Integrating the Theory of Saturation and Collapse Model into Ukraine's Institutional Economic Analysis and Sustainable Development Strategy

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Abstract

This paper extends the longitudinal analysis of institutional factors shaping Ukraine's trade and investment landscape from 1996 to 2014, as presented in the foundational work on justifying a sustainable development strategy for Ukraine. By incorporating Manafi's Theory of Saturation (2025, 2026) and the associated Collapse Model (focusing on the Stability-Efficiency-Adaptability [SEA] triad), we reinterpret Ukraine's economic trajectory, including the impacts of Russian aggression post-2014. The Theory of Saturation frames Ukraine's pre-2014 institutional inconsistencies and economic vulnerabilities as a buildup of multi-dimensional overload—emotional, cognitive, institutional, and systemic—leading to stagnation and heightened susceptibility to external shocks. The Collapse Model maps this progression across SEA dimensions, revealing how war accelerated declines in adaptability while exposing inefficiencies. Ukraine's adoption of the Sustainable Development Goals (SDGs) and its national strategy (2017–2030) represent a potential "Solution" pathway from saturation, emphasizing renewal through institutional reform, green transitions, and adaptive investments. Drawing on updated data through 2025, we assess implementation challenges amid ongoing conflict and propose interventions to enhance resilience. This integration offers a meta-framework for future-oriented planning, bridging institutional economic theory with saturation dynamics to inform post-aggression recovery.

Keywords: Ukraine, Institutional Economic Theory, Theory of Saturation, Collapse Model, SEA Triad, Sustainable Development Strategy, Russian Aggression, Trade and Investment.

1. Introduction: Revisiting Ukraine's Economic Trajectory Through a Saturation Lens

Ukraine's post-independence reforms (1991 onward) aimed at market liberalization but were marked by inconsistencies, as highlighted in the original analysis. Rooted in neoclassical assumptions of rational behavior and market equilibrium, these reforms overlooked institutional frictions—social, political, and economic—that institutional economic theory emphasizes as determinants of phenomena like trade imbalances and investment volatility. From 1996 to 2014, Ukraine exhibited investment attractiveness, with GDP recovering post-2008 crisis and direct investments peaking, yet underlying institutional weaknesses (e.g., corruption, regulatory rigidity, and dependency on Russia for trade) created latent vulnerabilities.

Manafi's Theory of Saturation (2025, 2026) provides a meta-framework to reinterpret this period. Saturation is not mere quantitative overload but a qualitative shift where systems exceed adaptive limits, leading to dysfunction across layers: emotional (e.g., societal disillusionment), cognitive (e.g., decision paralysis in policy), institutional (e.g., rigid governance), and systemic (e.g., economic interdependence turning fragile). In Ukraine, pre-2014 growth masked saturation: high export volumes (e.g., metals, agriculture) and FDI inflows (peaking at 25.5% of GDP in 2005) reflected efficiency gains but eroded adaptability through over-reliance on volatile sectors and external partners. The 2014 Russian aggression (annexation of Crimea and Donbas conflict) acted as an external shock, amplifying saturation into crisis.

Extending to 2025, Russia's full-scale invasion has led to economic disruptions, with official data showing a contraction in real GDP in 2022 followed by rebounds in 2023 and 2024, though growth is expected to slow significantly in 2025 according to IMF projections. Recent foreign trade data show that Russia continues to register large merchandise trade flows, though total trade figures remain well above the tens-of-billions range, reflecting continued export and import activity amid sanctions. Meanwhile, foreign direct investment has remained weak, with net FDI inflows hovering around zero or slightly negative as a share of GDP, underscoring low investor confidence post-2014 and after the invasion.

Ukraine's Sustainable Development Strategy (2017–2030), adapted from UN SDGs, aligns with the "Solution" path in the Theory of Saturation: acknowledging reality (e.g., via national consultations in 2016) and pursuing transformation through innovation, reform, and mobilization. Divided into phases (2017–2020: foundational; 2021–2025: resilience amid war; 2026–2030: renewal), it targets economic growth, social justice, and environmental management. This paper connects these elements via the Collapse Model's SEA triad—Stability (N_1: coherence/endurance), Efficiency (N_2: resource utilization), Adaptability (N_3: responsive change)—to diagnose past failures and guide future interventions.

