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Demography, Institutions, and Power: Reframing Eurasian Connectivity in an Age of Strategic Fragmentation**

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Abstract: Eurasian economic cooperation has evolved unevenly, raising the question of whether demographic complementarities, institutional capacity, and geopolitical pressures jointly shape cross-continental engagement. This study extends the Cross-Country Cross-Continent Economic Development Theory by integrating demographic economics with realist political economy to examine how structural asymmetries across Asia, the European Union, and Russia influence connectivity cooperation. Using a panel dataset covering 1950–2024, the analysis evaluates the relationships among demographic complementarity, connectivity potential, political friction, institutional capability, and Eurasian cooperation. Descriptive and correlational assessments are complemented by panel estimations and dynamic specifications to test direct and mediated effects. The findings indicate that demographic differences constitute a latent structural asset but do not directly translate into cooperation. Institutional capability and political friction emerge as the most consistent predictors, while cooperation demonstrates strong temporal persistence. In periods of geopolitical uncertainty, short-term increases in connectivity potential are associated with reduced cooperation. The results suggest that demography functions as an enabling condition rather than an autonomous driver, and that the economic realization of complementarities depends on institutional governance and manageable political friction. These conclusions reinforce the policy relevance of strengthening domestic demand, institutional stewardship, and systemic resilience to sustain cross-continental engagement.

Keywords: Demographic complementarity, Institutional capability, Political friction, Structural asymmetry, Realist political economy, Cross-continental economic development.

1. Introduction

Over the past two decades, the world economy has experienced a phase of some interesting and simultaneous demographic as well as geopolitical change. The aging of the population, youth migration of labor, and shifting distributions of labor have moved from being topics of domestic policy discussions to become regional and global issues. Over the past several decades, population aging, youth labor migration, and changing labor distributions have become central strategic determinants of international economic competitiveness to gain requisite labor skills and economies of scale. Two-thirds of the global population lives in countries with declining fertility, as noted by the United Nations (2024); and the median age of the global population has risen from 24 in 1950 to almost 32. According to International Monetary Fund's "Changing demographics and Economic growth" (2020) explain that key demographic change is reshaping patterns of capital accumulation, labor productivity, and fiscal sustainability with a growing importance in industrialized areas. The World Health Organization (2022) article "Aging and Health" highlight that demographic aging changes the health economy relationship, which can subsequently affect public expenditure, social protection systems, and labor force participation. At a global level, each of these institutions has concluded that demography is no longer a background variable, but a critical determinant of global economic accumulation and geopolitical influence.

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Demographic transition is already in an advanced stage in Europe. Eurostat projections from 2017 indicate that within the time period from 2017 to 2050 the EU working-age population will decline by almost thirty million, while over one third of the population will be 65 or older. The demographic imbalance is currently applying pressure on labor markets, stifling innovation, and adding pressure to social systems. According to United Nations Department of Economic and Social Affairs (2023) and Moscow Times (2025) Russia is experiencing a different, but a complicated demographic challenge. Since 2010, Russia's population has stagnated, and out-migration and falling birth rates have created structural labor shortages among young workers. On the other hand, Asia is still in a young age profile. Almost half of the world's youth population lives in South Asia and part of Southeast Asia, giving it a demographic dividend which theoretically create global production networks around the world for years with the right mobilization. These very different and contrasting demographic profiles can, and in areas, create levels of tension and opportunities throughout Eurasian land mass liberalist and political fragmentation.

The European Union, the Eurasian Economic Union, and China's Belt and Road Initiative offer intersecting systems of connectivity at the regional level, all with the aim of producing economic diversity from demographic and geographic diversity (Zhang W, 2025). However, the disruptions of the 2022 Russia-Ukraine war and other global disruptions, show that demographic potential, alone, is not enough to produce cooperation. The utility of fragmenting supply chains, sanctions, and competing standards of governance have turned Eurasia into a space of conditional and selective engagement (EBRD, 2022; ECFR, 2023; IMF, 2022). In that sense, we see demography intersecting with geopolitics to reshape the ways by which states invest, trade and cooperate. For example, the aging economies of Europe and the younger markets of Asia will create new patterns of trade corridors, energy partnerships, and flows of digital outsourcing, representing new forms of interdependence or demographic arbitrage for regions to exchange labor, capital, and technology based on their relative demographic endowments.

This research addresses this emerging reality through the inclusion of demographic analysis into the Cross-Country Cross-Continent Economic Development Theory (CCCEDT). First proposed as a theory to explain trans-continental complementarities, has to be adapted to invoke account for demographic asymmetries in driving global economic integration. The current study embeds demographic indicators within a realism framework, to assess how demographic divides intersect with geopolitical divides, to shape the development of Eurasian connectivity. We assert that demographic conditions, such as aging, youth bulges, labor mobility, and dependency ratios, are enablers and constraints of international business relations. In a time when the fabric of global cooperation has become increasingly fragmented, demographic complementarities could provide the bridge across geopolitical divides. Thus, the sections below explore how Europe, Russia, and Asia can turn their demographic differences into pragmatic trade, investment, and technology channels in the face of strategic rivalry.

2. Literature Review

There are conflicting and alternative perspectives on Eurasia's compactness and economic interaction as well as heterodox regional development theories. One of these perspectives is represented by Baş (2005, 2018) through his "National Economy Model" developed by him and based on an additional source of population dynamics in terms of consumption based/locally consumed stocks and local currency trade between sovereign, independent countries: these changes lead to decreased reliance on outside countries and reduce instances of foreign vulnerability. Baş's (2005, 2018) theories and his National Economy Model have significant differences from the theories and methods utilized in this study; thus, they serve as an example of the differing and varied intellectual perspectives that exist currently within Eurasian Development Theory, as well as the conflicting perspectives that still exist in current discussions about the development of a national or regional area.

Theoretical Framework

The intersection of demographic change and geopolitical rivalry has sparked renewed interest in theoretical models capable of explaining economic connectedness under structural asymmetry. Globalization and international business theories have long regarded demography as an exogenous background variable, as we are hardwired to assume that development (or underdevelopment) is determined solely by the capital–technological–trade variables (Narula, 2022). However, there is mounting evidence that changing demographic conditions, such as aging, declining fertility rates, and actual labor mobility, are reshaping comparative advantage across the continents (IMF, 2024; United Nations, 2023).

Realism and the Fragmented Global Order

Realism in international relations, dating from Morgenthau (1948) and Waltz (1979) and its more recent applications to the economy, argues that cooperation is only possible where it aligns with the national interest. The latest analyses suggest that we are beyond globalization and into an era of strategic fragmentation characterized by sanctions and technology competition and competition across value-chain alignments (Tooze, 2023; Farrell & Newman, 2022). The World Bank (2023) characterizes examples of 'reshored' and 'friend shored' production networks as indicative of this realist approach. Along the Eurasian landmass, the relationships between the European Union, Russia, and the Belt and Road Initiative (BRI) project of China indicates that connectedness is premised not upon a universal liberal integration perspective to global development but through power asymmetries (Zeng, 2024).

