Vestnik MIRBIS. 2025; 4 (44)': 6–18.
Вестник МИРБИС. 2025. № 4 (44)'. С. 6–18.

Original article
DOI: 10.25634/MIRBIS.2025.4.1

The Spillover Effects of Iran's Snapback Mechanism on Afghanistan's Economy: A Mechanism Analysis

Mohammad Naser Moain — Herat University, Herat, Afghanistan. mnmoain@hu.edu.af

Abstract. The reactivation of the snapback mechanism against Iran, as outlined in United Nations Security Council Resolution 2231, represents a critical turning point in the international sanctions regime. While sanctions are primarily aimed at Iran, their spillover effects extend across the region. Therefore, this study examines the spillover effects of the reactivation of the snapback mechanism against Iran on Afghanistan's economy. As a landlocked and trade-dependent country, Afghanistan relies heavily on Iran for imports of fuel, construction materials, food, and access to international markets through Iranian ports. Using a three-step mechanism approach and secondary data from international institutions, the paper investigates how renewed sanctions on Iran may impact Afghanistan's economy through trade flows, transit corridors, exchange rate dynamics, inflationary trends, and financial linkages. The findings suggest that sanctions on Iran generate significant macroeconomic vulnerabilities for Afghanistan, notably through disrupted imports, reduced remittances, exchange rate volatility, and inflationary pressures. Scenario analysis highlights both moderate and severe potential outcomes, underscoring Afghanistan's structural dependence on Iran. The study concludes that without diversification of trade partners and transit routes, Afghanistan will remain highly exposed to regional policy shocks triggered by international sanctions.

Key words: sanctions, Afghanistan, Iran, snapback mechanism, spillover effects, exchange rate, transit trade.

For citation: Moain M. N. The Spillover Effects of Iran's Snapback Mechanism on Afghanistan's Economy: A Mechanism Analysis. DOI: 10.25634/MIRBIS.2025.4.1. *Vestnik MIRBIS*. 2025; 4:6–18.

JEL: F51, F52, F53

Научная статья
УДК: 339.545+339.98
DOI: 10.25634/MIRBIS.2025.4.2

Побочные эффекты иранского механизма «снапбэк» для экономики Афганистана: анализ механизма

Мохаммад Насер Моаин — Гератский университет, Герат, Афганистан. mnmoain@hu.edu.af

Аннотация. Возобновление действия механизма «снапбэк» против Ирана, предусмотренного резолюцией 2231 Совета Безопасности ООН, представляет собой критический поворотный момент в режиме международных санкций. Хотя санкции направлены в первую очередь против Ирана, их побочные эффекты распространяются на весь регион. В связи с этим в настоящем исследовании рассматриваются побочные эффекты возобновления действия механизма «снапбэк» против Ирана для экономики Афганистана. Будучи страной, не имеющей выхода к морю и зависящей от торговли, Афганистан в значительной степени зависит от Ирана в плане импорта топлива, строительных материалов, продовольствия и доступа к международным рынкам через иранские порты. Используя трехступенчатый подход и вторичные данные международных организаций, в статье исследуется, как возобновление санкций против Ирана может повлиять на экономику Афганистана через торговые потоки, транзитные коридоры, динамику обменного курса, инфляционные тенденции и финансовые связи. Результаты показывают, что санкции против Ирана создают значительную макроэкономическую уязвимость для Афганистана, в частности, из-за перебоев с импортом, сокращения денежных переводов, волатильности обменного курса и инфляционного давления. Анализ сценариев выделяет как умеренные, так и серьезные потенциальные последствия, подчеркивая структурную зависимость Афганистана от Ирана. В исследовании сделан вывод о том, что без диверсификации торговых партнеров и транзитных маршрутов Афганистан останется крайне уязвимым к региональным политическим потрясениям, вызванным международными санкциями..

Ключевые слова: санкции, Афганистан, Иран, механизм обратного действия, побочные эффекты, обменный курс, транзитная торговля.

Для цитирования: Moain M. N. The Spillover Effects of Iran's Snapback Mechanism on Afghanistan's Economy: A Mechanism Analysis. DOI: 10.25634/MIRBIS.2025.4.1 // Вестник МИРБИС. 2025; 4:6–18.

JEL: F51, F52, F53

1. Introduction

The reactivation of the snapback mechanism against Iran, under United Nations Security Council Resolution 2231, represents one of the most critical instruments in the international sanctions regime. This mechanism allows the automatic re-imposition of sanctions if Iran is deemed non-compliant with its nuclear commitments [Bahgat 2010, 165–167]. The re-imposition of sanctions has significant implications not only for Iran but also for its neighboring economies, especially Afghanistan, which is highly dependent on Iran for trade, energy imports, and transit access.

As Salvatore [Salvatore 2019,145–148] argues, countries that rely heavily on neighboring markets for imports and transit face significant welfare losses when trade barriers or sanctions are imposed. Afghanistan's dependence on Iran's ports and energy supplies reflects this structural vulnerability. Afghanistan's economic structure is deeply interconnected with regional dynamics. Iran is the second-largest source of imports for Afghanistan, supplying petroleum, construction materials, food, and consumer goods [Afghanistan development update 2024, 42–44]. Moreover, the Iranian ports of Chabahar and Bandar Abbas provide Afghanistan with vital transit routes to global markets. Any disruption in these channels due to renewed sanctions may directly affect Afghanistan's trade balance, exchange rate stability, and inflationary trends [Regional Economic Outlook... 2023, 18–20].

The experience of sanctions in other regional contexts highlights the broader spillover effects. For instance, Cordesman [Cordesman 2014, 22–25] notes that secondary sanctions on Iran have often constrained the financial and trade flows of neighboring states, compelling them to adjust their foreign exchange policies and seek alternative routes for imports. For Afghanistan, whose economy is already fragile due to conflict, political instability, and dependence on aid, the costs of such disruptions could be severe.

The central research question of this study, therefore, is: To what extent can Afghanistan's economy absorb and adapt to the shock of renewed sanctions on Iran under the snapback mechanism? Specifically, this article investigates the potential consequences on Afghanistan's trade relations, transit corridors, exchange rate dynamics, and inflationary pressures. By adopting a descriptive–analytical approach and drawing upon secondary data from international institutions, this research aims to highlight Afghanistan's vulnerabilities and explore possible strategies for economic resilience.

