NBG POLICY PAPERS

PP 01/2024

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By Mariam Tchanturia, Giorgi Gigineishvili, Tamta Sopromadze and Shalva Mkhatrishvili

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National Bank of Georgia

Shedding Light on Georgia's Neutral Interest Rate

Mariam Tchanturia‡[1], Giorgi Gigineishvili‡, Tamta Sopromadze‡ and Shalva Mkhatrishvili‡

October 2024

Abstract

This policy paper aims to elucidate the concepts and importance of the neutral rate. For monetary policymakers, the neutral rate serves as a crucial benchmark for assessing monetary policy stance and plays a significant role in policy rules that guide decision-making. However, its unobservable nature poses challenges that often lead to vigorous debates regarding its interpretation. Views and methodologies concerning the neutral rate can vary significantly. This paper specifically focuses on the Real Uncovered Interest Rate parity (UIP) within the semi-structural New Keynesian Georgian Economy Model (GEMO), which we utilize for forecasting and policy analysis. We draw a clear distinction between short- and long-run neutral rates in the context of Georgia, emphasizing how differing short- and long-term inflation expectations shape these rates. For the long-run real rate, we employ steady-state calibrated values, while our analysis of the short-term neutral real rate is guided by trend estimates. Ultimately, this paper seeks to deepen the understanding of the dynamics of Georgia's neutral rate.

JEL Codes: E43, E47, E52, E58

Keywords: Neutral Interest rate, Monetary policy, Monetary policy stance

[1] Corresponding Authors: Giorgi Gigineishvili and Mariam Tchanturia (e-mails Mariam.Tchanturia@nbg.gov.ge; Giorgi.Gigineishvili@nbg.gov.ge);

All errors and omissions remain with the authors.

‡ Macroeconomics and Statistics Department, National Bank of Georgia

Table of Contents

I. Introduction

To what extent does the monetary policy rate stimulate or contain the economy? What is the expected interest rate level that economic participants should anticipate in the long run, after the dissipation of cyclical shocks? The answers of those questions lie behind the concept of neutral interest rate. Neutral interest rate is the equilibrium interest rate where the economy operates at its full potential, with inflation at the target. Thus, it refers to interest rate at which monetary policy neither stimulates nor contains economic activity.

However, the neutral interest rate is not directly observable and fluctuates over time due to a complex interplay of factors, including technological progress, demographic shifts, country riskiness and other external economic conditions. Understanding the forces that drive the neutral interest rate and determining where the equilibrium rate stands are critical questions for monetary policymakers as it guides monetary policy stance. If the actual market interest rate falls below this neutral rate, it leads to an increase in investment and demand, causing inflationary pressures. Conversely, if the market rate is above the neutral rate - leading to disinflationary pressures.

For the National Bank of Georgia (NBG), understanding the neutral interest rate is critical as the NBG has implemented monetary policy under the inflation-targeting framework since 2009. In the case of Georgia, identifying and estimating the neutral interest rate is particularly significant due to the economy's ongoing structural changes. As a small open economy, Georgia faces challenges, like fluctuating country risk premiums, volatility in exchange rates, and spillovers from global real interest rates. For instance, integration with international markets, structural changes in the economy, and changes in the labor market may significantly affect the neutral rate estimate.

This paper begins by providing a conceptual overview of the neutral rate, discussing its definition, underlying drivers, and significance for monetary policy. It then elaborates on the characteristics of Georgia's neutral interest rate, employing mostly the Real Uncovered Interest Rate Parity (UIP) framework to analyze how domestic and international forces have influenced it over the past. This work provides an introductory analysis, offering key insights that will be further developed in the forthcoming working paper.

Through this analysis, we aim to offer insights into how the neutral interest rate has evolved in Georgia and what this implies for the NBG's policy stance. By examining the factors driving the neutral rate from the short to long-term perspectives, the paper aims to contribute to the broader discussion on optimal monetary policy settings, especially for small open economies like Georgia, where external conditions significantly impact domestic economic outcomes. Ultimately, this research intends to inform future policy formulation, helping the NBG navigate the balance

between stimulating growth and maintaining price stability in an environment marked by both domestic and global uncertainties.