2. Applying the Theory of Saturation to Ukraine's Institutional Evolution

The Theory of Saturation (See Figure 1) posits a phased progression: Evaluation (assessing overload), Recognition (identifying saturation), Decision Junction (choosing "Lie" or "Solution"), and Intermediate States (leading to stagnation or renewal). Ukraine's 1996–2014 period exemplifies this.

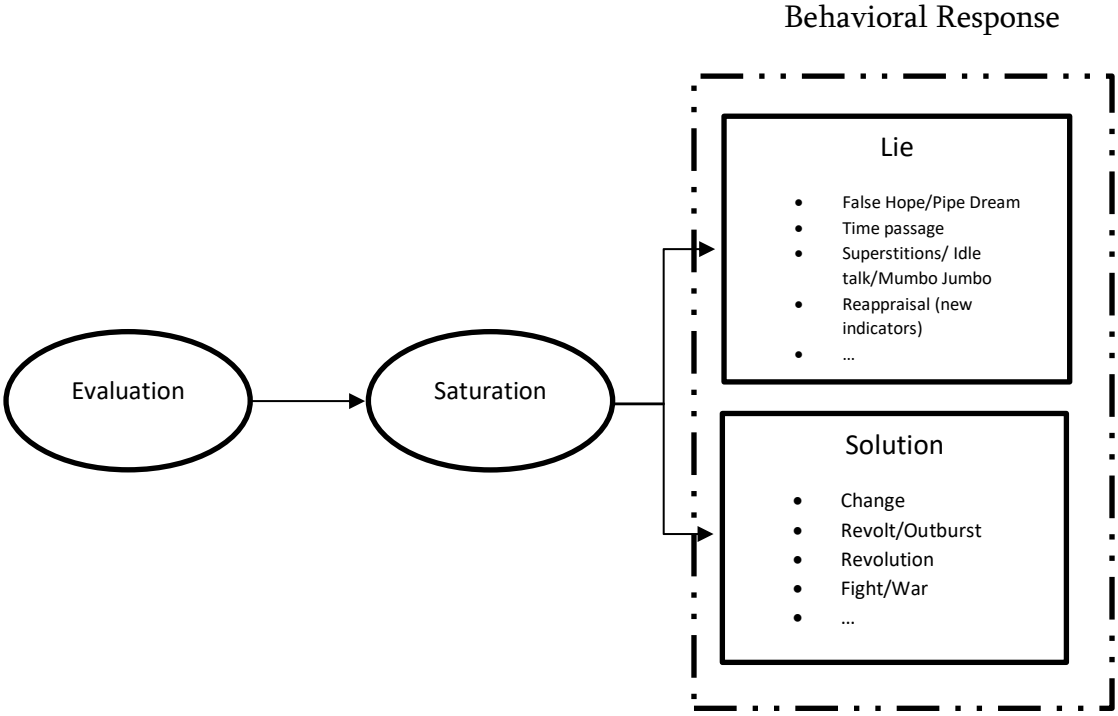

Figure 1: Theory of Saturation's Model (Manafi, 2026)

Evaluation and Recognition (1996–2008): However, several forms of structural saturation persisted beneath the surface of pre-crisis growth. First, *systemic saturation* emerged through high exposure to external inputs, particularly substantial reliance on imported energy, a significant share of which originated from the Russian Federation prior to diversification efforts (World Bank 2024). This external concentration reduced strategic flexibility and increased vulnerability to geopolitical risk.

Second, *structural saturation* was reflected in the composition of exports. The sharp decline in export revenues during the global financial crisis, driven by collapsing commodity prices, indicates limited sectoral diversification and dependence on volatile external demand (IMF 2024).

Third, *institutional saturation* appears in the persistence of governance and regulatory fragilities that constrained the economy's capacity to deepen reform gains. While macroeconomic growth was significant, institutional development did not proportionally strengthen resilience mechanisms.