2. Literature Review

The literature on economic sanctions emphasizes their broad regional spillover effects, especially when imposed on countries with extensive trade and transit linkages. Hufbauer, Schott, Elliott, and Oegg [Economic sanctions reconsidered 2007, 12–14] argue that sanctions rarely remain confined to the target country; instead, they generate unintended consequences for neighboring economies, disrupting trade flows and financial relations. This perspective is highly relevant to Afghanistan, which shares deep commercial and transit ties with Iran.

Several studies have focused specifically on the impact of sanctions on Iran's regional partners. Bahgat [Bahgat 2010, 170–172] highlights how sanctions on Iran constrained energy trade routes and disrupted regional oil and gas markets. Similarly, Cordesman [Cordesman 2014, 23–26] finds that secondary sanctions targeting Iran's banking and transport sectors spilled over to Iraq, Turkey, and the Gulf states, increasing transaction costs and reducing access to financial services. These findings suggest that Afghanistan, given its dependency on Iranian ports and energy imports, is likely to experience similar vulnerabilities.

From the Afghan perspective, international institutions have provided insights into the country's external economic dependencies. The World Bank [Afghanistan development update 2024, 41–45] notes that Afghanistan imports nearly 20–25% of its essential goods, including petroleum products and construction materials, from Iran. Moreover, the IMF [Regional Economic Outlook... 2023, 18–22] underlines Afghanistan's reliance on the Iranian Rial–Afghani exchange market, which has historically played a stabilizing role for cross-border

trade. Renewed sanctions threaten to weaken this mechanism, increasing pressure on the Afghani (AFN) currency and fueling inflationary risks.

However, a significant research gap exists in the literature: while numerous studies have analyzed the macroeconomic costs of sanctions on Iran itself, there is a lack of systematic research on how such measures affect Afghanistan, a neighboring, landlocked country. Existing works often treat Afghanistan only as a peripheral case (e.g., Katzman) [Katzman 2022, 19–21], without a dedicated focus on its structural vulnerabilities. This article seeks to fill that gap by systematically analyzing the channels through which the snapback mechanism against Iran could spill over into Afghanistan's economy.

3. Theoretical Framework and Conceptual Model

Economic theory suggests that sanctions generate both direct and indirect spillover effects on neighboring economies. According to Keohane and Nye's [Keohane 1977, 8–10] theory of complex interdependence, economies that rely on cross-border trade and transit are highly vulnerable to policy shocks in adjacent countries. Afghanistan's dependence on Iran for energy imports, transit access, and currency exchange represents a textbook case of such interdependence.

Building on Salvatore's [Salvatore 2019] framework of small open economies, this study conceptualizes Afghanistan as a trade-dependent economy where sanctions on a key partner (Iran) produce disproportionate welfare shocks. In the sanctions literature, the spillover effect model emphasizes the transmission of shocks through trade flows, financial linkages, and transit corridors [Hufbauer 2007, 40–43].

For example, when sanctions disrupted Iran's oil exports, neighboring countries such as Turkey and Iraq faced rising costs and inflation [Cordesman 2014, 25–28]. Similarly, Afghanistan, which imports nearly one-quarter of its petroleum and construction materials from Iran, is at risk of price shocks and supply chain disruptions [Afghanistan development update 2024, 42–44].

From a macroeconomic perspective, the exchange rate channel is particularly critical. The IMF [Regional Economic Outlook... 2023, 19–21] notes that Afghanistan's informal currency markets rely heavily on the Rial–Afghani exchange corridor. When sanctions depreciate the Iranian Rial, volatility spills over to the Afghani, increasing inflationary pressures. These theoretical insights align with the dependency theory, which argues that peripheral economies are disproportionately affected by disruptions in their regional hubs [Frank 1969, 23–26].

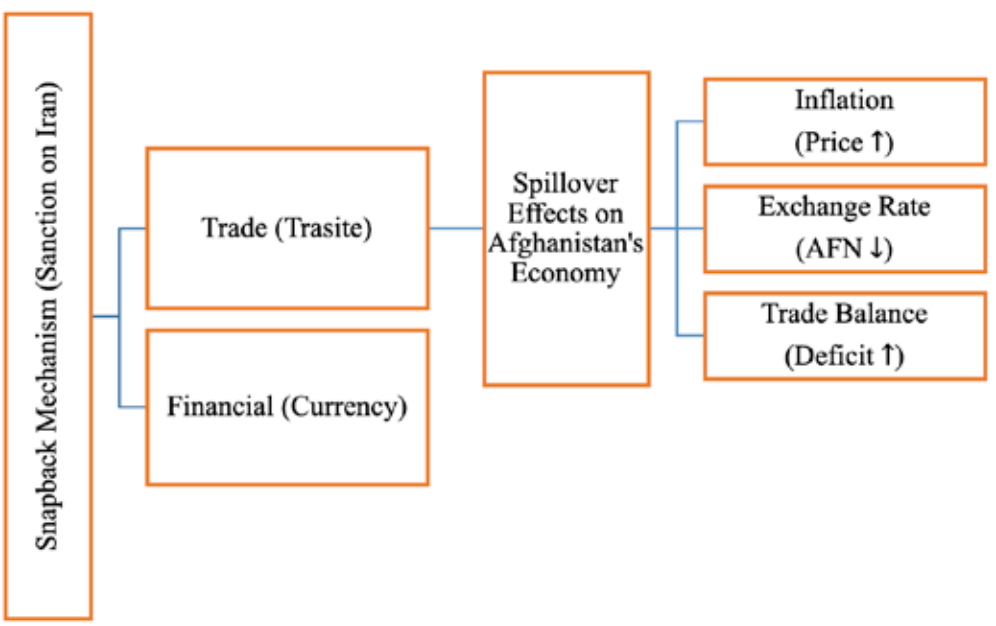

Figure 1. Conceptual Model Diagram

Based on these frameworks, this article conceptualizes the impact of the snapback mechanism on Afghanistan's economy through four main channels:

1. Trade disruptions (imports of fuel, food, and construction materials);
2. Transit constraints (restrictions on Chabahar and Iranian routes);

3. Exchange rate volatility (Rial–Afghani depreciation and inflation);

4. Financial and remittance flows (constraints on banking and cross-border payments).

4. Methodology

This study adopts a descriptive–analytical research design, which is particularly suitable for examining macroeconomic vulnerabilities in contexts with limited primary data availability. Since Afghanistan has not implemented systematic surveys on the impact of sanctions, the analysis relies predominantly on secondary data from international organizations and regional economic reports.

