

Rethinking Economic Stability: Temporal Coordination and Misalignment in Political Economy

Author

Shinasak Suwan-Achariya

Affiliation

Independent Researcher, Political Economy

Corresponding Author

Shinasak Suwan-Achariya

Email: shinasak.author2025@gmail.com

ORCID: 0000-0001-7124-6401

Abstract

This article examines how temporality shapes economic coordination, development, and governance in the contemporary global economy. While recent crises—such as financial instability, supply chain disruptions, and ecological stress—are often explained as failures of markets or institutions, this study argues that they reflect a deeper structural problem: misalignment between financial, industrial, infrastructural, and ecological time.

Existing literature on development, infrastructure, and global production networks provides important insights but remains fragmented and pays limited attention to temporal coordination across systems. This article addresses this gap by proposing the framework of

Temporal Political Economy, which conceptualizes economic stability and development as outcomes of alignment or misalignment between multiple temporal systems.

Methodologically, the study adopts a theory-building approach based on comparative structural analysis and interdisciplinary synthesis. It develops three key concepts: temporal misalignment, rhythmic equilibrium, and temporal sovereignty.

The findings suggest that instability arises when short-term financial cycles dominate long-term processes, while stability depends on the coordination of multiple temporal horizons. Artificial intelligence is conceptualized as temporal infrastructure that accelerates and synchronizes economic processes, generating new forms of inequality and governance challenges.

The article contributes to political economy by introducing temporality as a structural dimension of economic coordination and by providing a framework for understanding development and stability as problems of temporal governance.

Keywords: Temporal Political Economy; Temporal Sovereignty; Temporal Coordination; Uneven Development; Global Production Networks; Artificial Intelligence

Received: 29/03/2026

Revised : 25/04/2026

Accepted: 27/04/2026

1. Introduction: The Question of Time in Political Economy

Recent global crises—including financial instability, supply chain disruptions, ecological stress, and technological inequality—have challenged conventional models of economic development and governance. These crises are often interpreted as failures of markets, institutions, or technology (Harvey, 2010; Tooze, 2018). This article argues that they reflect a deeper structural problem: the misalignment between the temporal rhythms of finance, production, infrastructure, and ecological systems.

The dominant sustainability paradigm assumes that efficiency, technological innovation, and institutional reform can stabilize complex systems under conditions of continuous growth (Meadows et al., 1972; WCED, 1987). However, most policy frameworks operate within short-term political and financial cycles, while infrastructure development, industrial transformation, and ecological processes unfold over much longer time horizons (Adam, 1998; Rosa, 2013). This mismatch generates structural instability.

This temporal divergence is evident across the global economy. Financial markets operate in real time, supply chains in weeks and months, industrial transformation in decades, and ecological regeneration over generations (Braudel, 1981). When these systems are forced into a single accelerated logic, instability emerges. From this perspective, economic crises, uneven development, and sustainability failures can be understood as outcomes of temporal misalignment.

A similar dynamic characterizes global production networks. While existing research emphasizes their spatial organization (Gereffi, 1999; Coe & Yeung, 2015), these systems also

depend on synchronized temporal processes, including production schedules, delivery times, and investment cycles (Rodrigue, 2020). Disruptions in logistics or energy supply therefore create temporal shocks that propagate across multiple regions. Control over infrastructure and logistics, in this sense, is also control over economic time.

To address this gap, this article introduces the framework of Temporal Political Economy, which conceptualizes development as a problem of temporal coordination rather than growth alone. It proposes the concept of rhythmic equilibrium, defined as the alignment of financial, industrial, infrastructural, and ecological processes operating at different speeds.

Within this framework, artificial intelligence is understood not only as a tool for efficiency but as temporal infrastructure. By enabling real-time coordination and predictive decision-making, AI compresses decision cycles and restructures economic time (Agrawal et al., 2018; Brynjolfsson & McAfee, 2014; Zuboff, 2019). This transformation introduces a new dimension of political economy: temporal sovereignty.

Temporal sovereignty refers to the capacity of states to control and coordinate their development timelines, including investment horizons, infrastructure development, and technological adoption. In a global economy shaped by financial cycles, logistics systems, and digital infrastructures, control over time becomes a strategic resource.

While temporality has been examined in social theory, historical sociology, and political economy, and coordination has been studied in systems theory and cybernetics, these literatures remain fragmented. What remains underdeveloped is an integrated framework explaining how temporal systems interact and how their alignment shapes economic stability and development.

This article addresses this gap by proposing Temporal Political Economy as a unified framework linking financial, industrial, infrastructural, and ecological time.

Research Questions

This study is guided by the following research questions:

How do temporal structures shape economic coordination, governance, and technological systems?

Why do existing development and sustainability frameworks fail to achieve long-term stability?

How does artificial intelligence restructure coordination through time?

What is temporal sovereignty, and how does it relate to national development strategy?

How can economic stability be reconceptualized as temporal coordination?