II. Neutral Rate: Definition and Conceptual Overview

The neutral interest rate represents a central concept in monetary policy, often viewed through multiple lenses. Economic literature clearly distinguishes between the long-run and short-run components of the neutral rate. The long-term neutral rate represents the interest rate consistent with full economic potential and inflation at the central bank's target, once all cyclical disturbances have dissipated. In contrast, the short-run neutral rate reflects temporary cyclical factors and headwinds, which may cause deviations from the long-run equilibrium (Rachel & Smith, 2015).

The neutral rate can be expressed in nominal and real terms, with the real rate adjusted for inflation expectations. In the medium to long term, inflation expectations typically align with the central bank's target in inflation-targeting regimes under the credible framework. However, in the short term, these expectations may deviate from the target. To accommodate this, the long-term concept can be adapted to derive a short-term neutral interest rate by incorporating cyclical factors in inflation expectations and real domestic and foreign trends. Consequently, understanding the factors influencing the neutral interest rate (NIR) requires consideration of both fundamental and cyclical drivers across different timeframes.

The long-run concept of the real neutral interest rate (r^*), often referred to in the economic literature as the natural rate, is more shaped by slow-moving factors that arise from both global and country-specific sources which can be analyzed within the context of demand and supply dynamics (Rachel & Smith, 2015). The most widely accepted framework for understanding the long-run r^* involves examining the equilibrium between desired savings (S^*) and desired investments (I^*), alongside other key long-run macroeconomic factors such as productivity growth, demographic shifts, inequality, financial market frictions, country-specific risk premiums, and fiscal and monetary policy considerations.

Let us delve into the details. The Ramsey model, a cornerstone of neoclassical theory, plays a crucial role in this analysis, suggesting that higher productivity raises future household income, thereby reducing the need for savings to smooth consumption over time, which leads to lower capital accumulation. This reduction in savings increases the marginal product of capital, resulting in higher real interest rates. Additionally, the Life-Cycle Hypothesis (Modigliani, 1950s) offers insights into how demographic changes, such as age structure and potential output growth, influence saving decisions. Generally, individuals aim to smooth consumption over their lifetimes based on expected future income, consistent with the Permanent Income Hypothesis as well (Friedman, 1957). In fact, the relationship between demographics and the natural rate of interest

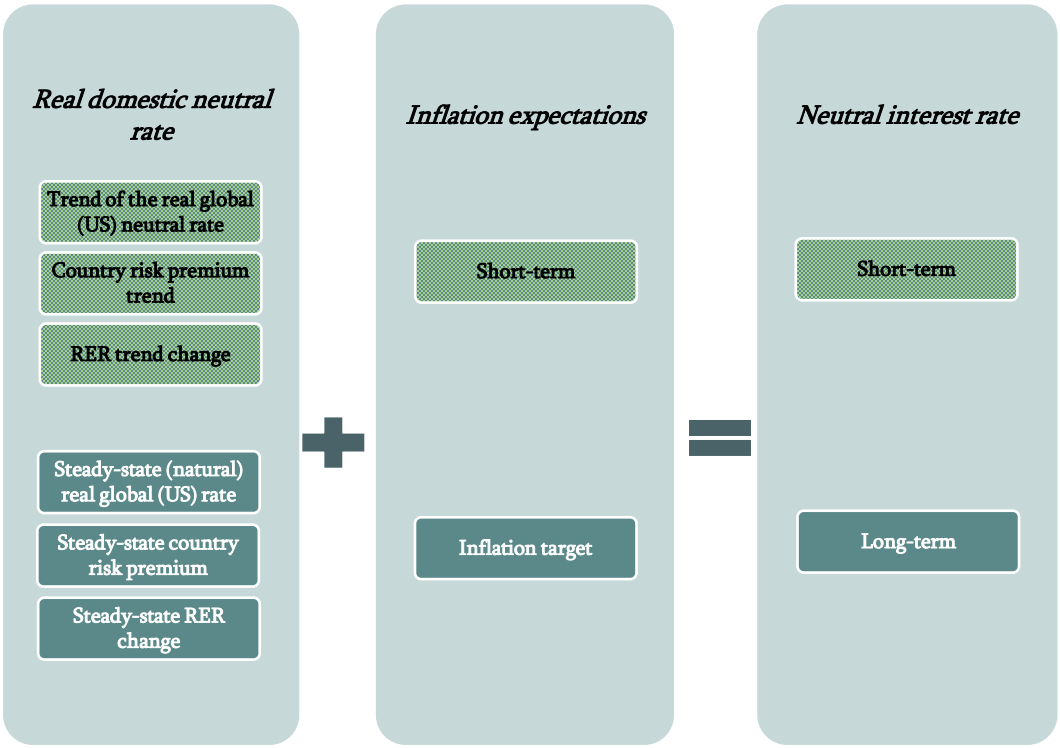
(r*) is complex. While increased savings might theoretically raise r*, many studies indicate that aging populations tend to exert downward pressure on r* by reducing investment demand and increasing the preference for safe assets. In open economies, r* is also influenced by the balance between domestic and foreign savings and investments; a higher domestic r* relative to foreign r* may signal higher returns on capital domestically (Obstfeld & Rogoff, 1995). Desired investment, impacted by factors such as the relative price of capital goods, public investment levels, and credit spreads, plays a crucial role in determining r* (Rachel & Smith, 2015). Thus, while the Ramsey model underscores the role of productivity in shaping long-run r*, the overall impact on it emerges from a complex interplay of demographic shifts, technological advancements, and financial market conditions.