Demographic Economics and the Principle of Arbitrage

Demographic economics represents the second essential conceptual pillar. In its World Population Prospects 2024 report, the United Nations predicts that by 2050 one in six persons will be over the age of 65 globally; Europe's median age is projected to be over 46 years. The IMF (2024) lists population aging as a structural drag on productivity and therefore fiscal balance. In contrast, Asia's youth bulge may provide some demographic dividend, but only if it is part of a larger investment and technology upgrading trajectory (Bloom, 2023). The concept of demographic arbitrage where capital, seeking returns, organized from aging economies connects to labor and market dynamism in younger economies has become well-documented in global value-chain relocation studies and digital outsourcing studies (World Economic Forum, 2023; Lee & Park, 2022). This arbitrage forms the basis for multiple resurgent flows of services, remittances, and knowledge from South and Southeast Asia to Europe's demographically ancient economies.

The CCCEDT Perspective

The Cross-Country Cross-Continental Economic Development Theory (CCCEDT) posits that structural complementarities between remote regions stimulate cumulative growth when infrastructure, trade, and institutional capabilities align (Iqbal et. al, 2022). While earlier theorizing highlighted the role of physical (e.g. transportation) and institutional (e.g. trade agreements) linkages, recent developments suggest that demographic and geo-political contexts should be embedded into the model. Currently in Eurasia, demographic disparities directly influence the prospects for economic cooperation. Europe's shrinking working-age population is increasing the need for digital and industrial inputs from Asia's youthful economies, while Asia's need for energy and capital connects it via Europe and Russia (European Commission, 2023). Russia, despite its demographic conundrum, retains a central geographic positioning as a transit and energy corridor (UN ESCAP, 2024).

Integrating the Framework

By integrating realism with demographic economics, CCCEDT provides a multi-layered structure of Eurasian connectivity. Cooperation is more viable where demographic complementarities offset political frictions and occur in areas that are less prone to strategic friction, some examples are renewable energy, education and digitized services (OECD, 2024). Realism and demographic variables dependency ratios, shares of working-age population and migration flows are expected to mediate the extent and direction of economic engagement across continents. As such, this combined framework develops CCCEDT beyond its original structural base of realism, and acts to illustrate Eurasian relations as a dynamic system where demographic necessity is shaping pragmatic cooperation amid enduring geopolitical divides.

There are numerous alternative economic frameworks in Eurasia (e.g., Baş's National Economy Model – NEM (2005, 2018)) that highlight three major factors that help stabilize economic exchange between regions: (1) How much can people consume; (2) How much consumption capacity people should have; and (3) Trading with each other in national currency instead of the US dollar to promote regional trade. The empirical realistic-demographic synthesis described in this article is another type of alternative economic concept that provides a means to analyze regional economic development by considering demographics and global political issues (geopolitics) as they relate to the movement of products and/or money among countries/countries after the dollar has lost its status as the world's dominant currency.

3. Materials and Methods

This study employs a mixed-method and comparative design to examine the interaction of demographic divides with geopolitical divides in facilitating Eurasian connectivity. The methodological framework combines qualitative and quantitative approaches to enable deep analytic depth while making findings genuinely credible. This triangulation study employ three methods integrated to reach to conclusion: Qualitative Comparative Analysis (QCA) to determine condition pathways across regional cases, network analysis to visualize connectivity of demographic and trade variables, and contextual triangulation that information drawn from secondary datasets of global institutional sources. The study asserts a realist assumption that state cooperation is conditional and context specific, rather universal or constant.

Research Design and Rationale

The study's design is based on the logic of comparative realism, understanding Europe, Russia, and Asia are not separate, but interconnected actors operating in a context of asymmetrical geopolitical and demographic conditions. QCA is useful because it promotes the identification of multiple conjectural causal factors, or combinations of demographic, institutional and geopolitical influences, that interact cumulatively to produce change in connectivity. QCA is particularly useful for the nonlinear and fragmented nature of connections in Eurasia, where collaboration maybe exist under specific assemblage of factors, such as low political tension and high demographic complementarity.

The research spans the years 1950–2024, covering both pre- and post-2022 Eurasian relations. This time frame reflects the demographic shifts preceding the Russia–Ukraine war and the reorganization of trade and investment flows after that event. This research is concerned with whether demographic complementarities can continue to be relevant regardless of being in a different geopolitical alignment.

Data and Variables

The research uses primarily open-access and institution datasets because of the necessity of transparency and replicability. Demographic variables such as total fertility rate, median age, dependency ratio, and labor-force growth are from the United Nations Department of Economic and Social Affairs (UN DESA, 2024) and World Bank's World Development Indicators (World Bank, 2024). Macro-economic and fiscal variables such as GDP growth and foreign direct investment inflows were from International Monetary Fund's World Economic Outlook (IMF, 2024). Trade and logistics network data were taken from the United Nations Economic and Social Commission for Asia and the Pacific's Eurasian Connectivity Database (UN ESCAP, 2024) and OECD's Global Value Chain Indicators (OECD, 2024).

Table 1. Variables, Sources, and Their Conceptual Relationships to the Constructs

Variable Name	Source (Institution / Dataset)	Conceptual Construct	Role in the Model / Expected Relationship
Fertility rate	United Nations Department of Economic and Social Affairs (UN DESA), World Population Prospects	Demographic Complementarity	Higher fertility in younger regions increases demographic gaps relative to aging regions, enabling long-term complementarities; expected *indirect* positive effect on cooperation through institutional and geopolitical pathways.
Median age	UN DESA	Demographic Complementarity	Divergence in median-age profiles creates demographic asymmetry; contributes to demographic arbitrage but does *not* directly predict cooperation in the empirical results.