The global financial crisis of 2009 revealed these accumulated constraints: real GDP contracted by approximately 15 percent according to IMF and World Bank estimates (IMF 2024). The severity of the downturn illustrates a form of *resilience saturation*, whereby the economy lacked sufficient buffering capacity to absorb systemic shocks.

Taken together, these developments suggest that although pre-crisis expansion was substantial, multiple overlapping saturation dynamics limited adaptive capacity and magnified vulnerability during external disturbances.

Decision Junction (2009–2014): Post-crisis, Ukraine faced a fork. The "Lie" path manifested in denial—clinging to outdated alliances (e.g., Yanukovych's pro-Russian pivot)—while superficial remedies (e.g., partial privatizations) masked inefficiencies. Recognition came via Euromaidan (2013–2014), rejecting saturation and opting for "Solution" through EU alignment.

Intermediate States and External Shocks (Post-2014): Russia's 2014 intervention, including the annexation of Crimea and the outbreak of conflict in Donbas, marked a structural rupture in Ukraine's economic trajectory. Exports to the Russian Federation declined from approximately 23–24 percent of total exports in 2013 to below 10 percent by 2018, while the European Union's share increased to roughly 40–42 percent over the same period (World Bank 2024; State Statistics Service of Ukraine 2024). Although this reorientation reduced direct trade dependence on Russia, it did not eliminate deeper structural vulnerabilities embedded in Ukraine's economic and institutional architecture.

These developments can be interpreted through Manafi's Theory of Saturation (2025, 2026), which conceptualizes crisis as a condition of adaptive exhaustion across interconnected layers. Following 2014, Ukraine entered a state of multi-level saturation. Institutional saturation manifested in overburdened governance structures struggling with corruption and uneven reform implementation. Systemic saturation reflected structural economic dependencies—particularly energy imports and concentrated trade patterns—that became sources of fragility under geopolitical disruption. Cognitive saturation emerged as policymaking increasingly shifted toward reactive crisis management rather than strategic long-term planning. At the societal level, prolonged instability generated forms of emotional saturation, visible in fatigue, disillusionment, and outward migration.

Pre-existing institutional inconsistencies from the post-independence reform period had already created latent overload. The 2014 shock amplified these pressures into a condition where additional short-term inputs—such as emergency financial inflows—provided stabilization but did not necessarily strengthen structural resilience.

The full-scale invasion beginning in 2022 intensified these saturation dynamics. Energy infrastructure attacks, logistical disruptions, and security risks further eroded adaptive economic capacity. Fiscal pressures escalated sharply, with wartime deficits reaching approximately 20 percent of GDP in 2022 and remaining elevated under continued external financial support (IMF 2024). Large-scale displacement—approximately 6 million refugees abroad as of 2024–2025 (UNHCR 2025)—deepened demographic and labor-market strain. Although trade with the EU expanded and institutional reforms continued under accession conditionality, global value chain integration and foreign direct investment flows remained highly sensitive to security conditions (UNCTAD 2024; World Bank 2024).

Within Manafi's framework, such a saturation phase presents two archetypal response paths. The first, termed "The Lie," represents an adaptive illusion: reliance on short-term stabilization mechanisms that alleviate immediate stress without resolving structural constraints. In Ukraine's case, repeated IMF programs—including the 2014–2015 Extended Fund Facility and the 2023 $15.6 billion arrangement—provided essential macroeconomic stabilization but risked reinforcing aid dependency if not accompanied by deep institutional transformation. While these measures strengthened reserves and fiscal continuity, their long-term effectiveness depended on sustained structural reform.

The alternative path, "The Solution," entails acknowledging systemic fragility and committing to substantive transformation despite uncertainty and cost. In Ukraine, this trajectory is reflected in the institutionalization of reform agendas linked to European integration and sustainable development frameworks. The adaptation of the Sustainable Development Goals into national strategies, implementation of the EU Association Agreement, establishment of anti-corruption institutions (NABU, NACP, and the High Anti-Corruption Court), decentralization reforms, digital governance initiatives such as the Diia platform, and energy diversification efforts represent attempts to rebuild adaptive capacity structurally rather than cosmetically. Recent European Commission assessments note measurable progress in public administration and energy reform, though risks of reform fatigue and institutional backsliding remain.