Objectives of the Study

The objectives of this study are:

To examine the role of temporality in economic coordination and governance

To analyze the temporal causes of development and sustainability failures

To investigate artificial intelligence as temporal infrastructure

To develop the concept of temporal sovereignty

To propose a framework of economic stability based on temporal coordination

Table 1

Analytical structure of the study

Research question	Objective	Analytical focus	Outcome
RQ1	Examine temporality	Financial, industrial, infrastructure, ecological time	Multiple temporal systems
RQ2	Analyze mismatch	Political vs financial vs ecological cycles	Temporal misalignment
RQ3	AI	Prediction, automation, real-time coordination	Time compression
RQ4	Sovereignty	Development strategy, infrastructure, finance	Control over time
RQ5	Stability	Coordination across systems	Rhythmic equilibrium

Note. Developed by the author.

Table 1 summarizes the analytical structure of the study, linking research questions, objectives, and expected outcomes within a unified framework.

2. Literature Review

2.1 Development, Industrialization, and Uneven Development

Economic development has traditionally been explained through capital accumulation, industrialization, technological upgrading, and institutional capacity. Classical development economists such as Gerschenkron (1962), Amsden (1989), Wade (2004), and Chang (2002) emphasize the role of the state in coordinating long-term industrial transformation. More recent

literature highlights the importance of global production networks and value chains, where development is shaped by a country's position within transnational systems of production, finance, and logistics (Gereffi, 1999; Baldwin, 2016; Coe & Yeung, 2015).

While these approaches explain structural transformation and global integration, they pay limited attention to the temporal structures underlying these processes. Industrial upgrading and infrastructure development unfold over long-term horizons, whereas financial systems operate on short-term cycles. As a result, development can be understood not only as a structural process but as a problem of coordinating different temporal regimes across finance, industry, and infrastructure.

Existing theories—including neoclassical growth models (Solow, 1956), institutional economics (North, 1990), and dependency and world-systems approaches (Frank, 1967; Wallerstein, 1974; Arrighi, 1994)—provide important explanations of development and inequality. However, they generally treat time as a secondary factor and do not systematically analyze how mismatched temporal horizons shape economic outcomes.

This article builds on these literatures by introducing temporality as a structural dimension of development. It argues that uneven development and instability can be better understood as outcomes of misalignment between financial cycles, industrial transformation, and infrastructure investment.

2.2 Infrastructure, Logistics, and Economic Development

Infrastructure has long been recognized as a key driver of economic development, influencing productivity, inequality, and market access (Aschauer, 1989; Calderón & Servén, 2010). More

recent research highlights the role of logistics systems, transport corridors, and ports in shaping global production networks (Rodrigue, 2020; Notteboom & Rodrigue, 2005).

Beyond its spatial function, infrastructure also operates as a temporal system that organizes the speed and reliability of economic activity. Transport networks, energy systems, and logistics corridors determine how production schedules are synchronized and how efficiently goods move across regions.

Infrastructure development typically follows long-term investment cycles, while industrial production operates on medium-term horizons and financial systems on short-term cycles. Effective development therefore depends on coordinating these different temporal regimes.

However, most infrastructure literature focuses on investment and spatial connectivity rather than on temporal coordination. As a result, infrastructure is often analyzed as a physical asset rather than as a system that structures economic time.

This article extends existing research by conceptualizing infrastructure as a mechanism for coordinating temporal processes and by examining how it interacts with financial cycles and production systems in shaping development outcomes.

2.3 Global Production Networks and Temporal Coordination

Global production networks (GPN) and global value chains (GVC) have transformed contemporary capitalism into a system of transnational production coordinated through firms, logistics, and digital infrastructures (Gereffi et al., 2005; Coe & Yeung, 2015; Baldwin, 2016). Production is no longer confined within national economies but distributed across multiple locations connected through trade, finance, and transport systems.

Existing literature emphasizes the spatial organization and governance of these networks. However, less attention has been given to their temporal dimension. Production systems depend on synchronized schedules, predictable delivery times, and stable logistics flows. Disruptions in transport routes, energy supply, or geopolitical conditions therefore generate not only spatial dislocation but also temporal disruption.

Recent supply chain disruptions illustrate this dynamic. Delays in shipping and port congestion disrupted production schedules across multiple regions, while financial systems continued to adjust rapidly through price mechanisms. This mismatch between short-term financial adjustment and slower production and logistics processes demonstrates how instability emerges from temporal misalignment rather than from supply constraints alone.

From this perspective, global production networks can be understood as systems of temporal coordination. Control over logistics systems, technological standards, and financial flows also implies control over the timing of production and investment. Countries positioned in lower segments of global value chains often operate under externally determined timelines, while those controlling infrastructure and finance shape global temporal structures. This asymmetry contributes to uneven development and dependency.