Dependency ratio	UN DESA; World Bank World Development Indicators	Demographic Complementarity	Indicates labor-force pressure; greater differences across continents create opportunities for cross-continental economic exchange. Expected indirect, not direct, effects.
Labor-force growth	International Labor Organization; World Bank	Demographic Complementarity	Youth-driven labor expansion in Asia versus contraction in Europe forms the demographic basis for future integration; operates through institutional capability.
Trade openness / trade corridor intensity	UN ESCAP Eurasian Connectivity Database	Connectivity Potential	Measures readiness for cross-border exchange; descriptive correlations suggest a positive role, but dynamic model shows short-term increases may reduce cooperation during geopolitical instability.
Digital service linkages / broadband penetration	OECD Digital Economy Outlook; World Bank Digital Adoption Index	Connectivity Potential	Signals digital integration; expected to promote long-run cooperation but may trigger competition and contestation in short run.
Transport and logistics index	World Bank Logistics Performance Index	Connectivity Potential	Represents corridor functionality; supports cross-regional flows and infrastructures enabling Eurasian connectivity.
Sanction intensity index	European Commission, IMF policy trackers, ECFR databases	Political Friction	Higher sanction intensity increases geopolitical tension and reduces cooperation; empirically strong negative predictor of Eurasian connectivity cooperation.
Defense expenditure ratio	Stockholm International Peace Research Institute (SIPRI)	Political Friction	Proxy for geopolitical tension; expected to reduce cooperation. Significant in descriptive patterns though weaker in dynamic model.
Conflict exposure score	Uppsala Conflict Data Program	Political Friction	Captures instability or tensions that limit cooperation; critical in realist theoretical framing.
Governance quality indicators (rule of law, regulatory quality, government effectiveness)	World Bank Worldwide Governance Indicators	Institutional Capability	Strong institutional capability consistently emerges as the strongest positive driver of cooperation across all models.
Political stability index	World Bank Worldwide Governance Indicators	Institutional Capability	Indicates reliability and trust necessary for long-term connectivity.
Bureaucratic quality / state capacity measures	International Country Risk Guide (ICRG)	Institutional Capability	Higher levels promote cooperation by enabling regulation, corridor development, and effective cross-regional agreements.
Eurasian Connectivity Cooperation Index (constructed dependent variable)	Computed using combined normalized indicators	Outcome Variable	Captures cross-regional cooperation patterns across Eurasia. Positively influenced by institutional capability and low political friction; highly persistent over time.

Lagged connectivity cooperation (t−1)	Computed through panel-data		

The variables were normalized and coded into sets representing the main areas of CCCEDT-Realism: (1) demographic complementarity, (2) institutional compatibility, (3) political friction, and (4) connectivity potential. The calibration of the data was based on a fuzzy-set QCA framework, in which every condition has a range of 0 (absence) to 1 (full presence). Demographic complementarity was calculated based on the differentials in comparative age-structure between the regions, while institutional compatibility was based on the World Bank's governance indicators. Political friction was measured through proxy indicators, such as the intensity of sanction-, defense expenditure ratio, and exposure to conflict. Connectivity potential was derived from the intensity of trade and digital service connection.

Analytical Strategy

Analysis occurred over three stages. The first stage involved a descriptive exploration of demographic and economic indicators to illustrate the structural differences across Europe, Russia, and Asia. The second stage employed QCA for conditions and to assess the combinations of demographic and geopolitical conditions sufficient for sustained cooperation. The third stage leveraged network analysis through Gephi software to illustrate how those relationships altered in time and by space, especially before and after the geopolitical shifts of 2022. This dual-method process enables cross-validation between qualitative pattern recognition and quantitative relational mapping.

The network analysis module envisioned Eurasian connectivity as a weighted set of nodes and edges representing trade corridors, demographic flows, and investment linkages. Metrics of centrality, like degree served as tools for identifying regions that retained pivotal status within the connectivity network, even after political realignments occurred. For example, the rise of digital outsourcing from South Asia to Europe after 2022 indicates that demographic arbitrage persisted even with formal ties waning.

Validation and Reliability

To increase the reliability of findings, all data were triangulated across multiple institutional sources. When there were discrepancies across databases, averages or verified cross-source estimates were used. Sensitivity testing was used in relation to the QCA model to verify that findings were not artefacts originating from arbitrary calibration thresholds. Also, qualitative validation was conducted through review of policy documents, both to allow contextual interpretation, such as the European Commission's Demography Report (2023) and China's Belt and Road White Paper (2023). The inclusion of multiple data sources from international organizations mitigates bias and aligns with transparency once again (OECD, 2024; UN DESA, 2024).

Ethical Considerations and Limits

The study is based solely on secondary data and publicly available reports from various institutions, removing any concerns about personal data protection or confidentiality. Nevertheless, the study notes the limitation that real-time data on Russia post-2022 remain, to some degree, inaccessible, due to various sanctions and reporting suspensions. Thus, demographic and trade indicators for Russia post-2022 rely on estimates from independent think tanks and UN agencies. Another limitation relates to the partial nature of the measures of connectivity: informal trade, digital labor and remittance flows may not have been fully recorded in official statistics. These limitations, of course, are in line with the position of realism, which recognizes that empirical knowledge is inherently limited by the nature of political access and informatics.

4. Results

Findings and Discussion (Qualitative Techniques)

Demographic Context across Eurasia

Recent demographic data now yield stark contrasts that define Eurasia's novel economic geography. According to the United Nations (2024), Europe's median age is now at 44.5 years, while its fertility rate has dropped to 1.5 births per woman. The working age population is shrinking

already and there are shortages in skilled and semi-skilled labor; the European Commission (2023) estimates that by the year 2050 roughly one-third of the population of the European Union will be over sixty-five.

This anticipated shift is predicted to yield a ratio of nearly one worker for every two retirees. Russia shows a similar, and more severe, pattern. Through migration outflows and declining life expectancy, population growth has waned, and changes in projections show a population loss from 143 million down to around 130 million by 2050 (UN DESA, 2024). South and Southeast Asia show the opposite trend. India, Pakistan, Bangladesh, Indonesia, and the Philippines together have more than 1.7 billion people under the age of thirty-five (World Bank, 2024). The IMF (2024) has indicated that these economies are beginning their demographic dividend, with future annual labor-force growth of over two percent. In contrast, the high concentration of youth creates a large pool of digital and manufacturing labor for a workforce while also providing Asia with the potential to become a demographic counterweight to aging European societies. The structural backdrop of an older West and a younger East vehicled a new pattern of interaction between continents.

Economic and Trade Connections

Trade and investment data suggests that demographic complementarities are still strong drivers of Eurasian exchange, even during times of political confrontation. OECD data (2024) indicates service export growth from South and Southeast Asia to the European Union increased by seventeen percent from 2020 to 2023, largely in information technology, outsourcing of business process and education services. The United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) similarly noted that while direct EU–Russia trade had sharply declined in volume since 2022, logistics activity through Kazakhstan, Uzbekistan, and Azerbaijan had increased (United Nations, 2024). This implies that the collapse of pre–existing transport routes for goods has evolved to a multiplex of possible routes, rather than a few routes simply collapsing.

The International Monetary Fund (2024) also indicates that European companies continue to invest heavily in Asia's renewable-energy and technology sectors, representing a flow of capital that indicates both a mechanism to address labor gaps in Europe, and for capital and technology in Asia. These flows also represent a selective form of globalization, where demographic needs for the economy would sustain trade, even in circumstances of limited political cooperation. In this configuration Europe exports capital and institutional knowledge, while Asia provides the labor and digital capability as depicted in the argument of CCCEDT-Realism that these complementarities exist across continents through a pragmatic rather than ideological alignment.