4.1 Research Approach

The research follows an ex post facto design, where historical and current economic data are analyzed to identify patterns of dependency and vulnerability [Kerlinger 2000, 379–381]. By examining Afghanistan's economic indicators during previous sanction waves on Iran, the study extrapolates potential outcomes of renewed sanctions under the snapback mechanism.

4.2 Data Sources

The study relies on secondary data obtained from a combination of internationally recognized databases and institutional reports to ensure reliability and comprehensiveness. The World Bank Development Indicators [Afghanistan development update 2024, 40–46] provide data on Afghanistan's trade flows and macroeconomic structure, forming the foundation for long-term trend analysis. Complementing this, the IMF Country Reports [Regional Economic Outlook... 2023, 18–22] supply detailed statistics on inflation, exchange rates, and fiscal conditions, which are essential for assessing macroeconomic stability under sanctions. To capture the bilateral trade dynamics, particularly between Afghanistan and Iran, data are drawn from the UN Comtrade Database [International trade statistics... 2022[, which provides granular trade volume statistics. In addition, regional perspectives on sanction spillover effects are incorporated through policy-oriented analyses from the Center for Strategic and International Studies (CSIS) and the Congressional Research Service, with key insights drawn from Cordesman [Cordesman 2014, 25–28] and Katzman [Katzman 2022, 19–21]. Collectively, these diverse sources provide a robust empirical foundation for examining the direct and indirect channels through which sanctions shape Afghanistan's trade performance and broader economic outcomes.

4.3 Variables of Interest

The study focuses on four key dependent variables:

1. Trade dynamics (imports and exports);
2. Transit dependency (use of Iranian ports vs. alternatives);
3. Exchange rate volatility (AFN/USD fluctuations under Rial shocks);
4. Inflation Rate (Consumer Price Index Trends).

The independent variable is the re-imposition of sanctions under the snapback mechanism, operationalized through historical sanction periods (2012–2015, 2018–2020) and scenario projections for 2025.

4.4 Analytical Techniques

This study employs a comprehensive analytical framework that combines both descriptive and inferential approaches. First, a trend analysis is employed to capture long-term movements in Afghanistan's trade and exchange rate indicators, providing the baseline for structural evaluation [Afghanistan development update 2024, 42–44]. Second, a comparative analysis assesses economic performance during sanction and non-sanction periods to identify variations directly associated with external restrictions [Regional Economic Outlook... 2023, 19–21]. Third, a scenario analysis constructs best-case and worst-case projections under potential shifts in transit and financial flows, thereby outlining possible future trajectories [Cordesman 2014, 26–27]. Alongside these three dimensions, the study also performs a three-step mediation analysis to examine the channels through which sanctions influence Afghanistan's key economic indicators, disentangling direct effects from indirect pathways such as trade, exchange rates, and capital flows. Finally, a shock analysis is integrated to evaluate the immediate and medium-term disruptions caused by sanctions, reinforcing the robustness of the findings and capturing both structural and short-run dynamics in the Afghan economy.

4.5 Limitations

The study is constrained by the lack of disaggregated national statistics within Afghanistan and the informality of cross-border trade with Iran. Furthermore, much of the available data is published with delays, limiting the timeliness of projections [International trade statistics... 2022].

Despite these limitations, triangulation across multiple international sources enhances the validity of findings [Economic sanctions reconsidered 2007, 2–14).

5. Findings and Analysis

5.1 Impact on Trade

Afghanistan relies heavily on Iran for petroleum, construction materials, and food staples. According to the World Bank [Afghanistan development update 2024, 42–44], imports from Iran constitute nearly one-quarter of Afghanistan's essential goods. Renewed sanctions under the snapback mechanism are likely to increase transaction costs, reduce official trade flows, and push a larger share of commerce into informal cross-border markets. This could undermine government revenue collection and exacerbate Afghanistan's fiscal deficit.

Exports from Afghanistan to Iran—primarily dried fruits, saffron, and livestock—are also at risk. The UN Comtrade [International trade statistics... 2022] database indicates that Iran is the second-largest destination for Afghan agricultural exports, following Pakistan. Sanctions are expected to restrict payment channels, reducing Afghan exporters' market access.

5.2 Impact on Transit Corridors

Iran provides Afghanistan with critical transit access to international markets through the ports of Chabahar and Bandar Abbas. Studies by Cordesman [Cordesman 2014, 25–27] emphasize that when sanctions restricted Iranian port operations in earlier rounds (2012–2015, 2018–2020), Afghanistan faced higher costs in redirecting its trade through Pakistan. A repeat of these restrictions would reduce the competitiveness of Afghan exports and increase the price of imports, particularly fuel and construction materials.

5.3 Impact on Exchange Rate and Inflation

Afghanistan's informal currency markets are deeply tied to Iran's Rial. The IMF [Regional Economic Outlook... 2023,19–21] notes that volatility in the Iranian Rial during sanctions waves has historically spilled over to the Afghani. A depreciation of the Rial may initially provide cheaper imports, but the associated disruption in formal payment systems and the rise in smuggling can create exchange rate instability. This instability translates into imported inflation, as Afghanistan remains heavily dependent on imported consumer goods and fuel.

5.4 Financial and Remittance Flows

Sanctions also constrain financial channels. Katzman [Katzman 2022, 19–21] highlights that secondary sanctions on Iran's banking sector often extend to informal hawala networks, limiting liquidity and raising transaction costs. For Afghanistan, which relies on remittances from migrant workers in Iran, this could mean reduced remittance inflows. Such a decline would weaken household consumption and deepen poverty levels.

Figure 2 illustrates how the snapback sanctions imposed on Iran indirectly affected Afghanistan's economy, with visible implications for GDP, trade flows (IM and EX), exchange rates, and inflation. The GDP trend for Afghanistan reveals moderate growth during the early years of the sample, but a slowdown emerges during sanction periods, especially after 2018, when renewed U.S. sanctions severely constrained Iran's external relations. Afghanistan's economy contracted noticeably in the early 2020s, reflecting its exposure to trade disruptions, exchange rate volatility, and reduced demand in cross-border markets [Jingjing 2025]. This underscores that sanctions on Iran did not remain confined, but instead were transmitted into Afghanistan's growth trajectory through regional spillovers.

Afghanistan's imports (IM), as shown in the second plot, display a downward trajectory in sanction periods, with marked reductions following 2018. This contraction reflects the disruption of transit and financial linkages through Iran, a key trade partner and corridor for Afghanistan. Sanctions made it harder for Afghan traders to access goods routed through Iran, constrained banking transactions, and increased transaction costs, leading to a decline in import volumes. Reduced imports, in turn, slowed Afghanistan's access to essential consumer and intermediate goods, affecting production capacity and consumption patterns.