2.4 Time, Acceleration, and Social Theory

The role of time in economic and social systems has been explored in social theory, historical sociology, and systems theory. Braudel (1981) identifies multiple temporal layers in social processes, while Rosa (2013) and Adam (1998) emphasize acceleration and the coexistence of

different temporal regimes. These approaches suggest that modern societies are structured not only by institutions but also by temporal dynamics.

In political economy, these dynamics are often described as processes of time compression, where technological and logistical innovations reduce production and transport time (Harvey, 1989; Castells, 2010). However, acceleration alone does not ensure stability. Systems theory and cybernetics highlight that stability depends on feedback, adaptation, and coordination across different temporal processes (Wiener, 1948; Beer, 1972).

Despite these insights, time is often treated as a secondary variable in economic analysis. Existing approaches rarely integrate temporal structures across finance, production, infrastructure, and ecological systems. As a result, the interaction between these systems remains under-theorized.

This article builds on these traditions by conceptualizing time as a structural dimension of political economy. It argues that economic stability depends on the coordination of multiple temporal regimes operating at different speeds and scales. This perspective provides the theoretical foundation for the framework of Temporal Political Economy developed in this study.

2.5 Coordination, Systems, and Cybernetics

Systems theory and cybernetics provide an alternative perspective on economic stability by emphasizing coordination, feedback, and adaptive regulation over time. Wiener (1948) conceptualizes stability as a function of feedback loops and response time, while Beer's (1972) Viable System Model highlights the need to coordinate multiple subsystems operating at different speeds.

Similarly, social systems theory views modern societies as composed of autonomous subsystems—such as the economy, politics, and technology—each governed by distinct internal logics and temporal structures (Luhmann, 1995). Stability therefore depends not on equilibrium within a single system but on coordination across these subsystems.

Coordination theory further reinforces this view by showing that complex economic systems consist of interdependent activities that must be synchronized over time (Malone & Crowston, 1994). These perspectives suggest that economic stability is fundamentally a problem of coordination across systems operating at different temporal horizons.

Building on these insights, this article interprets political economy as a system of temporal coordination linking finance, industrial production, infrastructure, and ecological processes. This provides the theoretical foundation for the concept of rhythmic equilibrium developed in this study.

2.6 Temporal Coordination in Political Economy: Existing Debates

Existing debates in political economy explain stability through institutions (North, 1990), macroeconomic policy, or technological innovation (Solow, 1956). Other approaches emphasize global production networks and industrial policy (Gereffi et al., 2005; Wade, 2004).

While these perspectives provide important insights, they largely analyze economic systems in structural or institutional terms and pay limited attention to temporal dynamics. In particular, they do not systematically address how mismatched time horizons across financial systems, industrial production, and infrastructure investment affect coordination and stability.

This article extends these debates by introducing temporality as a structural dimension of political economy.

2.7 Research Gap

Taken together, the existing literature provides valuable insights into development, infrastructure, global production networks, and social acceleration. However, these fields remain analytically fragmented.

Development theory focuses on industrialization and institutions, infrastructure studies on spatial investment, global production network research on spatial organization, and social theory on acceleration and temporality. What remains under-theorized is how these systems interact across different time horizons.

In particular, the interaction between financial time (short-term cycles), production time (industrial processes), infrastructure time (long-term investment), and ecological time (regeneration processes) has not been systematically analyzed within a unified framework.

This article addresses this gap by proposing the framework of Temporal Political Economy, which explains how alignment and misalignment between these temporal systems shape economic stability, uneven development, and governance outcomes. By integrating multiple strands of literature, the study introduces temporality as a structural dimension of political economy and development.

2.8 Contribution of the Study

This article makes three main contributions to the literature on political economy and development.

First, it introduces temporality as a structural dimension of economic coordination. While existing literature emphasizes capital accumulation, technological change, and institutions, this study shows that the interaction between financial, industrial, infrastructural, and ecological time plays a critical role in shaping economic stability and uneven development.

Second, it develops the framework of Temporal Political Economy, which reconceptualizes economic coordination and crisis as outcomes of alignment or misalignment between multiple temporal systems. By integrating development theory, infrastructure studies, global production networks, and social theory of time, the framework provides a unified approach to analyzing temporal structures in economic systems.

Third, it conceptualizes artificial intelligence as temporal infrastructure and introduces the notion of temporal sovereignty. This highlights how control over time—through logistics systems, financial cycles, and digital technologies—becomes a strategic dimension of national development.

2.9 Critical Comparison of Existing Approaches

Existing approaches provide important insights but remain limited in addressing temporal coordination.

Neoclassical economics emphasizes equilibrium and allocation but treats time as a neutral parameter. Institutional and development economics focus on state capacity but do not systematically analyze temporal dynamics. GPN and GVC research explains spatial organization yet pays limited attention to synchronization across production processes. Dependency and world-

systems theories highlight structural inequality but do not explicitly examine temporal asymmetries.