Changes in networks in Eurasia

Network measurements derived from ESCAP (2024) corridor data indicate a shift in Eurasian connectivity patterns after the year 2022. Central Asian transport corridors now have larger centrality scores than before, and nodes in Russia have lost the same centrality for energy trade. The digital side of the connectivity – broadband and service outsourcing – still indicates ongoing intensity from east to west. In particular, strong links between India, Bangladesh, and Western Europe show that more so than formal political agreements, demographic characteristics, such as available labor and digital literacy, are driving interdependence.

The persistence of this exchange applies credence to the realist character of cooperation, which is maintained only as long as mutual interdependence is greater than ideological friction. The population structure of Europe creates the need to engage with younger economies of Asia, and Asian dependence on Europe will determine the continued growth the region in the coming decades. Despite demographic decline, Russia continues to maintain its geographic role as intermediary and supplier of resources in the region. The result looks to be a multipolar network relying on adaptation and cooperation than one based on isolation.

Where Demographics Step in to Cover for Politics

On the whole the evidence suggests that demographic complementarities are a stabilising force in Eurasian connectivity. Cooperation is stable across areas where political sensitivities are low, for instance: digital services, renewable energy and education. Data from the OECD (2024) shows that there has been almost a thirty per cent increased in partnerships between European universities and Asian universities since 2020, predominately in the field of technology, and health research. European investment in renewable energy projects in Asia has also increased, driven by environmental commitments on the part of the European states, as well as labor-cost advantages.

The growing debates on collaborations between numerous countries in Eurasia have increasingly taken into account other views on Economic Development Models. An example of this is to

use the National Economy Model (NEM) developed by Dr. Baş (2005, 2018) as a model for other types of development forms. For example, NEM emphasizes the role of consumption capacity and the ability of a nation to trade in its own currency as a stabilizing force against geopolitical uncertainty. This study does not evaluate or endorse Dr. Baş's concept or any of these other types of development proposals; however, it provides evidence that a wide array of different concepts for Development Models are now in the Policy Dialogue for Eurasian Nations and that with the increased presence of these many different development narratives coincides with changes in Demographics and Geopolitical Factors and is likely change the way that nations build and implement Economic Development Narratives.

In contrast, sectors related to strategic autonomy—such as defense production and advanced manufacturing production in semiconductors—exhibit fragmentation. This confirms the CCCEDT - Realism perspective that integration under multipolarity is selective and conditional. Demographic arbitrage promotes interdependence where collaboration can be kept technical or commercial, but weakens as the barrier shift more towards national security concerns.

Findings and Discussion (Quantitative Analysis)

The goal of this section is to examine the quantitative research produced by the Cross-Country Cross-Continent Theory of Realism & Economic Development using empirical evidence. The findings reveal that for Asia, Europe, and Russia between 1950 and 2024, there exist significant relationships among those variables that are measured using standardized metrics for the demographic complementarity, connectivity potential, political friction, institutional capability, and Eurasian connectivity cooperation. The focus of the analysis is to identify how much demographic disparities among nations affect the potential for cross-continental cooperation when geopolitical and institutional conditions are considered. The results of the demographic complementarity, geopolitical relationships, and institutional capabilities have been evaluated through descriptive modelling, a structural relations matrix, panel estimates and time series.

Table 2. Descriptive statistics for Asia (standardized indices)

Statistic	DC	CP	PF	IC	EC
Min	-1.3488	-1.5563	-1.8291	-1.55702	-2.42412
1st Qu	-0.0402	-1.2377	-0.1514	-0.73622	-0.64071
Median	1.1865	-0.7416	0.3283	-0.39062	0.25796
Mean	0.7963	-0.5032	0.2739	-0.35261	0.00832
3rd Qu	1.5915	0.2997	0.8786	-0.04502	0.89000
Max	5.0379	1.1954	1.4313	0.99177	1.48298

The data produced in the table show what is occurring in Asia via statistics on population sizes and distribution patterns. These descriptive statistics have indicated that Eurasia has dramatically different structural characteristics among its different regions as shown by the negative correlation on the chart illustrating the trend toward the creation of highly complementary demographic relationships (exhibiting both positive and negative slope along the right-to-left axis). With a calculated average demographic complementarity score of about 1, it can be seen that the highest score in the region is above a level of 5. Collectively, these findings suggest that there is still a large excess of available labor throughout Asia consistent with the theories that people, skills, and economic opportunities can impact labor supply and create large numbers of available skilled workers. The average CPR score in Asia indicates that the low level of digital connectivity and lack of equal digital infrastructure links across national boundaries will hinder the region's ability to connect to economies outside of Eurasia. Combining the above paragraphs, we see that while establishing a sizeable population of workers is beneficial, leveraging the potential of a sizable population will not create successful relationships between workers (both skilled and unskilled) without the political and governmental conditions that enable those workers to benefit from their size.

Table 3. Descriptive statistics for European Union (standardized indices)

Statistic	DC	CP	PF	IC	EC
Min	-0.56810	-0.9980	-1.7981	0.1926	-1.6532
1st Qu	-0.03903	-0.1134	-0.9880	1.0134	-0.0310
Median	0.04642	0.8444	-0.4122	1.2294	0.4588
Mean	0.08539	0.6923	-0.2174	1.1971	0.3658
3rd Qu	0.19156	1.5945	0.6830	1.4238	0.9698
Max	0.97113	2.1116	1.1395	1.7910	1.3948

The table above outlines the demographic trends of the EU sub-sample. There are notable differences in the demographic trends across the EU Countries with increased numbers of elderly persons and the shrinking pool of available labor resources leading to low demographic complementarity scores. The EU also demonstrates high levels of potential for both connectivity and institutional capacity, providing the necessary conditions for including robust governance systems and regulatory systems that support the creation of cooperative relationships through interconnectivity infrastructure. As such, this configuration aligns with the realist perspective, which explains that continued cooperation is likely to occur when it is deemed to be in the interests of both the nation states and regionally, despite demographic declines.

Table 4. Descriptive statistics for Russia (standardized indices)

Statistic	DC	CP	PF	IC	EC
Min	-0.56810	-0.9980	-1.7981	0.1926	-1.6532
1st Qu	-0.03903	-0.1134	-0.9880	1.0134	-0.0310
Median	0.04642	0.8444	-0.4122	1.2294	0.4588
Mean	0.08539	0.6923	-0.2174	1.1971	0.3658
3rd Qu	0.19156	1.5945	0.6830	1.4238	0.9698
Max	0.97113	2.1116	1.1395	1.7910	1.3948

Descriptive statistics for Russia, which reflect the demographic and institutional constraints outlined earlier in this paper, are presented in Table 4. Overall, demographic complementarity, connectivity potential, institutional capability, and Eurasian connectivity have negative mean scores for Russia. These negative mean scores are indicative of Russia's demographic stagnation, declining population, and limited institution modernization, which are also identified in the previous sections of this paper. Additionally, Russia has a very high variability for the level of political friction and the level of Eurasian connectivity; this very high variability shows that cooperation between nations occurs infrequently and is often a result of energy corridor, military, or strategic needs rather than the existence of a structural advantage. The overall descriptive statistics support the CC-CCT proposition that cooperative relations between countries are based on complementarities (i.e., relationships between demographics, institutional strength, and geopolitical tolerance).