Exports (EX) show a similar vulnerability. The third plot indicates that Afghanistan's export performance remained volatile, with clear downward pressures during sanction episodes. Since Iran is one of Afghanistan's major export destinations for agricultural goods, fuel, and transit-based trade, restrictions on Iran's financial and trade systems spilled into Afghan exports by reducing Iranian purchasing power and obstructing cross-border trade routes. This constrained Afghanistan's ability to generate foreign currency, weakening its external sector stability. The exchange rate (EXR) trend demonstrates how sanctions amplified currency pressures in Afghanistan.

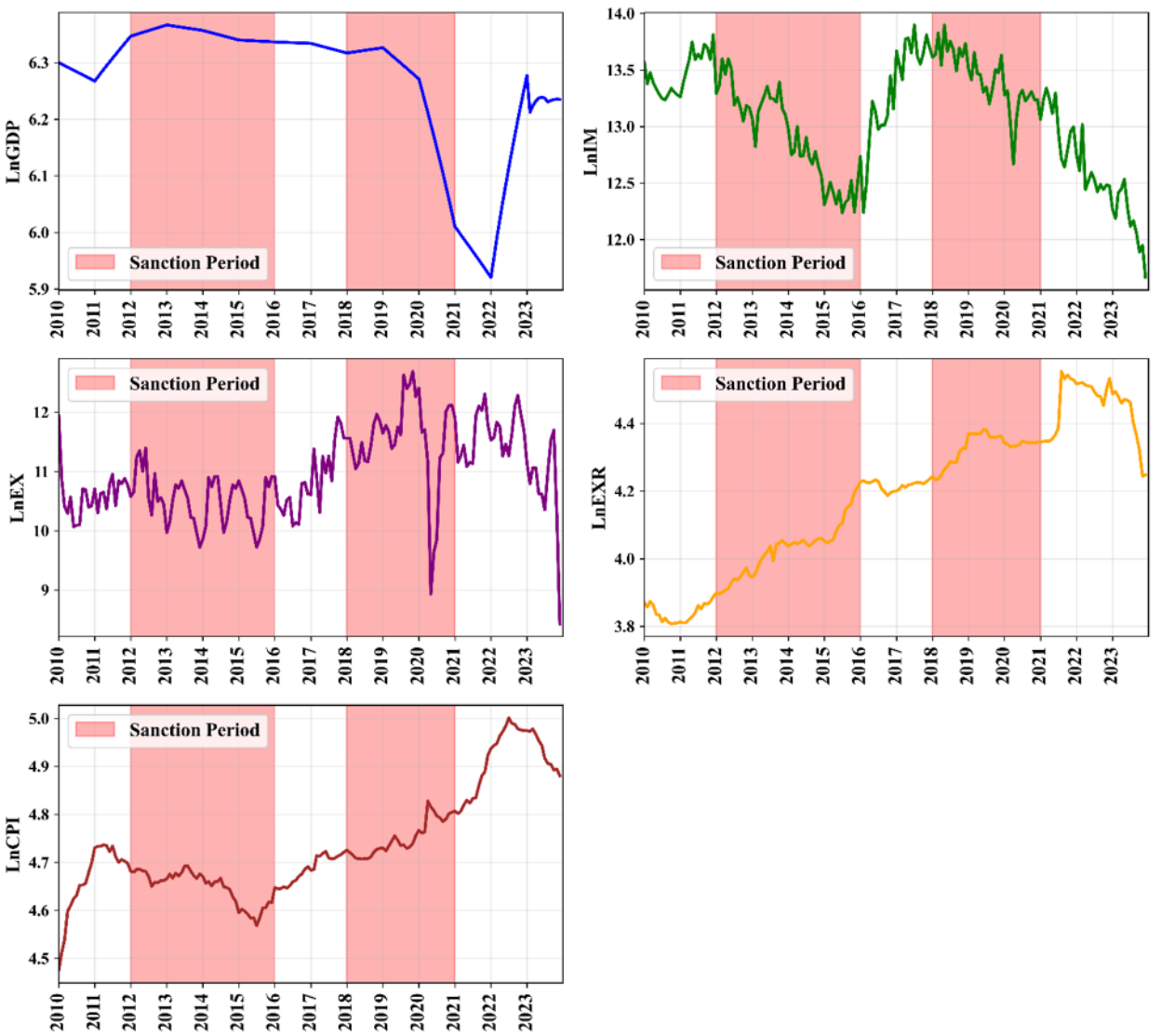

Figure 2. The annual trends of LnGDP, LnIM, LnEX, LnEXR, and LnCPI from January 1, 2010, to December 30, 2023, alongside sanction periods on Iran (2012-2015 and 2018-2020).

The AFN experienced depreciation during sanction periods, particularly after 2018, as reduced exports and constrained access to Iranian markets led to weakened foreign exchange inflows. Simultaneously, reliance on informal and costly trade settlement systems raised demand for foreign currency, intensifying exchange market volatility.

Depreciation in Afghanistan increased import costs, further tightening household budgets and business operations.

The inflationary effects are evident in the CPI trend, which exhibits steady increases during sanction periods, particularly from 2018 to 2023. Rising prices in Afghanistan were partly driven by disruptions in trade with Iran, which has historically supplied the country with fuel, energy products, and essential goods. With sanctions limiting these supplies and pushing up transaction costs, Afghan consumers faced higher domestic prices. The imported inflation spread across sectors, eroding real incomes, increasing living costs, and adding further pressure on economic growth.

Together, these plots confirm that the snapback sanction mechanism on Iran had tangible spillover effects on Afghanistan. Reduced trade opportunities, constrained imports and exports, exchange rate depreciation, and rising inflation all converged to depress Afghanistan's GDP. Thus, while the sanctions were externally targeted at Iran, Afghanistan's high level of economic interconnectedness with its neighbor meant that it absorbed significant indirect shocks, transmitted primarily through imports, exports, exchange rate dynamics, and consumer prices.