As a result, existing frameworks analyze economic systems in structural or spatial terms while under-theorizing their temporal dimension.

This article addresses this limitation by introducing temporality as a structural dimension of political economy and by proposing an integrated framework that links financial, industrial, infrastructural, and ecological time.

3. Methodology

This study adopts a theory-building approach combined with comparative structural analysis to examine the role of time in political economy, development, and technological systems. Rather than testing a single hypothesis using quantitative methods, the study develops a conceptual framework through interdisciplinary synthesis across development theory, infrastructure studies, global production networks, social theory of time, and artificial intelligence research.

The objective of this approach is analytical generalization rather than statistical generalization. It seeks to identify structural relationships between temporal systems and their implications for economic coordination and stability. This methodology is consistent with established traditions in political economy and historical sociology, where theoretical frameworks are developed through comparative analysis and synthesis rather than empirical testing (Braudel, 1981; Gerschenkron, 1962; Swedberg, 2012).

3.1 Analytical Approach

The analysis proceeds in three steps.

First, the study identifies the temporal structures embedded in different socio-economic systems, including financial cycles, industrial production, infrastructure development, and ecological processes. This step draws on existing literature to clarify how each system operates across distinct time horizons.

Second, it applies comparative structural analysis to examine differences in temporal dynamics, focusing on variation in time horizons, adjustment speeds, and coordination requirements across these systems.

Third, the study analyzes the consequences of these differences. It argues that when systems operate under incompatible temporal conditions, coordination failures emerge in the form of financial instability, supply chain disruptions, and uneven development. This condition is conceptualized as temporal misalignment.

Through this process, the study develops the framework of Temporal Political Economy and introduces the concepts of temporal misalignment, rhythmic equilibrium, and temporal sovereignty.

3.2 Methodological Scope and Limitations

The findings of this study are derived from comparative theoretical analysis rather than from a single empirical dataset. The purpose is not to produce statistical generalization but to construct a conceptual framework that explains how temporal structures shape economic coordination and governance.

This approach is consistent with theory-building research in political economy, where new analytical models are developed through interdisciplinary synthesis. However, the framework requires further empirical validation in future research to assess its applicability across different national and sectoral contexts.

Figure 1 presents the analytical framework of the study. It conceptualizes political economy as the interaction of multiple systems operating at different time horizons. Instability and uneven development emerge when these systems become misaligned, while stability depends on their coordination over time.

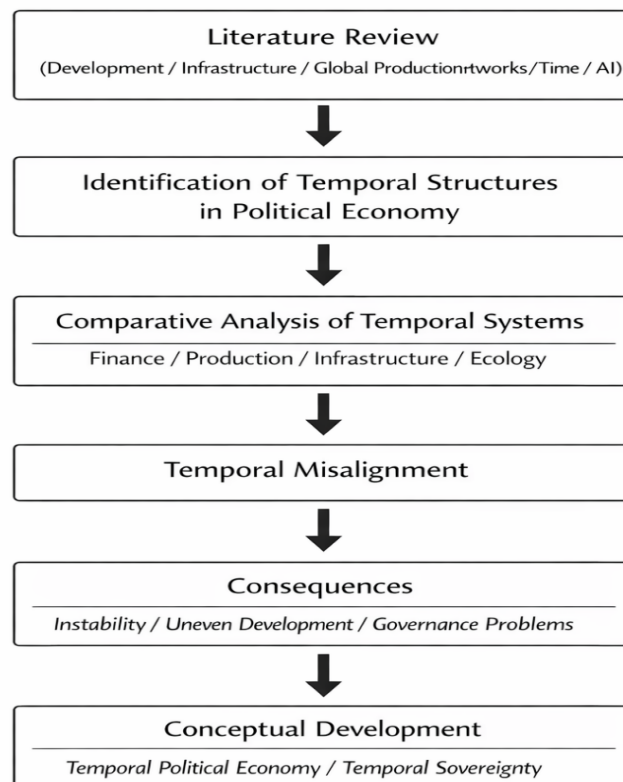


Figure 1. Analytical Framework of Temporal Political Economy

Note. Developed by the author.

The framework begins with an interdisciplinary literature review and identifies temporal structures across financial, industrial, infrastructural, and ecological systems. Through comparative analysis, it highlights how misalignment among these systems leads to instability, uneven development, and governance challenges. The framework culminates in the concepts of Temporal Political Economy and temporal sovereignty.

Methodological Positioning

This study adopts a theory-building approach aimed at analytical generalization rather than statistical generalization. It develops a conceptual framework to explain the relationship between temporality and economic coordination rather than testing a predefined hypothesis.

This approach follows established traditions in political economy and historical sociology, where theoretical models are constructed through interdisciplinary synthesis and comparative analysis (Braudel, 1981; Gerschenkron, 1962; Swedberg, 2012).

Accordingly, the contribution of this study lies in conceptual development, providing a framework that can be applied and tested in future empirical research.