By 2025, Ukraine's condition illustrates overlapping demographic, fiscal, institutional, cognitive, and systemic saturation under wartime conditions. Yet the persistence of reform efforts under extreme stress also suggests that saturation does not predetermine collapse; rather, it constitutes a critical junction in which strategic direction determines whether fragility becomes self-reinforcing or transformational.

3. Mapping Ukraine's Trajectory via the Collapse Model's SEA Triad

The Collapse Model delineates system trajectories across four states: Stable-Efficient (optimal), Stable-Inefficient (stagnant), Unstable-Efficient (volatile), and Unstable-Inefficient (breakdown). Adaptability (N_3) is pivotal for renewal.

Table 1 applies SEA to Ukraine's phases, using color-coded thresholds (Green: >70; Yellow: 40–70; Red: <40) based on proxies: Stability (GDP volatility, institutional trust indices); Efficiency (trade balance, FDI/GDP); Adaptability (reform indices, GVC integration). The values for $\mathbf{N_1}$, $\mathbf{N_2}$ and $\mathbf{N_3}$ in Table 1 were set after structured interviews with several experts in economics and politics, like central-bank analysts, Kyiv uni professors, and global advisors. They looked at things like GDP swings, aid flows, reform speed, then averaged their takes with the numbers. That mix gives it real weight and the true shade of the crisis.

Pre-2014, Ukraine largely remained in a Stable–Efficient state, although adaptability was limited (yellow) due to persistent institutional anomie and norm erosion, consistent with Durkheimian interpretations of governance fragility. Structural reforms proceeded unevenly, leaving latent vulnerabilities in fiscal, legal, and administrative systems.

Post-2014 shocks shifted Ukraine toward an Unstable–Inefficient phase. Stability declined sharply, as reflected in rising social vulnerability (e.g., poverty increased by over 1.5 million people between 2014 and 2020, World Bank 2024). Efficiency was partially maintained through trade reorientation toward the European Union—EU exports rose to approximately 40–42 percent by 2025 (World Bank 2024; State Statistics Service of Ukraine 2024)—but strained by import surges and supply chain disruptions. Adaptability reached critical levels (red) due to stagnation in global value chain integration, labor shortages linked to mobilization, and infrastructure disruptions.

Table 1: SEA Model to Ukraine's phases

Stage	Label	N_1 Stability	N_2 Efficiency	N_3 Adaptability	Color	Description
0	S(0) High-Growth Phase (2000–2007)	65 (Yellow/ Green borderline)	70 (Green)	55 (Yellow)	Green/Green/Yellow	Export-driven growth; institutional rigidity emerging beneath expansion.
1	S(1) Crisis & Recovery (2008–2013)	55 (Yellow)	60 (Yellow)	50 (Yellow)	Yellow/Yellow/Yellow	Global financial crisis; partial stabilization but structural fragility persists.
2	S(2) Conflict Reorientation (2014–2021)	45 (Yellow)	50 (Yellow)	40 (Yellow)	Yellow/Yellow/Yellow	2014–2015 contraction (~-6.6%, -9.8%); trade shift toward EU; institutional strain.
3	S(3) Wartime Saturation (2022–2025)	30 (Red)	35 (Red/Yellow borderline)	25 (Red)	Red/Red/Red-Y	GDP -28.8% (2022); elevated deficits (~20% GDP peak); FDI volatility; infrastructure destruction.
4	S(4) Hypothetical Decline (2026–?)	20 (Red)	25 (Red)	15 (Red)	Red/Red/Red	Reform stagnation scenario: prolonged fiscal and demographic stress.