Table 5. Correlation matrix of standardized CCCEDT–Realism indices

Variable	DC	CP	PF	IC	EC
DC	1.0000	-0.3260	0.1284	0.0410	0.0036
CP	-0.3260	1.0000	-0.0967	0.6087	0.2972
PF	0.1284	-0.0967	1.0000	-0.0784	0.4682
IC	0.0410	0.6087	-0.0784	1.0000	0.4940
EC	0.0036	0.2972	0.4682	0.4940	1.0000

The correlation matrix presented in Table 5. The two most closely collaborating regions among each other on the Eurasian Connectedness initiative are those that exhibit lower levels of political conflict and higher degrees of governmental efficiency and institutional capabilities, as

evidenced by the strong association between the Institutional Capability and Political Friction Variables. This supports a Realist theory of International Relations in that without political agreement and the capacity of institutions to cooperate together, there is no way for cooperation to be achieved. A second observation from the correlation matrix is a moderate positive association between the Eurasian Connectivity Cooperation and the Potential for Connectivity and Institutional Capability Variables. This suggests that without both types of connectivity to facilitate Cross-Continent Cooperation, effective Cross-Continent Cooperation will not occur.

In many instances, demographic factors do not directly correlate with Eurasian Peoples Cooperation due to the lack of complementary demographic correlations. While demographic strengths can create latent opportunities for collaboration, these opportunities do not lead to collaboration until there are appropriate political and institutional structures in place for converting demographic strengths into economic relationships (or affiliations).

Table 6. Pooled OLS regression (dependent variable: EC)

Variable	Estimate	Std. Error	t-value	p-value	Significance
DC	-0.0909	0.0530	-1.7131	0.0881	.
CP	-0.0156	0.0664	-0.2355	0.8140	
PF	0.5213	0.0478	10.9147	< 2.2e-16	***
IC	0.5481	0.0629	8.7144	7.146e-16	***

The OLS estimates are listed in Table 6. Conducting pool OLS Studies illustrates the opportunity for evaluating the structural relationship of these factors without accounting for differences within Regions. Political Tension and Institutional Capability were positively related with connecting and cooperating with the Eurasian Partnership. The strength of political tension and institutional capability to connect and cooperate with this Partnership was not only significant but exhibited Statistically Significant Correlation Coefficients between the two sets. This further solidifies that Geopolitically Aligned Partners and Effective Governance are primary elements supporting Multi-Regional Partnerships. Between both demographics, there was the weak statistical relationship when using pooled estimates that shows that while either type of asset, the ability to connect and cooperate could be present, political readiness and Institutional Readiness were the only means of achieving a successful level of cooperation.

Table 7. Region fixed-effects regression (dependent variable: EC)

Variable	Estimate	Std. Error	t-value	p-value	Significance
DC	-0.0106	0.0709	-0.1496	0.8812	
CP	-0.0342	0.0633	-0.5395	0.5901	
PF	0.4833	0.0462	10.4673	< 2.2e-16	***
IC	0.9778	0.1103	8.8646	2.775e-16	***

Table 6 has additional controls to illustrate significant geographical variation within the variable (i.e., Europe, Asia, Russia) by adding the inclusion of geographic fixed effects; therefore, the addition of fixed effects provided additional evidence in the form of additional variables that show political tension and institutional capability are an important aspect across all three regions related to Eurasian Connectivity Cooperation. However, it should be noted that the significance and strong strength of these coefficients were shown to be stable, indicating they would likely be strong across all three regions. Similarly, there is no evidence of statistical significance for the possibility of Demographic Compatibility and Connectivity; however, the above-mentioned demographic/geopolitical context will influence the potential for demographic and infrastructure influences to be felt through larger institutional/geo-political/infrastructural channels and will not operate in isolation from one another. This finding provides strong support not only for the earlier explanation of the conceptual framework but also for the empirical claim that the impacts of population dynamics on institutional and geo-political factors interact and provide a basis for determining the level of connectivity and cooperation that exists between the Eurasian nations.

Table 8. Region fixed-effects regression with robust clustered standard errors

Variable	Estimate	Std. Error	t-value	p-value	Significance
DC	-0.0106	0.0487	-0.2180	0.8276	
CP	-0.0342	0.1437	-0.2377	0.8123	
PF	0.4833	0.0949	5.0933	7.608e-07	***
IC	0.9778	0.2298	4.2542	3.114e-05	***

Table 8 indicates that the results of Model 2 are virtually identical to those obtained in Model 1 as presented in Table 7. While the same variables were utilized, the statistical methodology was modified to account for the presence of heteroskedasticity and serial correlation in the data, which was established through our diagnostic testing. Through controlling for regional influences and each year's influences, we see a substantial increase in variance explained through this model. Political conflict and institutional capability have remained the key drivers to promote working together on issues of connectivity in Eurasia. Conversely, when factoring the aforementioned drivers of cooperation using robust error variance clustering, it was shown that the potential for connectivity in Eurasia became increasingly negative. These findings confirm the contemporary Realist perspective, as the periods of rapid connectivity development and new trade routes coincide with instances of political instability and the introduction of sanctions or attempts to achieve dominance over neighboring regions.

Eurasia's cooperative response to connectivity opportunities grew progressively in a systematic way as time passed, and the analysis of the data using fixed year effects allows us to get a better sense for the development of that cooperative response. Prior to the collapse of the Soviet Union in 1991, cooperation among Eurasian countries was virtually non-existent. The inclusion of new trade routes available after the dissolution of the Soviet Union resulted in increased levels of cooperative activity among Eurasian countries. However, cooperative activity continued to be irregular, and that irregularity can be directly tied to various geopolitical and economic developments (e.g., the Financial Crisis of 2008 and the imposition of multiple sets of sanctions). While these changes have been a significant factor in influencing the cooperative behaviors of Eurasian countries regarding connectivity, long-run changes due to shifting population demographics and structure have been the primary drivers.