4. Results

The findings are derived from comparative theoretical analysis and are presented in relation to the research questions.

Research Question 1

How does temporality structure economic coordination, governance, and technological systems?

Finding 1: Political economy operates through multiple temporal systems

The analysis shows that modern political economy operates through multiple temporal systems with different time horizons and operational speeds. These include financial cycles (short-term), industrial production (medium-term), infrastructure investment (long-term), and ecological processes (long-term).

This finding aligns with Braudel's (1981) concept of multiple temporalities and Adam's (1998) notion of timescapes. However, the analysis extends these perspectives by demonstrating that these temporal structures are not only social or historical features but also fundamental components of economic coordination.

The results indicate that coordination problems emerge when short-term financial cycles dominate and impose constraints on slower systems such as industrial development and infrastructure investment. This creates structural tension between systems operating at incompatible speeds.

Temporality should therefore be understood as a structural dimension shaping economic coordination, governance capacity, and technological systems.

Research Question 2

Why do existing sustainability and development frameworks fail to achieve long-term stability?

Finding 2: Development and sustainability failures result from temporal misalignment

The analysis suggests that instability in development and sustainability policies arises from misalignment between short-term financial and political cycles and long-term industrial, infrastructural, and ecological processes.

This interpretation is consistent with Hirschman's (1958) emphasis on long-term infrastructure development and Minsky's (1986) theory of short-term financial instability. Global production network research further highlights the need for coordinated long-term production systems (Gereffi et al., 2005; Coe & Yeung, 2015).

The results show that policies often fail because they operate within short-term decision cycles, while the systems they seek to govern require long-term coordination. This mismatch leads to policy inconsistency, underinvestment in infrastructure, and recurring instability.

From this perspective, development and sustainability challenges can be understood not only as institutional or technological problems but as failures of temporal coordination across systems operating at different speeds.

Research Question 3

How does artificial intelligence reshape economic and governance systems through time?

Finding 3: Artificial intelligence restructures coordination through time compression and synchronization

The analysis shows that artificial intelligence reshapes political economy by transforming the temporal structure of economic coordination. AI enables real-time data processing, predictive analytics, and automated decision-making, significantly reducing response time across financial systems, logistics networks, industrial production, and public administration.

This transformation can be understood as time compression, where processes that previously required extended periods are coordinated in real time. As a result, AI not only

increases efficiency but restructures the temporal organization of economic and governance systems.

The findings indicate that AI increasingly functions as temporal infrastructure, synchronizing activities across multiple systems. This shift alters governance structures, as decision-making becomes continuous and predictive rather than periodic.

From a development perspective, this transformation generates new inequalities between actors that control real-time data, algorithms, and digital infrastructure and those that do not. This condition can be described as temporal inequality, where some economies operate in real-time systems while others remain constrained by slower institutional and infrastructural dynamics.

Research Question 4

What is temporal sovereignty and how does it relate to national interest and development?

Finding 4: Temporal sovereignty as control over development timelines

The analysis shows that contemporary economic systems operate as coordinated temporal structures in which production schedules, investment cycles, and technological adoption are aligned across countries (Gereffi et al., 2005; Coe & Yeung, 2015; Baldwin, 2016).

Within these systems, the ability to control time—particularly long-term investment, infrastructure development, and industrial transformation—becomes a key dimension of development strategy.

The findings define temporal sovereignty as the capacity of a state to coordinate and control its own development timelines. States with this capacity can pursue long-term strategies,

while those dependent on external finance and global production networks operate under externally determined temporal conditions.

This creates temporal dependency, where national development trajectories are shaped by external financial cycles, production schedules, and technological standards. In this sense, temporal sovereignty is closely linked to national interest and strategic autonomy.

From this perspective, development is not only a process of industrialization or technological upgrading but also the ability to control and coordinate long-term economic time.

Research Question 5

How should economic stability be reconceptualized within a temporal framework?

Finding 5: Economic stability as temporal coordination (rhythmic equilibrium)

The analysis reconceptualizes economic stability as a problem of temporal coordination rather than equilibrium or efficiency. Contemporary developments in artificial intelligence and data-driven governance highlight the growing importance of timing, synchronization, and real-time coordination in economic systems (Agrawal et al., 2018; Kitchin, 2017).

The findings show that stability emerges when financial cycles, industrial production, infrastructure development, and ecological processes operate within compatible time horizons. In contrast, instability arises when these systems become misaligned, particularly when short-term financial cycles dominate long-term processes.

This condition is conceptualized as rhythmic equilibrium, defined as the synchronization of multiple systems operating at different speeds in a way that sustains long-term development

and stability. Rhythmic equilibrium does not require uniform speed but compatible temporal alignment across systems.

From this perspective, economic stability depends on the capacity of institutions to coordinate multiple temporal processes. Economic crises can therefore be interpreted as breakdowns in temporal coordination rather than solely as financial or macroeconomic imbalances.