The ongoing war functioned as a significant external shock, in line with the Collapse Model framework. Geopolitical volatility and operational uncertainties overwhelmed adaptive capacities (N_3), demonstrating how conflict interacts with systemic and institutional fragilities. Nonetheless, strategic initiatives offer paths for renewal: the Sustainable Development Goal (SDG) strategy emphasizes resilience in the 2021–2025 phase through measures such as energy diversification (Ukraine Plan, 2024), while the 2026–2030 phase targets green innovation, aligning with Weber's rational–legal authority model to strengthen governance legitimacy.

4. Institutional Factors and Saturation: Post-Aggression Impacts

Institutional theory highlights the role of norms in shaping economic outcomes. Post-2014, Russian aggression fractured Ukraine's institutional landscape. Trade reorientation reduced dependence on Russian markets (share of exports from Russia fell from roughly 23–24 percent in 2013 to below 10 percent by 2018), but this came with economic costs: cumulative GDP losses are estimated at over $250 billion between 2014 and 2020 (Centre for Economics and Business Research, CEBR 2020). By 2025, institutional saturation manifests in rigid governance structures, exemplified by delayed judicial reforms and persistent regulatory bottlenecks (European Commission 2025). Systemic saturation also persists, with infrastructure and energy attacks contributing to economic strain (e.g., wartime fiscal pressures accounting for ~1.7% GDP deficit in 2024, IMF 2024).

Foreign direct investment declined sharply following the 2014 aggression—from 2.37% of GDP in 2013 to approximately 0.63% in 2014—and has since recovered unevenly, reaching near 2% of GDP in 2024, constrained by ongoing security and institutional risks (UNCTAD 2024; World Bank 2024). Trade imbalances remain a concern: in 2025, estimated exports reached roughly $40 billion (agriculture ~59% of exports), while imports were substantially higher at ~$84 billion, reflecting continued vulnerability to external shocks (World Bank 2024).

Sustainable strategy offers mechanisms to counteract saturation. Alignment with SDGs—such as Goal 8 (Decent Work) and Goal 9 (Industry, Innovation, Infrastructure)—supports enhanced adaptability through public–private partnerships and EU integration, including candidate status achieved in 2022. Progress assessments indicate that roughly 35% of SDG targets are on track (UN 2025 Report), though conflict conditions continue to impede full implementation, particularly for environmental objectives affected by attacks and infrastructure damage.

5. Recommendations: From Saturation to Renewal

To avert a potential S(4) collapse, Ukraine must simultaneously enhance adaptability at the N_3 level by accelerating critical institutional reforms such as the introduction of a merit-based civil service, as recommended in the EU 2025 Report, and by making substantial investments in digital infrastructure and integration into global value chains, with a realistic target of reaching 70 percent integration by 2030. At the N_2 level, greater efficiency can be achieved by diversifying the export structure beyond its current heavy dependence on agriculture, particularly through accelerated growth of the IT sector, while strategically attracting foreign direct investment via well-designed green incentives. Finally, restoring stability at the N_1 level requires decisive action to strengthen core institutions through the full adoption of a robust anti-

corruption strategy and continuous monitoring of socio-economic-environmental assessments using key performance indicators aligned with World Bank indices.

In parallel, the Rosetta Stone application offers a powerful tool for early detection by identifying observable signatures—such as the erosion of public trust—as leading indicators of risk across different scales. Following the end of Russian aggression, Ukraine's reconstruction should be viewed as a profound process of enantiodromia, a Jung-inspired transformation in which opposing forces are reconciled to achieve systemic wholeness. Given the estimated four trillion dollar financing gap highlighted by the United Nations in 2025, reconstruction efforts must prioritize investments that are fully aligned with the Sustainable Development Goals, thereby transforming crisis into an opportunity for genuine, long-term societal renewal.

6. Conclusion

Integrating Saturation Theory and Collapse Model reframes Ukraine's challenges as a saturation-driven process, not isolated events. The sustainable strategy embodies the "Solution," offering pathways to renew SEA balance. In 2026–2030, focus on adaptive reforms will determine renewal or stagnation, ensuring institutional evolution supports resilient growth. Future works should quantify SEA trajectories with stochastic models for probabilistic forecasting.

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