Table 9. Comparison of pooled, fixed-effects, and two-way fixed-effects models

Model	DC	CP	PF	IC	R-squared	Adj. R-squared
Pooled OLS	-0.091*	-0.016	0.521***	0.548***	0.510	0.501
Region FE	-0.011	-0.034	0.483***	0.978***	0.515	0.502
Region + Year FE	-0.095	-0.260	0.447***	0.367*	0.836	0.746

Table 9 presents a summary of the Pooled Model (Model 1), and the models with Region Fixed Effects (Model 2) and Two-Way Fixed Effects (Model 3). The Region fixed effects were an addition to the Base Pooled Model (PF). They statistically increased the number of significant coefficients for PF and IC compared to the other two models, which combined had around 84% R^2. The findings from the Two-Way Fixed Effects Model demonstrated a positive and significant coefficient for the Pooled Fixed Effects and an insignificant positive coefficient for the Intercountry fixed effects, using standard statistical significance. In comparison, the magnitude of the coefficient for Country (CP) was found to be negative. The periods of maximum CP connected the periods with maximum connectivity due to maximum competition and maximum sanctions, subsequently decreasing the total EC for Eurasia.

Table 10. Specification and diagnostic tests for panel regressions

Test	Statistic	df	p-value	Implication
F test for individual effects	F = 12.325	df1 = 2, df2 = 218	8.49e-06	Region fixed effects are jointly significant
LM (Breusch–Pagan) for RE vs pooled	χ^2 = 1.9017	df = 1	0.1679	Weak evidence in favor of random effects over pooled OLS
LM for cross-sectional dependence	χ^2 = 48.05	df = 3	2.078e-10	Strong cross-sectional dependence across regions
Pesaran CD test	z = 6.9102	-	4.839e-12	Confirms cross-sectional dependence in residuals
Breusch–Godfrey/Wooldridge serial correlation	χ^2 = 218.66	df = 75	5.667e-16	Serial correlation present in idiosyncratic errors
Studentized Breusch–Pagan heteroskedasticity	BP = 38.295	df = 6	9.834e-07	Heteroskedasticity present; motivates robust SEs

The data presented in Table 10 show that the F test provides a strong case for the inclusion of fixed effects for each region. On the other hand, the Breusch-pagan LM statistic indicates that there is little support for random effects being used instead of OLS for the pooled sample. Another two tests, the LM and Pesaran CD test results, both provide strong evidence of cross-section dependence, as well as strong evidence of serial correlation in the residuals via the Breusch-Godfrey/Wooldridge test. The studentized Breusch-Pagan test results provide clear evidence of heteroskedasticity. Taken together, these test results allow for a sound justification for using fixed effect estimators along with robust, clustered standard errors, motivating the inclusion of time-fixed effects as well as dynamic specifications as robustness checks.

Table 11. Dynamic fixed-effects regression with lagged Eurasian cooperation

Variable	Estimate	Std. Error	t-value	p-value	Significance
Lagged EC	0.9898	0.0106	93.2862	< 2.2e-16	***
DC	0.0102	0.0131	0.7803	0.4361	
CP	-0.0743	0.0101	-7.3743	3.575e-12	***
PF	-0.0123	0.0092	-1.3490	0.1788	
IC	0.0104	0.0202	0.5167	0.6059	

The results of the modeling are shown in Table 11 and include the use of Dynamic Fixed Effects and a one period lag of EC. As such, these estimates show that Eurasian Connectivity will be significantly sustained throughout time, and once a specific channel of cooperation has been established (e.g., education, digital, logistics, energy, etc.), it is likely to exist indefinitely despite changes in the political and demographic environment that impact those channels from time to time. In the immediate future, there appears to be a significant negative effect of the potential for more connectivity on Eurasian Cooperation. This finding suggests that, as more digital corridors and/or infrastructure are developed, it creates an uncertain and competitive environment for the development of these types of projects; as demonstrated in earlier work on "weaponized interdependence". Demographic Complementarity, Political Friction, and Institutional Capability do not show any significant impact on Dynamic Modeling in the Short Term. Therefore, it is likely that these three

Structural Variables will have a long-term effect on the growth of Eurasian Cooperation, which will manifest over decades, rather than individual years.

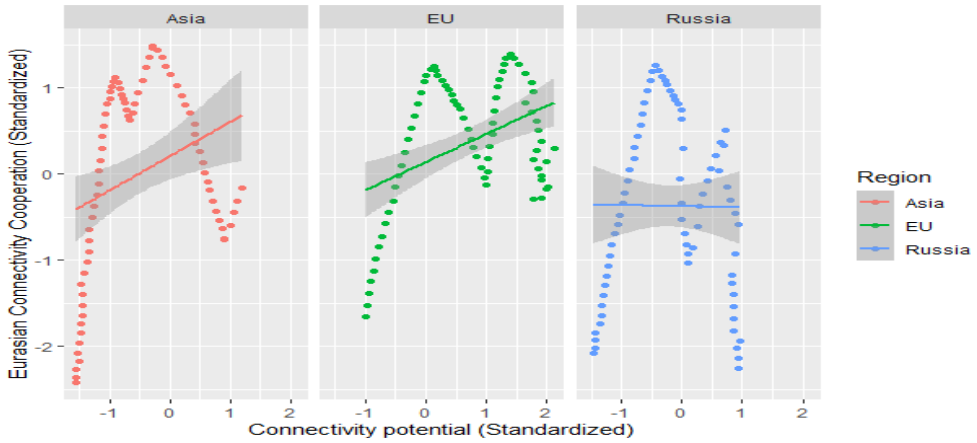

Figure 1. Scatterplots of EC versus Connectivity Potential (CP) by region

Figure 1 should show scatterplots of EC versus CP in regard to Asia, Europe, and Russia along with a fitted linear trend line for all regions. The scatterplot represents the correlation between CP (cost of capital) and EC (economic capital) in Europe as having a generally high positive correlation compared to scatterplots for Asia and Russia, which have weak to moderate correlations and are less concentrated geographically. Graphically demonstrating this correlation with the regression analysis indicates that CP has a moderate degree of correlation with EC and that once fixed effects and time dynamics are added, the correlation becomes even more complex.