Table 2

Core Propositions of Temporal Political Economy

Proposition	Explanation
1	Political economy consists of multiple temporal systems
2	Economic crises result from temporal misalignment
3	Artificial intelligence restructures coordination through time compression
4	Development depends on temporal sovereignty
5	Stability depends on rhythmic equilibrium

Note. Developed by the author.

Table 3

Temporal Political Economy Framework

Temporal Structure	Outcome
Alignment	Stability
Misalignment	Crisis
Control over time	Development
External control	Dependency
Real-time coordination	Algorithmic governance

Note. Developed by the author.

Empirical Illustration: Temporal Misalignment in Global Supply Chains

Global production networks operate through tightly synchronized timelines. Recent disruptions—such as transport delays, geopolitical shocks, and energy constraints—have revealed structural mismatches between financial, production, and infrastructural processes.

For example, shipping delays disrupted production schedules for weeks, while financial systems adjusted rapidly through price mechanisms. Industrial production slowed due to missing inputs, and infrastructure systems lacked the flexibility to respond in the short term.

This mismatch between short-term financial cycles, medium-term production processes, and long-term infrastructure constraints generated cascading effects, including supply shortages, inflation, and production delays.

From the perspective of Temporal Political Economy, these disruptions illustrate temporal misalignment: a failure to coordinate systems operating at incompatible speeds. This example

demonstrates that instability arises not only from supply constraints but from breakdowns in temporal coordination across interconnected systems.

5. Discussion

The findings of this study suggest that temporality plays a structural role in political economy, development, and governance. While existing literature in social theory emphasizes multiple temporalities in economic and social systems (Braudel, 1981; Adam, 1998; Rosa, 2013; Harvey, 1989), this article extends these insights by demonstrating how misalignment between these temporal systems generates economic instability.

First, the findings challenge conventional development theory, which typically explains economic growth in terms of capital accumulation, technological progress, and institutional quality. While these factors remain important, this study argues that development outcomes are critically shaped by the relationship between different temporal systems, particularly financial time, industrial time, and infrastructure time. For instance, financial systems often operate on short-term cycles, while industrial transformation and infrastructure development require long-term coordination. When these systems operate under incompatible time horizons, development strategies become inconsistent and unstable.

Second, this study contributes to the literature on global production networks by introducing a temporal dimension to existing spatial analysis. While previous research has shown that global production is fragmented across regions and coordinated through logistics systems (Gereffi et al., 2005; Coe & Yeung, 2015), this article demonstrates that these networks depend on

synchronized temporal processes. Disruptions in logistics routes or energy supply do not only affect spatial flows but also create temporal disruptions that propagate across production systems.

This dynamic can be observed in recent global supply chain disruptions, where delays in shipping and port congestion created mismatches between production schedules and delivery timelines. While financial markets adjusted rapidly through price mechanisms, industrial production systems faced delays due to missing inputs, and infrastructure systems lacked the flexibility to respond in the short term. This mismatch illustrates how instability emerges from the failure to coordinate temporal systems rather than from supply shortages alone.

Third, the findings have important implications for sustainability and governance. Existing sustainability frameworks often assume that technological and institutional solutions can stabilize economic systems. However, this study shows that these frameworks fail when political cycles, financial systems, and ecological processes operate under different temporal horizons. Without mechanisms to coordinate these timeframes, sustainability policies remain structurally constrained.

Fourth, this article highlights the role of artificial intelligence as a form of temporal infrastructure. AI systems enable real-time coordination across finance, logistics, and governance, significantly reducing decision-making time. However, this acceleration also creates a gap between technological time and institutional adaptation, introducing new forms of systemic risk.

Fifth, the concept of temporal sovereignty provides a new perspective on development strategy. This article argues that development depends not only on capital or institutions but on the capacity of states to control and coordinate long-term development timelines. Countries that

lack such capacity remain dependent on external financial cycles and global production schedules, leading to what this study defines as temporal dependency.

Taken together, these findings suggest that economic stability should be reconceptualized as a problem of temporal coordination. This article introduces the concept of rhythmic equilibrium to describe a condition in which financial, industrial, infrastructural, and ecological systems operate within compatible time horizons. Instability, in contrast, emerges when these systems become misaligned.

By developing this framework, this study shifts the analytical focus of political economy from equilibrium and resource allocation to coordination and temporal governance. From this perspective, economic crises can be understood as breakdowns in temporal coordination rather than solely as financial or macroeconomic imbalances.

Theoretical Implications: From Equilibrium to Temporal Coordination

The findings of this study suggest a shift in how economic stability should be conceptualized in political economy. While traditional economic theory interprets stability as equilibrium in prices, output, or markets, this article argues that such perspectives overlook the temporal structure of economic systems.

Existing approaches generally treat time as a neutral parameter. In contrast, this study demonstrates that economic systems operate through multiple temporal regimes, including financial cycles, industrial production processes, infrastructure development timelines, and ecological regeneration. These systems do not naturally converge toward equilibrium; rather, they require continuous coordination across different time horizons.