5.6 Mediation analysis results

To perform mediation analysis, this study employs

a three-step mechanism analysis technique with the following mathematical formulation:

Step I: The effect of SAN on GDP:

$$LnGDP_t = \alpha_0 + \alpha_1 SAN_t + \alpha_i \sum_{i=2}^{n} Ln[controls_t] \quad (1)$$

Step II: The effect of SAN on Mediators (M):

$$LnM_t = \beta_0 + \beta_1 SAN_t + \beta_i \sum_{i=2}^{n} Ln[controls_t] \quad (2)$$

Step III: The effect of SAN and Mediators (M) on GDP:

$$LnGDP_t = \nu_0 + \nu_1 SAN_t + \nu_2 M_t + \nu_i \sum_{i=3}^{n} Ln[controls_t] \quad (3)$$

where $\alpha_1 = \nu_1 + \beta_1 \nu_2$ shows the total effect of SAN on GDP, ν_1 represents the direct effect of SAN on GDP, and $\beta_1 \nu_2$ stands for the indirect effect of SAN on GDP through the mediating factors M. In this paper, the mediating factors are IM, EX, EXR, and CPI, which can be used as replacements for M in the empirical analysis step.

The baseline regression establishes the direct effect of Iran's sanctions on Afghanistan's GDP. The results show that the coefficient of sanctions (SAN) on GDP is positive and statistically significant at the 1% level (0.034, $p < 0.01$). This suggests that, when considered in isolation, the imposition of sanctions on Iran is associated with a measurable increase in Afghanistan's GDP. This seemingly counterintuitive finding can be explained by substitution and diversion effects: sanctions on Iran reduce its access to regional markets, thereby creating temporary opportunities for Afghanistan to expand trade and capture market share in certain goods. Thus, at the baseline stage, sanctions on Iran appear to provide Afghanistan with a modest but significant growth advantage.

The second step introduces the mediating role of Afghanistan's imports (IM). The results demonstrate that sanctions exert a significant adverse effect on imports (–0.342, $p < 0.01$). This implies that the imposition of sanctions on Iran substantially reduces Afghanistan's import capacity. The negative association reflects disruptions in transit routes, restrictions on access to Iranian goods, and higher trade costs due to financial and logistical barriers. In this sense, sanctions not only constrain Iran's economy but also indirectly suppress Afghanistan's ability to import essential consumer and intermediate goods.

The final step assesses the joint impact of sanctions and imports on Afghanistan's GDP, thereby testing the effectiveness of the mediation mechanism. The coefficient of sanctions on GDP remains positive and statistically significant (0.029, $p < 0.05$), but its magnitude declines relative to the baseline model (from 0.034 to 0.029). This reduction suggests that part of the sanctions' initial growth effect is mediated through imports. More importantly, the coefficient of imports on GDP is negative and significant (–0.028, $p < 0.05$), confirming that reduced imports undermine Afghanistan's economic performance. In other words, while sanctions on Iran may initially create short-term trade opportunities for Afghanistan, the broader contraction in imports acts as a drag on Afghan GDP, offsetting some of the baseline gains.

Moreover, when exports (EX) are introduced into the model, sanctions do not show a significant effect on Afghanistan's exports (coefficient 0.105, $p > 0.1$), suggesting that Iran's sanction shocks do not directly translate into measurable changes in Afghan export performance. However, exports themselves exert a significant adverse effect on GDP (–0.024, $p < 0.01$). This indicates that during sanction periods, fluctuations and disruptions in Afghanistan's export sector actually depress economic growth, rather than contributing positively. The result reflects the fragility of Afghanistan's export base, which is heavily reliant on regional trade with Iran and vulnerable to cross-border restrictions and instability. Thus, unlike imports, which showed an apparent mediating effect, the export channel primarily transmits negative pressures into Afghanistan's GDP.

The apparent positive direct effect of sanctions on Afghanistan's GDP in the baseline model, while counterintuitive, likely reflects several underlying economic dynamics. This paradoxical result may stem from statistical confounding where omitted variables—such as increased informal trade, humanitarian aid inflows, or domestic production substitution—create a spurious positive correlation. Alternatively, it could indicate short-term adaptive responses whereby sanctions inadvertently stimulate local industries by reducing competition from Iranian imports, or it may capture pre-existing growth trends unrelated to the sanctions themselves. The mediation analysis reveals the true mechanism: once the exchange rate channel is controlled for, the sanction coefficient increases, and the significant

negative effect of currency depreciation emerges, demonstrating that the apparent positive effect masks a more complex transmission process in which sanctions harm the economy primarily through currency depreciation.Sanctions exert a direct positive effect on consumer prices (β = 0.039, p < 0.01), indicating that economic restrictions generate inflationary pressures within Afghanistan's economy. More critically, inflation demonstrates a substantial negative impact on economic growth (β = −0.268, p < 0.01), where a one-unit increase in CPI reduces GDP by approximately 27%. The mediation effect is evident through the change in the sanction coefficient, which increases from 0.034 in the baseline model to 0.046 when controlling for inflation, suggesting that CPI acts as a partial mediator that masks some of the sanctions' actual direct effect. This pattern reveals a precise transmission mechanism whereby sanctions trigger domestic inflation, which in turn suppresses economic output, likely through reduced consumer purchasing power, increased production costs, and eroded business confidence.

Table 1. **Mechanism analysis results using three step approach**

Regressors	**(1)**	**(2)**	**(3)**
	Baseline result	**Mediating role of IM: SAN → IM → GDP**	
	GDP	**IM**	**GDP**
SAN	0.034***	-0.342***	0.029**
	(0.012)	(0.051)	(0.012)
IM			-0.028**
			(0.012)
Controls	Yes	Yes	Yes
F-Statistics	72.900	68.800	67.370
F-Probability	0.000	0.000	0.000
Adj-R^2	0.721	0.709	0.704
Observation	168	168	168
Regressors	**Baseline result**	**Mediating role of EX: SAN → EX → GDP**	
	GDP	**EXP**	**GDP**
SAN	0.034***	0.105	0.038***
	(0.012)	(0.114)	(0.012)
EX			-0.024***
			(0.012)
Controls	Yes	Yes	Yes
F-Statistics	72.900	16.850	69.470
F-Probability	0.000	0.000	0.000
Adj-R^2	0.721	0.321	0.711
Observation	168	168	168
Regressors	**Baseline result**	**Mediating role of EXR: SAN → EXR → GDP**	
	GDP	**EXR**	**GDP**
SAN	0.034***	0.124***	0.051***
	(0.012)	(0.016)	(0.014)
EXR			-0.125**
			(0.058)
Controls	Yes	Yes	Yes
F-Statistics	72.900	185.970	67.110
F-Probability	0.000	0.000	0.000
Adj-R2	0.721	0.847	0.703
Observation	168	168	168

Regressors	Baseline result	Mediating role of CPI: SAN → CPI → GDP	
	GDP	CPI	GDP
SAN	0.034***	0.039***	0.046***
	(0.012)	(0.009)	(0.012)
CPI			-0.268***
			(0.101)
Controls	Yes	Yes	Yes
F-Statistics	72.900	141.280	68.500
F-Probability	0.000	0.000	0.000
Adj-R2	0.721	0.807	0.708
Observation	168	168	168

Notes: This table shows the mechanism analysis steps. Column (1) shows the baseline result with the total effect of SAN on GDP, without controlling for the effect of mediators, which remains the same across the tables. Column (2) shows the impact of SAN on each mediator, including IM, EX, EXR, and CPI, respectively. Finally, column (3) shows the joint impact of SAN and each mediator separately. Standard errors are presented in parentheses, and ***, **, and * signify the level of statistical significance of the coefficients at 1%, 5%, and 10%, respectively.