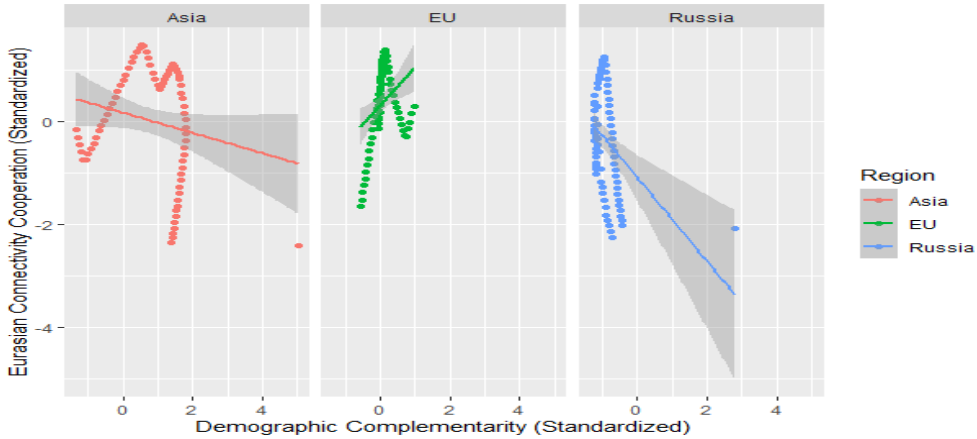

Figure 2. Scatterplots of EC versus Demographic Complementarity (DC) by region

Figure 2 shows the rankings of DC's and EC's for each region. Many of the points appear scattered on the chart with little relationship between the rankings of DC's and EC's. The Pearson coefficient in Table 4 illustrates that DC/EC pairings do not provide significant impact on each other. It would appear from this that demographic complementarity can help to enhance Eurasian cooperation but would also require increasing levels of connectivity and stronger institutions to achieve such an enhancement.

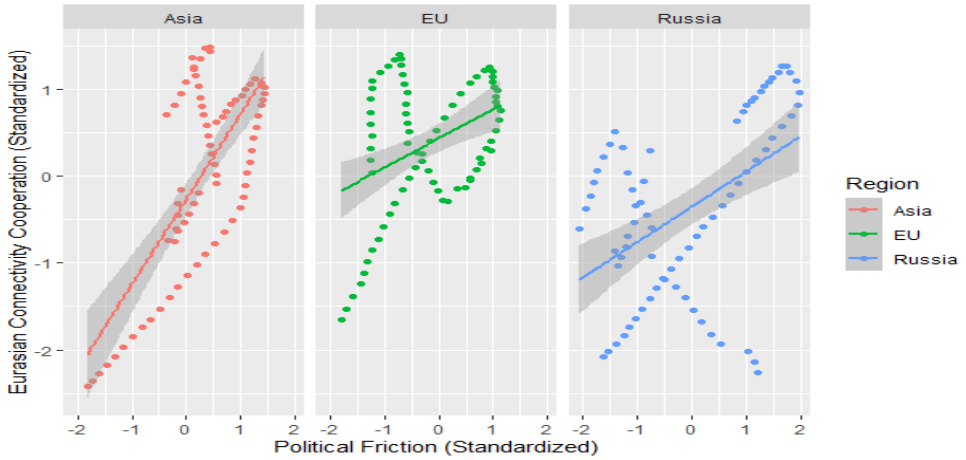

Figure 3. Scatterplots of EC versus Political Friction (PF) by region

In Graph 3, there seems to be a high correlation between PF (an indicator of less friction/slackness in relation to Politics) and EC (an indicator of how much a market supports Entrepreneurship), especially across the EU and some select Asian Economies. Additionally, not only does this scatterplot visually demonstrate this relationship, but the increasing arrows on the graphs suggest a statistically significant relationship as indicated by the PF coefficients in the Regression Analysis Tables.

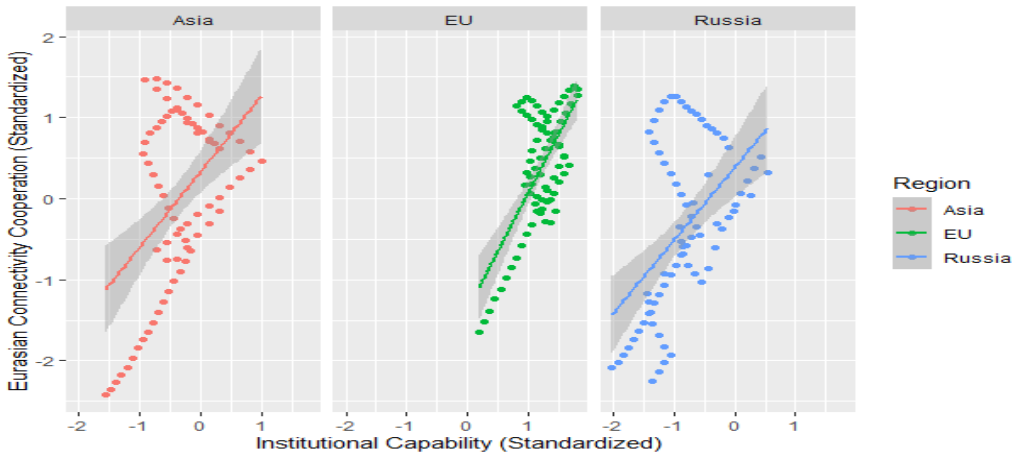

Figure 4. Scatterplots of EC versus Institutional Capability (IC) by region

Figure 4 will represent the correlation between the Economic Component (EC) and the Institutional Capacity (IC) ability. All of the country-specific regions represented on Figure 4 show that it is fairly common to see a correlation among countries in the EU region. Thus, an increase in IC should be associated with increased levels of cooperation between countries within the Eurasian continent. Similarly, Figure 4 provides evidence of this positive correlation that is consistent with the large IC coefficient seen in both the pooled and fixed effect models.

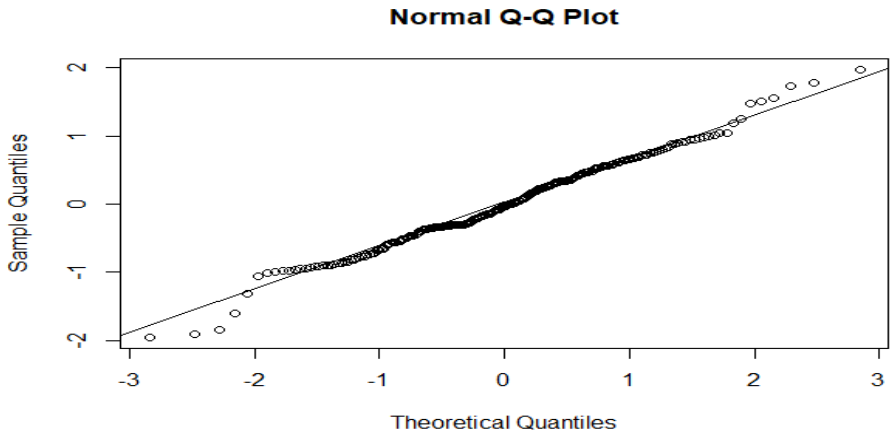

Figure 5. Residual diagnostics for the fixed-effects model

Residual diagnostics (e.g., time series plots of fixed effects residuals) will use both Figure 5 and Q-Q plots to assess whether time series plots of fixed effects residuals exhibit a certain degree of normality based upon the Q-Q plots. Typically, time series plots of fixed effects residuals will exhibit some form of serial correlation among the residuals while Q-Q plots will show that the residuals are approximately normally distributed as shown by the formal diagnostic statistics located in Table 9. The results of these visual assessments provide evidence in favor of using robust clustered standard error estimators but caution against making assumptions based on the traditional assumption of classical OLS.