From this perspective, stability does not emerge automatically from market mechanisms but depends on the alignment of these temporal systems. When financial systems operate on short-term cycles while industrial and infrastructural systems require long-term coordination, structural tensions arise. Economic crises, therefore, can be interpreted as breakdowns in temporal coordination rather than solely as financial or macroeconomic imbalances.

This argument shifts the analytical focus of political economy from equilibrium to coordination, from allocation to synchronization, and from efficiency to temporal governance. By introducing the concept of rhythmic equilibrium, this study provides a framework for understanding stability as the compatibility of multiple temporal processes rather than the balance of market variables alone.

Policy Implications: Temporal Governance and Development Strategy

The framework of Temporal Political Economy suggests that development policy should focus not only on increasing investment or technological adoption but on coordinating long-term economic time across different systems.

This implies that effective development strategies must align:

financial systems with long-term investment horizons,
industrial policy with technological learning cycles, and
political decision-making cycles with infrastructure and ecological timelines.

In practice, this requires institutional arrangements that support long-term coordination, including stable financial systems, strategic infrastructure planning, and logistics networks capable of reducing temporal uncertainty.

Recent disruptions in global supply chains illustrate this challenge. Delays in transport and logistics created mismatches between production schedules and delivery timelines, while financial markets continued to adjust rapidly. This divergence between short-term financial adjustment and slower industrial and infrastructural processes highlights the importance of temporal coordination in maintaining economic stability.

From this perspective, development policy is not only a question of resource allocation but of governing time. States must develop the capacity to manage different temporal horizons simultaneously in order to sustain long-term development.

Contribution to the Literature

This article contributes to political economy and development studies in three main ways.

First, it introduces temporality as a structural dimension of economic coordination, demonstrating that economic systems operate through multiple temporal regimes rather than a single linear timeline.

Second, it reconceptualizes economic stability as a problem of temporal coordination, proposing the concept of rhythmic equilibrium as a framework for analyzing the alignment of financial, industrial, infrastructural, and ecological processes.

Third, it develops the concept of temporal sovereignty, defined as the capacity of states to coordinate and control long-term development time within a global economy structured by financial cycles, logistics systems, and digital infrastructures.

Limitations of the Study

This study has several limitations.

First, it is primarily conceptual and does not rely on original empirical datasets. While the framework is supported by analytical reasoning and illustrative examples, further empirical validation is required to assess its applicability across different contexts.

Second, the level of abstraction may limit direct policy application without additional operationalization. The concepts of temporal misalignment, rhythmic equilibrium, and temporal sovereignty require further specification in empirical settings.

Third, the study focuses on structural relationships between temporal systems and does not fully capture micro-level dynamics within firms or institutions.

Future research should therefore aim to test and refine the framework through comparative case studies and sector-specific analysis, particularly in areas such as supply chain resilience, infrastructure development, and digital governance.

6. Conclusion: Time and the Future of Political Economy

This article has argued that many contemporary economic, developmental, and governance challenges can be better understood as problems of temporal coordination rather than purely economic, technological, or institutional problems. By introducing the framework of Temporal Political Economy, this study has examined how different systems—financial markets, industrial production, infrastructure development, and ecological processes—operate according to different time horizons and speeds, and how their interaction shapes economic stability and development trajectories.

The findings of this study suggest that economic instability, uneven development, and governance difficulties often emerge when these systems become temporally misaligned,

particularly when short-term financial cycles dominate long-term industrial and infrastructure development. From this perspective, development is not only a process of capital accumulation or technological upgrading, but also a process of coordinating long-term economic time.

This article contributes to political economy and development studies in three ways. First, it introduces temporality as a structural dimension of economic coordination. Second, it develops the concept of Temporal Political Economy as a framework for understanding economic stability and crisis as problems of temporal alignment and misalignment. Third, it introduces the concepts of rhythmic equilibrium and temporal sovereignty to explain how the control of time becomes a strategic dimension of national development in the contemporary global economy.

The concept of temporal sovereignty suggests that national development strategy in the twenty-first century increasingly depends on the ability of states to coordinate long-term infrastructure investment, industrial policy, logistics systems, and technological development while managing short-term financial pressures. In this sense, control over economic time becomes a strategic dimension of national interest and development policy.

Future research should further develop the empirical dimension of Temporal Political Economy by examining specific country cases, infrastructure systems, logistics networks, and financial regimes in order to better understand how temporal coordination affects development outcomes in different regions of the world. Comparative studies between countries that successfully coordinated long-term development and those that remained dependent on short-term financial and production cycles would be particularly useful.

In conclusion, this article argues that the central problem of contemporary political economy is not only the distribution of resources, technology, or capital, but the organization and coordination of time. Economic development, stability, and national power increasingly depend on the ability to coordinate multiple temporal systems operating at different speeds and time horizons.