The strong model fit (Adj-R^2 = 0.708–0.807) and statistical significance across all specifications confirm the robustness of this inflationary channel in explaining how international sanctions adversely affect Afghanistan's economic performance.

5.6 One-standard-deviation shock analysis results

Based on the theoretical framework that international sanctions on Iran transmit economic shocks to Afghanistan through interconnected trade and financial channels, this analysis assumes these sanctions generate one-standard-deviation structural shocks to Afghanistan's imports, exports, exchange rate, and consumer prices. These simulated shocks allow us to trace the dynamic response of Afghanistan's GDP using impulse response functions (IRFs), thereby quantifying the indirect economic spillover effects of regional sanctions through trade disruption, currency volatility, and inflationary pressures. The mathematical form of IRFs can be expressed as follows:

$$IRF_Y(h) = \frac{\partial Y_{1+h}}{\partial \sigma_{X,t}} \quad (4)$$

$$\partial Y_{1+h} = IRF_Y(h) \cdot \partial \sigma_{X,t} \quad (5)$$

where Y stands for dependend variable and X signifies the independent variables. I our case, Y is monthly GDP, and Xs are monthly IM, EX, and EXR, and CPI.

The IRFs demonstrate that sanctions-induced trade disruptions transmit asymmetric effects on Afghanistan's economic growth. The import shock triggers an immediate and persistent negative response in GDP, reaching approximately -0.06 units at its trough, indicating that reduced import availability constrains domestic production through supply chain disruptions and limited input availability. Conversely, the export shock generates a positive but modest response in GDP, peaking around 0.015 units, suggesting that trade diversification opportunities or market substitution effects partially offset the negative import impact. The differential responses highlight Afghanistan's economic vulnerability to Iranian sanctions, where import reduction dominates the growth effect, potentially reflecting the economy's dependence on Iranian goods for intermediate inputs and consumption, while export reorientation provides limited compensatory benefits. The persistence of both responses over the 20-period horizon indicates that trade channel effects of sanctions have lasting consequences on economic performance, with the net effect likely being negative given the greater magnitude and duration of the import channel response. Additionally, the exchange rate shock (AFN depreciation) triggers an immediate and substantial negative response in GDP, plunging to approximately -0.5 units, indicating that currency depreciation severely contracts economic output through increased import costs, capital flight, and reduced investor confidence. Simultaneously, the CPI shock produces a dramatic and persistent negative impact on GDP, declining to around -0.7 units, demonstrating that inflation erodes purchasing power, disrupts consumption patterns, and creates economic uncertainty.

The magnitude and persistence of both

responses highlight the dominance of financial and price stability channels in the sanction transmission mechanism, where exchange rate depreciation and inflationary pressures collectively create a stagflationary environment that significantly undermines economic growth.

