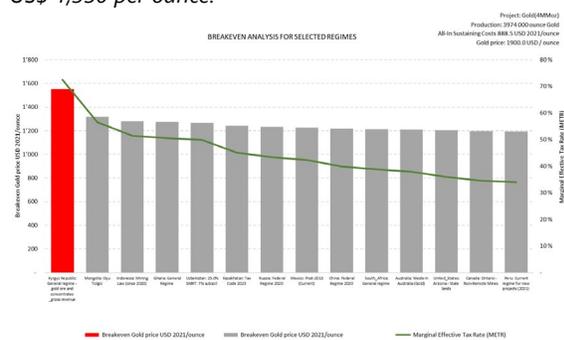
Figure 8. Mining Sector Taxation

The general regime taxes close to 90 percent of project cashflows for a highly profitable project...

...and is highly regressive with an AETR considerably above peer countries at all levels of profitability



The breakeven price required for an investor to achieve a hurdle rate of 15 percent pre-tax requires a gold price of US\$ 1,550 per ounce.



Source: Staff estimates using the FARI platform

¹² More information on FARI can be found here: <https://www.imf.org/en/Topics/fiscal-policies/fiscal-analysis-of-resource-industries>

¹³ Regressive is used to mean that the AETR decreases with increasing profitability of the project, analyzed over the life of the project.

Revenue Administration

25. A tax administration diagnostic (TADAT) in 2016 found mixed results for the State Tax Service (STS)—the main revenue administrative agency for domestic revenue collection. The STS performs well in taxpayer services and tax audit planning. At the same time, its ability to assess extent of tax compliance in the economy is undermined by the limited accuracy of the taxpayer registration database and the lack of intelligence on potential revenue losses. Other shortcomings include outdated tax administration business processes coupled with a lack of full automation of core tax administration, the absence of a risk-based approach to compliance and institutional risk management, limited accuracy of key data in the taxpayer registration database and a limited rollout of e-filing.

26. The STS has embarked on several reform initiatives. Recognizing these problems, the STS has been implementing several reform initiatives, which are likely to improve tax administration performance in the future and address some of the weaknesses identified in the assessment. Those include: (i) improving the accuracy of the taxpayer registration database by developing criteria for inactive taxpayers; (ii) establishing a monitoring and analytical department to work on compliance monitoring; and (iii) increasing attention paid to staff capacity development through a large-scale training program. Noticeable progress has been made by introducing mandatory e-filing for payroll withholding tax.

27. Continued administrative improvements are required to reduce tax losses and support tax policy making. An up-to-date taxpayer registry is the backbone of any tax system and of any compliance effort. The update of the registry should be prioritized together with segmentation of taxpayers and a continuation of ongoing reforms to improve tax payer compliance.

D. Conclusions

28. Increased revenue mobilization is key to create fiscal space. The Kyrgyz Republic collects roughly 20 percent of GDP in tax revenue. The tax system performs well despite low tax rates and the tax effort is high compared to peers. However, the country needs more fiscal space to accelerate progress toward the Sustainable Development Goals, adapt to climate change and invest in infrastructure. This paper shows that the Kyrgyz Republic has a tax potential of around 34 percent of GDP with substantial tax gaps in all main taxes—the VAT, the CIT, and the PIT. Moreover, there is room to make the tax system more efficient and equitable in support of higher and more inclusive growth.

29. The authorities could increase tax revenue by up to 4 percent of GDP over the medium-term. This could be achieved with the following policy and administrative reforms: (1) eliminating inefficient VAT exemptions, while operationalizing the refund mechanism and removing the sales tax, and rationalizing special tax regimes; (2) increasing the progressivity of the PIT by introducing graduated tax rates; and (3) improving revenue administration by strengthening taxpayer registry and risk management. The Fund can support these reforms with targeted technical assistance.

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