In addition to the internal macroeconomic balances framework of desired investment and savings, which focuses on explaining the natural real rate, the external balance approach offers another perspective on r*, particularly through the **Real Uncovered Interest Rate Parity (UIP) framework**. This approach is commonly used in inflation-targeting countries with FPAS frameworks with New Keynesian DSGE models. Based on this approach, the neutral or short-term r* could mimic the hypothetical real interest rate that would prevail in a frictionless economy, without nominal rigidities (Linde, Platzer, and Tietz, 2022).

The rationale behind the Real UIP is that it reflects investors' indifference between domestic and foreign government bond investments by linking the domestic real interest rate, the real exchange rate (RER), and country riskiness with the foreign real interest rate in the equilibrium. This relationship is expressed as follows:

$$r^* = r^{*,foreign} + \textbf{Equilibrium of the Country Risk Premium} + \textbf{Expected Trend Change of RER}$$

Chart 1: Conceptual Overview of Neutral Interest Rate



Source: NBG

Real UIP underlines the influence of both global and domestic factors on r*. For example, rising global real rates make foreign assets more attractive, thus exacerbating capital outflow and pushing the domestic r* up, to mitigate depreciation risks and to converge into new equilibrium.

Besides, productivity gains, such as the catch-up effect in emerging market economies (EMEs)-particularly in the traded sector, as suggested by the Balassa-Samuelson theory-can lead to higher relative prices compared to trading partners. This, in turn, may appreciate the real exchange rate, which might put pressure on domestic real rates to decrease in accordance with Purchasing Power Parity (PPP).

Additionally, improved productivity and reduced sovereign risk premiums can lower term premiums and r*. However, the immediate effect of productivity gains on the real interest rate (r*) can be complex as well. If increases in productivity lead to higher expected future income, it might reduce the need for current savings, resulting in a lower real interest rate in the short term. However, if productivity gains significantly boost investment demand, this could put upward pressure on the real interest rate as the economy adjusts.

Notably, the medium- to long-term concept of the neutral rate does not provide policymakers with information on the real rate adjusted for current economic conditions. Thus, it does not guarantee a neutral policy stance amidst cyclical fluctuations. For the nominal neutral rate to be more informative and reflect the current monetary policy stance, it is necessary to expand this concept with shorter-term perspectives.

In our application of this framework, divergence between short and long-term neutral rates arises from several factors. First, as aforementioned, inflation expectations play a critical role. Short-term inflation dynamics, shaped by current economic conditions-such as excess demand-supply imbalances-monetary and fiscal policies, and financial market conditions (including credit and liquidity factors), contribute to this distinction. Notably, shorter-term inflation expectations are more volatile, reflecting these evolving conditions and, in turn, leading to a more oscillating nominal neutral rate.

Turning to the real interest rate, we also distinguish between the long-run natural real rate and the short-term components of the neutral rate – steady state and trend real neutral rates. This distinction requires calibrating the steady state and trend values for the country risk premium, global real rates, and the exchange rate. This approach enables a more nuanced understanding of the factors influencing the domestic real interest rate across different time horizons.

Consequently, examining both estimates reveals that the policy stance may appear tighter or looser from a short-term perspective compared to a longer-term view. Therefore, it is essential to consider both estimates when assessing the overall policy stance and making informed policy decisions.