References

- Adam, B. (1998). *Timescapes of modernity: The environment and invisible hazards*. Routledge.
- Agrawal, A., Gans, J., & Goldfarb, A. (2018). *Prediction machines: The simple economics of artificial intelligence*. Harvard Business School Press.
- Amsden, A. H. (1989). *Asia's next giant: South Korea and late industrialization*. Oxford University Press.
- Arrighi, G. (1994). *The long twentieth century: Money, power and the origins of our times*. Verso.
- Aschauer, D. A. (1989). Is public expenditure productive? *Journal of Monetary Economics*, 23(2), 177-200.
- Baldwin, R. (2016). *The great convergence: Information technology and the new globalization*. Harvard University Press.
- Beer, S. (1972). *Brain of the firm*. Allen Lane.
- Braudel, F. (1981). *The structures of everyday life: Civilization and capitalism, 15th-18th century*. Harper & Row.
- Brynjolfsson, E., & McAfee, A. (2014). *The second machine age*. W. W. Norton & Company.

- Calderón, C., & Servén, L. (2010). Infrastructure and economic development in Sub-Saharan Africa. *Journal of African Economies*, 19(Suppl. 1), i13-i87.
- Castells, M. (2010). *The rise of the network society* (2nd ed.). Wiley-Blackwell.
- Chang, H.-J. (2002). *Kicking away the ladder: Development strategy in historical perspective*. Anthem Press.
- Coe, N. M., & Yeung, H. W.-C. (2015). *Global production networks: Theorizing economic development in an interconnected world*. Oxford University Press.
- Frank, A. G. (1967). *Capitalism and underdevelopment in Latin America*. Monthly Review Press.
- Gereffi, G. (1999). International trade and industrial upgrading in the apparel commodity chains. *Journal of International Economics*, 48, 37-70. [https://doi.org/10.1016/S0022-1996\(98\)00075-0](https://doi.org/10.1016/S0022-1996(98)00075-0)
- Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, 12(1), 78-104.
- Gerschenkron, A. (1962). *Economic backwardness in historical perspective*. Harvard University Press.
- Harvey, D. (1989). *The condition of postmodernity*. Blackwell.
- Harvey, D. (2010). *The enigma of capital and the crises of capitalism*. Oxford University Press.
- Hirschman, A. O. (1958). *The strategy of economic development*. Yale University Press.
- Kitchin, R. (2017). Thinking critically about and researching algorithms. *Information, Communication & Society*, 20(1), 14-29.

- Luhmann, N. (1995). *Social systems*. Stanford University Press.
- Malone, T. W., & Crowston, K. (1994). The interdisciplinary study of coordination. *ACM Computing Surveys*, 26, 87-119. <https://doi.org/10.1145/174666.174668>
- Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. W. (1972). *The limits to growth*. Universe Books.
- Minsky, H. P. (1986). *Stabilizing an unstable economy*. Yale University Press.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press.
- Notteboom, T., & Rodrigue, J.-P. (2005). Port regionalization: Toward a new phase in port development. *Maritime Policy & Management*, 32(3), 297-313. <https://doi.org/10.1080/03088830500139885>
- Rodrigue, J.-P. (2020). Transportation and the spatial structure. In J.-P. Rodrigue, C. Comtois, & B. Slack, *The geography of transport systems* (5th ed., pp. 56-89). Routledge. <https://doi.org/10.4324/9780429346323-2>
- Rosa, H. (2013). *Social acceleration: A new theory of modernity*. Columbia University Press.
- Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70(1), 65-94.
- Swedberg, R. (2012). Theorizing in sociology and social science: Turning to the context of discovery. *Theory and Society*, 41(1), 1-40.
- Tooze, A. (2018). *Crashed: How a decade of financial crises changed the world*. Viking.

Wade, R. (2004). *Governing the market: Economic theory and the role of government in East*

Asian industrialization. Princeton University Press.

Wallerstein, I. (1974). *The modern world-system*. Academic Press.

World Commission on Environment and Development (WCED). (1987). *Our common future*.

Oxford University Press.

Wiener, N. (1948). *Cybernetics: Or, control and communication in the animal and the machine*.

MIT Press

Zuboff, S. (2019). *The age of surveillance capitalism*. PublicAffairs.

Author Bio

Shinasak Suwan-achariya is an independent political economist whose research focuses on uneven development, financial hierarchy, and the temporal organization of economic systems. His work examines the interaction between monetary regimes, industrial transformation, and institutional coordination, with particular emphasis on East Asian political economy.

Declaration of Interest

The author declares no competing interests.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Data Availability Statement

This study does not report new empirical data. The analysis is based on existing literature and publicly available sources cited in the text.

Use of Generative AI

During the preparation of this manuscript, the author used an AI-assisted language tool for language refinement and structural editing. All substantive arguments, interpretations, and conclusions are the sole responsibility of the author.