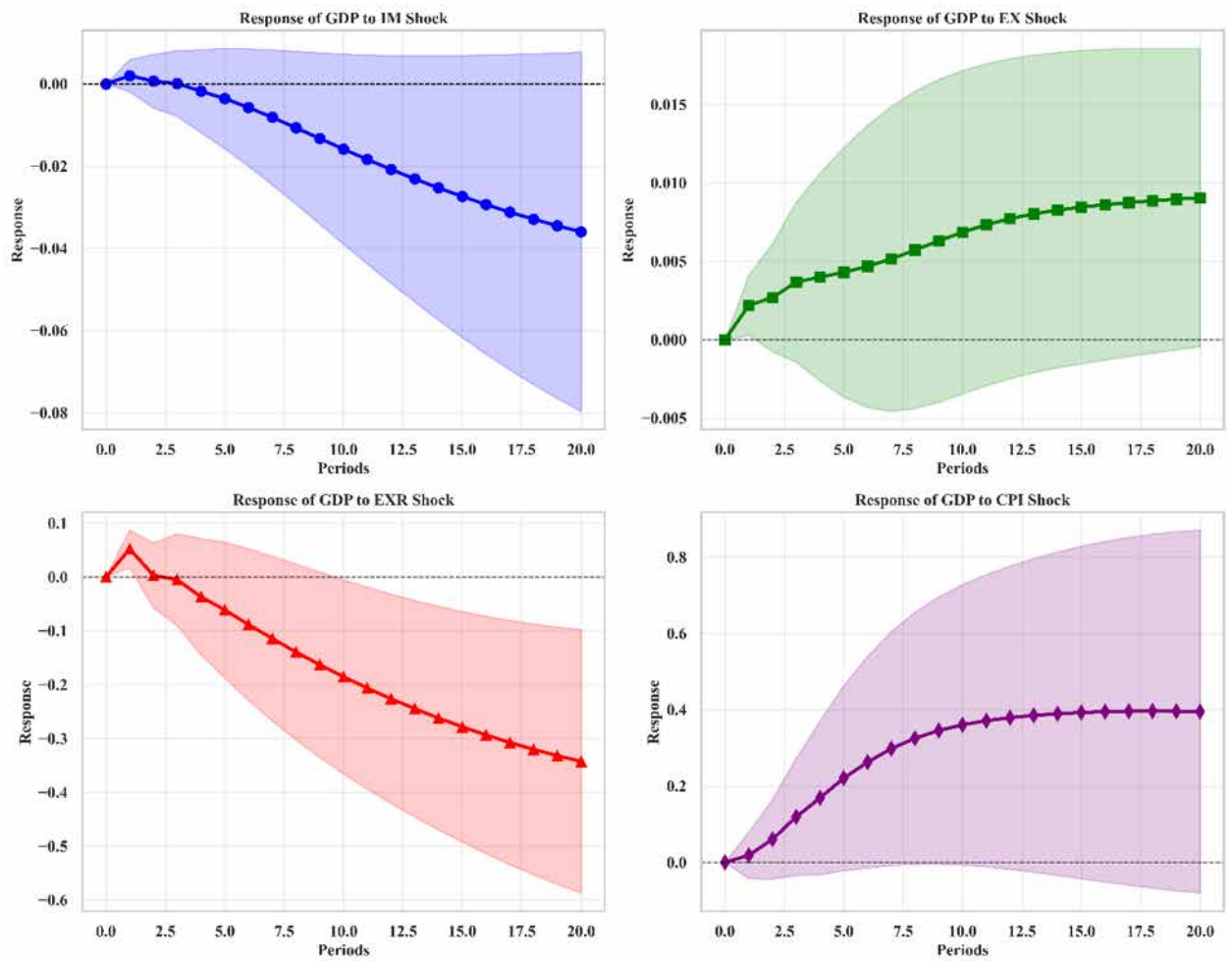

Figure 3. Impulse response functions (IRFs) of macroeconomic variables and economic growth. This figure plots the effect of a one-standard deviation shock in each impulse variable on GDP growth over the subsequent 20 periods. The impulse variables include imports (IM), exports (EX), exchange rate (EXR), and consumer price index (CPI). To compute the IRFs, Cholesky decomposition is employed with the causal ordering: GDP, IM, EX, EXR, CPI. Confidence bands are generated to indicate statistical significance.

The convergence of these effects suggests that sanctions trigger a vicious cycle of currency weakness and price instability, with both channels exhibiting prolonged adjustment periods that indicate lasting structural damage to Afghanistan's economic foundations.

Table 2 further confirms the robustness of the IRFs in the response of GDP to one standard deviation of IM, EX, EXR, and CPI, presented in detail by period.

Table 2. **Detailed period-by-period responses**

Period	GDP_to_IM	GDP_to_EX	GDP_to_EXR	GDP_to_CPI
0	0.000	0.000	0.000	0.000
1	0.002	0.002	0.052	0.018
2	0.001	0.003	0.003	0.060
3	0.000	0.004	-0.005	0.119
4	-0.002	0.004	-0.037	0.169
5	-0.004	0.004	-0.061	0.221
6	-0.006	0.005	-0.088	0.263
7	-0.008	0.005	-0.114	0.298
8	-0.011	0.006	-0.139	0.325
9	-0.013	0.006	-0.163	0.346
10	-0.016	0.007	-0.185	0.361
11	-0.018	0.007	-0.206	0.371
12	-0.021	0.008	-0.226	0.379
13	-0.023	0.008	-0.245	0.385
14	-0.025	0.008	-0.262	0.390
15	-0.027	0.008	-0.278	0.393
16	-0.029	0.009	-0.293	0.395

Period	GDP_to_IM	GDP_to_EX	GDP_to_EXR	GDP_to_CPI
17	-0.031	0.009	-0.307	0.396
18	-0.033	0.009	-0.320	0.397
19	-0.034	0.009	-0.332	0.396
20	-0.036	0.009	-0.342	0.395

5.7 Scenario Analysis

5.7.1 Best-Case Scenario

If Iran manages to circumvent partial sanctions through regional partners (e.g., continued limited trade via Chabahar with India's support), Afghanistan may experience only moderate disruptions. Trade could shift gradually to Pakistan and Central Asia, while informal markets cushion the blow. Inflation would rise modestly, and the exchange rate may experience short-term volatility but stabilize over time [Afghanistan development update 2024, 45–46).

5.7.2 Worst-Case Scenario

If sanctions are fully enforced with international compliance, Afghanistan could face severe macroeconomic spillovers:

- Imports decline by 20–30% due to higher costs and restricted channels [International trade statistics... 2022].
- Fuel shortages drive inflation to double digits, mirroring the period of 2012–2013 when sanctions were imposed [Regional Economic Outlook... 2023, 21–22).
- The Afghani depreciates sharply due to reduced access to Iranian currency markets.
- Remittance inflows decline by up to 40%, resulting in a reduction in household purchasing power [Katzman 2022, 20].

This scenario risks amplifying unemployment, poverty, and social unrest in Afghanistan.

6. Discussion

The findings of this study underscore the fragility of Afghanistan's economy in the face of regional shocks triggered by the snapback mechanism against Iran. As anticipated, the four main transmission channels—trade, transit, exchange rate volatility, and financial flows—constitute the critical pathways through which sanctions on Iran spill over into Afghanistan. These results align with the broader literature on sanctions spillovers. For example, Hufbauer et al. [Economic sanctions reconsidered 2007, 40–43) argue that sanctions imposed on strategically interconnected economies rarely remain contained, instead spreading across borders to affect regional partners.

These findings are consistent with Salvatore's [Salvatore 2019, 210] observation that trade shocks in small economies often trigger exchange rate volatility and inflationary pressures, particularly when no effective diversification strategy is in place.

From the perspective of interdependence theory [Keohane 1977, 8–10], Afghanistan's vulnerabilities are a direct outcome of its asymmetric dependence on Iran. While Iran can partially mitigate its losses by diversifying trade with larger economies such as China and Russia, Afghanistan lacks such alternatives, rendering its economy disproportionately exposed. This explains why modest disruptions in Iranian trade channels translate into significant macroeconomic instability for Afghanistan, particularly in the domains of inflation and currency depreciation.

These findings are consistent with Salvatore's [Salvatore 2019, 210] observation that trade shocks in small economies often trigger exchange rate volatility and inflationary pressures, particularly when no effective diversification strategy is in place.

The study's scenario analysis reflects patterns observed during prior sanction periods. During the 2012–2015 period, Afghanistan experienced a surge in inflation and a weakening of the Afghan currency (AFN), mainly due to increased smuggling and restricted financial flows [Regional Economic Outlook... 2023, 20–21]. The findings here suggest that a worst-case reactivation of sanctions could replicate and even amplify those dynamics, given Afghanistan's deeper dependency today on Iranian imports of fuel and construction materials [Afghanistan development update 2024, 42–44].

Another important dimension is the impact on remittance flows. As Katzman [Katzman 2022, 19–21] notes, sanctions on Iran's banking sector often extend indirectly to the informal hawala system. For Afghanistan, where hundreds of thousands of migrants in Iran send money home, such constraints would not only reduce household consumption but also diminish a vital source of foreign exchange reserves. This finding is consistent with dependency theory [Frank 1969, 23–26), which posits that peripheral economies are disproportionately affected by disruptions in regional hubs.