Thus, for monetary policymakers, maintaining a clear perspective on the neutral rate is crucial, as it serves as a guidepost for decisions to tighten or ease the policy stance. In inflation-targeting central banks, where Taylor-type rules are frequently employed to determine the trajectory of the policy rate, the neutral rate stands as a critical determinant, whereas the policy rate is determined by inflation deviation from the target, output gap, and neutral rate. The National Bank of Georgia (NBG) incorporates a simplified policy rule, reflecting this principle, in its Forecasting and Policy Analysis System (Tvalodze et al, 2016):

$$\boldsymbol{i_t} = \gamma_1 \boldsymbol{i_{t-1}} + (1-\gamma_1)\left[\boldsymbol{i_t^N} + \gamma_2 E_t(\boldsymbol{\pi_{4,t+4}} - \boldsymbol{\pi_{t+4}^{tar}}) + \gamma_3 \boldsymbol{\hat{y}_t}\right] + \boldsymbol{\varepsilon_t^i}$$

Where i_t is the nominal policy rate, $\boldsymbol{i_t^N}$ is the neutral nominal interest rate, $\pi_{4,t+4}$- year-on-year inflation expected in the next year, π_{t+4}^{tar} - the inflation target for the next year. In addition to standard monetary policy shock ε_t^i.

III. Understanding Georgia's Neutral Rate through the Real Uncovered Interest Rate Parity (UIP) Framework

Georgia moved to an inflation-targeting regime in 2009, where the monetary policy rate became a major instrument to maintain price stability. Initially, this was a LITE[2] regime, but it transitioned to a fully-fledged flexible inflation-targeting regime in 2016. Despite several adverse supply and demand shocks over the past decade, the NBG has successfully maintained its credibility in anchoring inflation expectations. Long-run inflation expectations in Georgia have remained well-anchored around the target, as evidenced by various indicators. These include market-based measures, such as the spread between policy rate and yield curves, and survey-based measures, such as long-run inflation expectations of financial market participants. Therefore, first, if we observe the inflation component of the nominal neutral rate-the wedge between nominal and real rates-we can confidently assert that it is well-anchored at its target rate of 3%.

While analyzing Georgia's neutral rate, we base our analysis on both empirical evidence and theoretical insights regarding short and long-term equilibriums, integrating these into the real UIP framework for Georgia. The long-run steady-state calibration aligns with the country's broader structural dynamics, whereas the short-run assessment considers short and medium-run dynamics in the trends.

In our analysis, the U.S. interest rate emerges as a pivotal determinant of Georgia's neutral rate, reflecting its relative dominance in our economy. Notably, over the past decade, economists have primarily focused on explaining the decline in global real rates, with both structural and cyclical factors contributing to this trend. However, the recent debate among leading economists, including Blanchard and Summers, has shifted towards assessing whether the neutral rate globally - and particularly in the U.S. - is now elevated compared to pre-pandemic levels. The debate has intensified around the long-term r* because factors such as fiscal expansion and advancements in artificial intelligence suggest a potential upward shift in it. At the same time, demographic trends and other economic factors cast doubt on whether a sustained increase in the long-term r* has occurred. Given the uncertainty surrounding r*, different approaches have emerged. The New York Fed, for instance, uses the Laubach-Williams (LW) and Holston-Laubach-Williams (HLW) models, which place r* in a range of 0.5-1.5%, aligning closely with the Federal Reserve's (Fed) projections. Market expectations similarly point to higher long-term rates, driven by AI-led productivity gains and fiscal dynamics, which exerts upward pressure on Georgia's neutral rate as well. However, it is essential to distinguish whether the rise in real rates, particularly in the U.S., is primarily attributable to AI-induced productivity growth or fiscal factors. These drivers carry different implications for emerging markets like Georgia and must be carefully evaluated to