Nevertheless, the analysis also highlights potential resilience strategies. Afghanistan has in

the past leveraged alternative trade corridors, such as the Pakistani port of Gwadar and Central Asian rail links, to offset disruptions from Iran. While such adjustments come at a higher cost, they provide evidence that Afghanistan is not without agency in responding to external shocks [Cordesman 2014, 26–27]. The question remains, however, whether Afghanistan's fragile fiscal and political institutions can sustain such shifts in the long term.

In sum, the discussion reveals that Afghanistan's exposure to Iran's sanction-induced economic shocks is structural rather than temporary. Unless structural reforms and diversification strategies are pursued, the country will remain highly vulnerable to regional policy shifts and geopolitical crises. Cordesman, A. H. [ibid]. Iranian sanctions and regional security. Washington, DC: CSIS Reports, pp. 26–27.

In line with Salvatore's [Salvatore 2019] recommendations for developing economies, Afghanistan should diversify its trade routes and reduce its overreliance on a single neighboring economy to mitigate sanctions spillover risks.

7. Conclusion

The analysis demonstrates that the reactivation of the snapback mechanism against Iran, as outlined in UNSC Resolution 2231, has profound implications for Afghanistan's economic stability. Although sanctions target Iran directly, their spillover effects significantly constrain Afghanistan's trade, financial flows, and macroeconomic conditions due to the country's heavy reliance on Iranian markets and transit routes. The three-step mechanism analysis reveals that sanctions disrupt imports, exacerbate exchange rate volatility, heighten inflationary pressures, and reduce remittance inflows, thereby amplifying Afghanistan's structural vulnerabilities. Scenario-based assessments further indicate that in the absence of effective mitigation strategies, Afghanistan is likely to face both moderate and severe economic consequences. These findings underscore the urgent need for Afghanistan to diversify its trade partners, develop alternative transit corridors, and strengthen institutional resilience to external shocks. In doing so, Afghanistan can reduce its overdependence on Iran and better safeguard its economic stability against future regional and international policy shifts.

Ethics Statement

This research is based entirely on secondary data obtained from publicly available sources, including international organizations such as the World Bank, the International Monetary Fund (IMF), the United Nations Comtrade Database, and published academic literature. No human participants, sensitive personal data, or experimental interventions were involved in the study. Therefore, ethical approval from an institutional review board (IRB) or ethics committee was not required.

The authors affirm that all data were used responsibly, with proper attribution and citation in accordance with academic integrity standards. The research was conducted with the intention of contributing to scholarly understanding of the potential spillover effects of the snapback mechanism against Iran on Afghanistan's economy, without any conflict of interest or external influence.

Conflict of Interest Statement

The author declares that there are no conflicts of interest relevant to the content of this article. The research was conducted independently, without financial or institutional support from governments, political organizations, or private entities that could influence the findings. Moreover, the views and interpretations expressed in this article are solely those of the author and do not necessarily represent the positions of any affiliated institution or funding body.

References

1. Afghanistan development update 2024 — *Afghanistan development update*. World Bank, 2024. Washington, DC : World Bank. 45 p. Text : electronic. Available at https://comtradeplus.un.org (accessed: 09/17/2025).
2. Bahgat 2010 — Bahgat G. Iran's energy policy after the nuclear deal. DOI: 10.3751/64.2.13. *Middle East Journal.* 2010; 64(2):165–182. ISSN: 0026-3141; eISSN: 1940-3461.
3. Cordesman 2014 — Cordesman A. H., & Gold B., & Coughlin-Schulte C. *Iran--Sanctions, energy, arms control, and regime change (CSIS Reports)*. Center for Strategic & International Studies, 2014, 222 p. ISBN: 978-1-4422-2778-1.
4. Economic sanctions reconsider 2007 — *Economic sanctions reconsidered* (3rd ed.). By Hufbauer, G. C., Schott, J. J., Elliott, K. A., & Oegg, B. Washington, DC : Peterson Institute for International Economics, 2007. 25 p. ISBN 978-0-88132-408-2.

5. Frank 1969 — Frank A. G. *Capitalism and underdevelopment in Latin America*. New York, NY: Monthly Review Press, 1969. 344 p.
6. International trade statistics... 2022 — International trade statistics database. Text : electronic. *UN Comtrade Database* : website. 2022. Available at https://comtradeplus.un.org (accessed: 09/17/2025).
7. Jingjing, Y., Mowahed, S. M. & Sharif Zada, M. W. (2025). Impact of Imports and Exports on Inflation Rate in Afghanistan: Does Political Instability Matter? DOI: 10.3897/brics-econ.6.e138160. *BRICS Journal of Economics*. 2025; 6(1):119–140.
8. Katzman 2022 — Katzman K. *Iran sanctions*. Washington, DC: Congressional Research Service, 2022. 99 p. ISBN : 979-8583616572
9. Keohane 1977 — Keohane R. O., & Nye J. S. *Power and interdependence: World politics in transition*. Boston, MA: Little, Brown, 1977. 273 p. ISBN: 9780316489362.
10. Kerlinger 2000 — Kerlinger F. N., & Lee H. B. (2000). Foundations of behavioral research (4th ed.). Fort Worth, TX: Harcourt College Publishers, 2000. 1016 p. ISBN: 0-15-507897-6.
11. Regional Economic Outlook 2023 — *Regional Economic Outlook : Middle East and Central Asia*, October 2023. Washington, DC : International Monetary Fund, 2023. 63 p. Text : electronic. *International Monetary Fund.* Available at https://www.imf.org/en/Publications/REO/MECA/Issues/2023/10/12/regional-economic-outlook-mcd-october-2023 (accessed: 09/17/2025).
12. Salvatore 2019 — Salvatore D. International economics (13th ed.). Hoboken, NJ: Wiley, 2019. 720 p. ISBN: 978-1119554929

Information about the author:

Moain Mohammad Naser — Associate Professor at the Department of Macroeconomics, Faculty of Economics, Herat University, Herat, Afghanistan.

Информация об авторе:

Моайн Мохаммад Насер — доцент департамента макроэкономики экономического факультета Университета города Герат, Афганистан.

Статья поступила в редакцию 03.10.2025; одобрена после рецензирования 22.10.2025; принята к публикации 28.11.2025.
The article was submitted 10/03/2025; approved after reviewing 10/22/2025; accepted for publication 11/28/2025.