[2] Light Inflation Targeting Regime

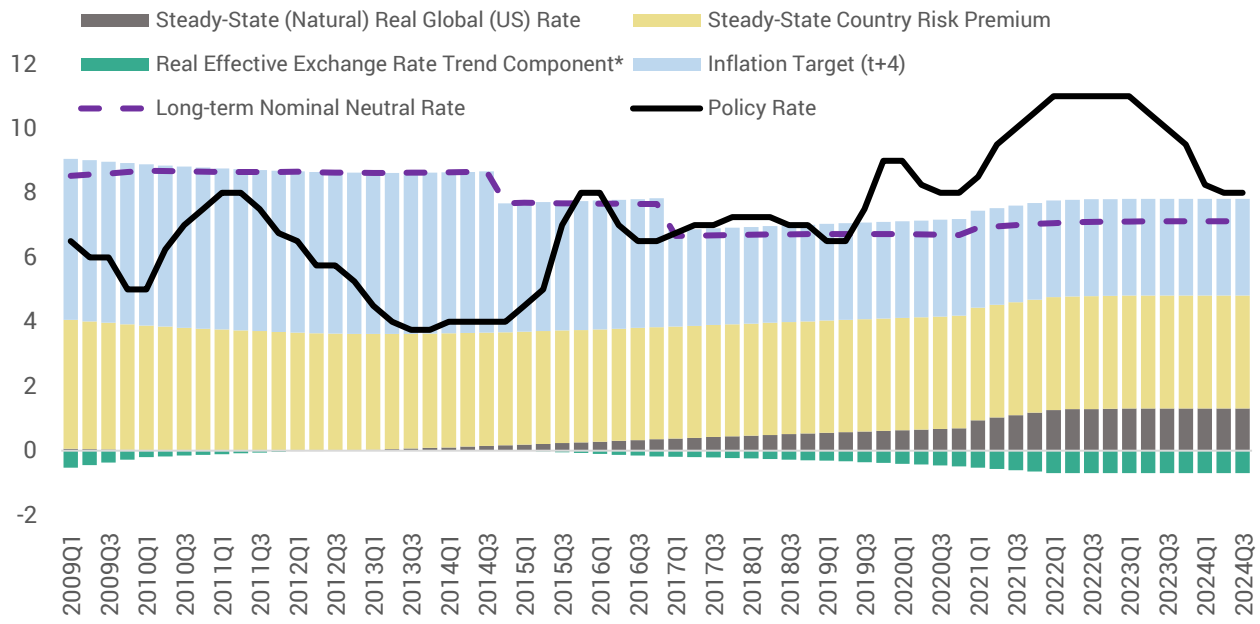
understand their distinct impacts. In our estimates, we incorporate an upward shift in both the natural and neutral real rates in the U.S. Our perspectives on U.S. real rates are consistent with the views articulated by Larry Summers and the estimates derived from the LW and HLW models.

Another key component of the real UIP condition is the equilibrium country risk premium, encompassing both sovereign and currency risks. In this analysis, the sovereign risk premium for Georgia is proxied by the emerging bond market index, while the currency risk premium remains unobservable and is evaluated based on the semi-structural New Keynesian core model for the Georgian economy (GEMO). Historical data reveal significant improvements in the sovereign risk premium over recent decades. Specifically, since 2009 - following the aftermath of the war and the global financial crisis (GFC) - there has been a gradual decline. Consequently, the steady-state estimate for the sovereign and currency risk premiums have adjusted downward from approximately 4% to 3.5% (see Figure 1), while short-to medium-term trends exhibit higher volatility, reflecting the turmoil in the Georgian economy (see Figure 2).

Lastly, exchange rate trends play a key role in the real UIP condition[3]. After 2009, Georgia transitioned from a phase of rapid growth to a period of moderated growth, particularly in the traded sectors. It is worth noting that in 2014-2015, Georgia faced significant nominal depreciations due to the global strengthening U.S. dollar and reducing external inflows from the trade partners. This event coupled with moderated growth in the traded sectors relative to the non-traded sectors, led to a trend depreciation of the real effective exchange rate (REER), which put upward pressure on the neutral rate even before the pandemic (see Figures 1 and 2). The picture began to change in the post-pandemic era. Since 2022, Georgia has seen rapid capital inflows and productivity gains, notably in the IT sector, which led to a surge in traded sector productivity and an appreciation of the nominal currency. Consequently, the REER trend began to appreciate, exerting downward pressure on the neutral rate. Looking ahead, the future trajectory of the REER is closely linked to the persistence of productivity gains and the geopolitical landscape. There is significant uncertainty about its longer-run steady-state value, but current estimates suggest it stands around 0.5-1%.

[3] We consider UIP based on the real effective exchange rate of the GEL, assuming that the trend depreciation of trade partners' currencies against the U.S. dollar is zero.

Figure 1: New-Keynesian Model Decomposition of the Long-Run Nominal Neutral Rate in Georgia[4]



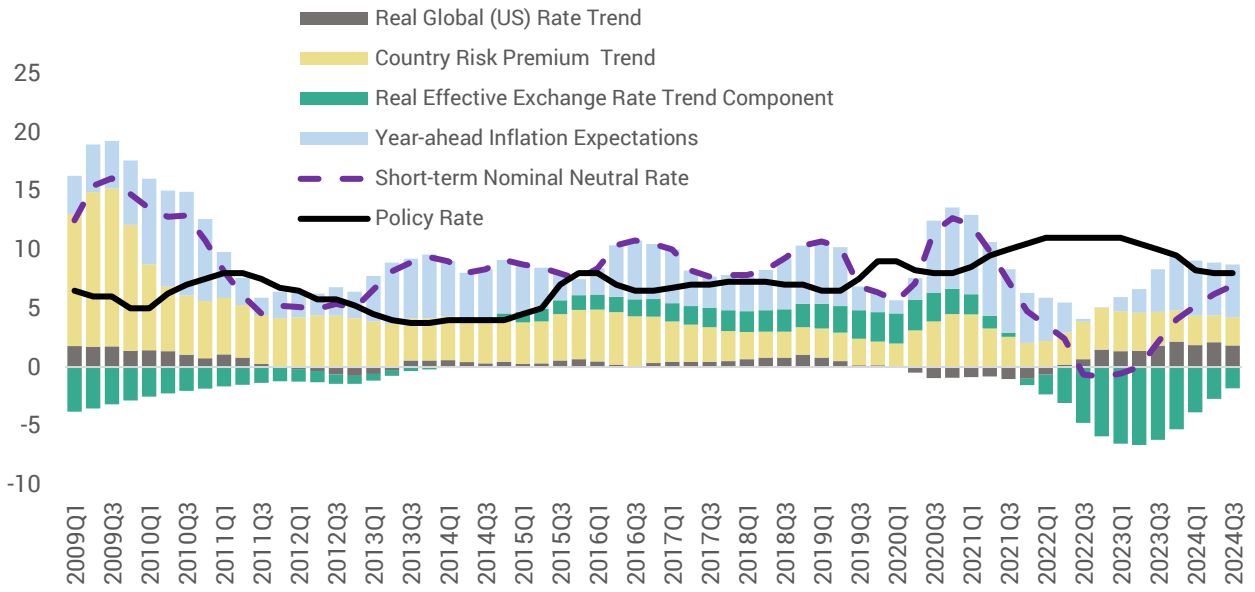
Source: NBG

To summarize, from a long-term perspective, the current estimate of the neutral rate stands at approximately 7%. This estimate reflects the interplay of various factors, and future developments will be significantly influenced by global trends and conditions. Based on the current estimate, the National Bank of Georgia (NBG) maintains a tight policy stance relative to its long-term neutral rate.

However, from the short- to medium-term perspective, the neutral rate exhibits higher volatility than its long-run estimate, currently indicating that the policy is neither restrictive nor accommodative in Georgia, in contrast to the long-term perspective (see Figure 2). As mentioned above, in our analysis, the short-term neutral rate is constructed based on four-quarter-ahead inflation expectation measures and focuses on trend estimates rather than steady-state/natural ones. The trends are derived from GEMO.

[4] In each period, inflation expectations reflect the 4-quarter-ahead inflation target.
* Appreciation puts downward pressure on the neutral interest rate, while depreciation increases it.

Figure 2: New-Keynesian Model Decomposition of the Short-Run Nominal Neutral Rate in Georgia



Source: NBG

IV. Conclusion

Understanding the neutral rate is essential for avoiding what Olivier Blanchard refers to as the 'dark corner,' which implies a misperception of how restrictive monetary policy truly is. The primary challenge lies in the fact that neutral rate is unobservable. Given this, relying on a single approach may be insufficient. Instead, it is more prudent to draw insights from multiple frameworks, integrating these perspectives through informed judgment.

This paper provides insights based on one such approach, currently pivotal in the National Bank of Georgia's policy-making process. The analysis is grounded in the Core Macroeconomic New Keynesian semi-structural model (GEMO), which serves as a key tool in forecasting and policy analysis. However, as these semi-structural models allow for the incorporation of judgment, we incorporate a blend of insights from various approaches. This results in a more comprehensive assessment, which is reflected in our monetary policy communications regarding the neutral rate.

Nevertheless, estimating the neutral rate is a complex and evolving task. Forthcoming working papers will explore other methodologies and deepen the analysis of the neutral rate. This continued research may lead to refined estimates and adjustments to our current understanding.

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