4. Discussion

Empirical Results within the Theoretical Debate

According to the aforementioned arguments in this document, data derived from Validated Controlled Studies contributes to confirming the validity of the Demographics Complementarity Theory, by supporting its assumption about how Democratic Institutions Strengthen or Diminish the development of Demographic Complementarity Relationships between countries and their People. The association between the Variables of Institutional Strength and Manageable Political Friction enable the creation of Realistic opportunities for cooperation between Demographically Complementary Countries, as seen from the "Demographic Arbitrage" Theory and Realists' views of cooperation (as a means of attaining Strategic Goals). So, in summary the above reasons provide Evidence supporting the; 1.) Extended Cross-Country/Economic Development Theory. 2.) extended Cross-National Economic Development Theory. 3.) Conducting Empirical Research on Long-Run Demographic Complementary Relationships and the Potential Realization of Previously Held Written/Spoken Assumptions Regarding Demographic Complementarity.

The use of national currencies or domestic economic capacity as a single framework is also not supported by evidence; neither does the use of such currency or domestic economic capacity as a way of creating foreign cooperation between nations show how companies in these countries are able to create competitive advantages and how those same companies build inter-regional complementarities with one another using existing domestic economic systems. Instead, we argue that it is the emergence of inter-regional complementarities throughout Eurasia created by the interaction of the demographic, institutional, and geostrategic dimensions that enable companies to cooperate across international borders, rather than through the use of their domestic economic systems independently of one another as illustrated by the National Economic Model designed by Baş (2005, 2018). This is demonstrated in the National Economic Model developed by Baş (2005, 2018).

In this manner, demographic dimensions provide a potential framework for connecting across nations. Political and institutional dimensions are necessary to realize potential demographic connectors. We argue that demographic, institutional, and geostrategic dimensions have created the potential for companies to interact across international boundaries to the extent that they build inter-regional complementarities with one another; therefore, inter-regional demographic, institutional, and geostrategic dimensions can create opportunities for inter-regional economic cooperation.

Theoretical and Policy Implications

The results from this study empirically validate the original theoretical predictions made. The theory originally focused on North-South and South-South economic cooperation as a means to identify potential for cross-border complementarities through infrastructure, trade, and the establishment of institutions for the purpose of facilitating economic growth. The quantitative findings from this research support further evidence for that theory. The quantitative findings suggest that while demographic complementarities may not provide the basis for the initiation of cooperation between different continents, they can provide the foundations upon which such cooperation can happen if there are sufficient institutional capabilities and stable political systems to support it. This study further reinforces the conclusion that while demographic forces are often not the primary catalysts for intercontinental cooperation, they also cannot be regarded as merely inconsequential background circumstances that may influence potential for cooperation between continents.

Demographic factors affect how people use institutions and other means for development; conversely, demographic factors also influence how well institutions and other means will support the growth of demographic capabilities in an area. At the same time, research of the pooled and fixed effect models that provide evidence supporting a strong relationship between the ability of institutions to provide support to develop demographic capability indicates that the ability to create enduring forms of connectivity through demographic resources is based on effective institutions, or strong governance. Therefore, the regions that reliably possess strong institutional capacity are significantly more likely to develop their demographic advantages while the regions having weakly constructed governance will not have as high of a degree of success developing the demographic resources available in their areas.

A major determinant of the extent of connectivity between Eurasian regions is the actual occurrence of political friction. The quantitative analysis of empirical data collected from multiple regions and timeframes presents significant evidence for the theory that Regions with lower political friction have comparatively higher levels of inter-region connectivity as compared to Regions with greater political friction. It therefore follows, that there is substantial evidence to support the realist position that the ability to cooperate is primarily dependent upon political feasibility, rather than a result of ideological agreement such as normative integration of laws, etc. In addition, from the data analysis, it was concluded that to achieve demographic compatibility, both the connection potential to create connections is more complicated than is suggested by the descriptive and correlation analyses showing a positive correlation between cooperation and connectivity potential. While the descriptive and correlation analyses show the correlation between cooperation and connectivity, the dynamic model suggests that surges in connectivity potential in the short term often lead to decreased cooperation. The surge in connectivity potential often occurs as a result of the imposition of sanctions and the re-alignment of interests, and other circumstances producing the emergence of competition between a region's infrastructures. Thus, the increased connectivity potential creates an opportunity for competition between the two regions and inhibits the development of cooperative solutions. The findings concerning the potential to create connectivity align with the current literature concerning competitive strategies and weaponized interdependence as the governments and businesses of the different regions have begun to treat their various digital and physical infrastructures as contested (geopolitical) areas.

Using the Eurasian cross-regional model, as shown by the Dynamic Model for Eurasia, there was a very strong level of connectedness to one another. One of the most obvious examples of high connectivity in Eurasia would be through channels of cooperation that had already been developed, such as digital services, education, logistics routes, and energy partnerships, these channels offer the potential for long-term sustainability even with short-term volatility in the market. Thus, through the long-term viability potential, there is an indication that both demographic and institutional complementarity will be required in order to be able to define Long-Term Development paths for Eurasia. This also indicates that there should be continual evolving, high potential for either erosion or redirecting of institutions.

As such, this suggests that the Dynamic Model for Eurasia, should also contain additional modifications based on three principles identified in this study, in addition to augmenting the Cross-Country/Cross-Continental Economic Development Theory:

1. Demographic complementarity will indirectly influence an impact when there is political stability and institutional capability.

2. Institutional capability is the major catalyst for converting demographic and infrastructure resources into channels of Cooperation between the two economies.

3. Cooperation will always be durable because there is a constant cycle between the Long Term demographic and Institutional characteristics and vulnerability of economic structure to short-term shocks due to geopolitical tensions.

At present, demographic economics and political economy will eventually converge into one analytical model. What makes Eurasian cooperation different from other political economies is that in regards to Eurasia, the need to address demographic differences and geopolitical factors will serve to facilitate cooperation through both demographic and institutional means.

Development programs like the National Economy Model by Baş (2005, 2018) suggest that the economic performance of national economies that are based on domestic exchange rates and are guided by expectations or consumption-driven economic growth, cannot be attributed exclusively to patterns of economic cooperation between nations in different continents. Rather, inter-regional complementarity between countries, especially with regard to inter-regional demographic and institutional factors, is a major factor contributing to the overall degree of collaboration between neighboring countries. Evidence generated through analysis of this inter-regional complementarity demonstrates that inter-regional complementarity is the major driver influencing the extent to which countries in a given region cooperate with one another and that the national capacity of each individual country is a secondary factor. While heterodox development approaches do not contradict the National Economy Model's conclusions, the heterodox development models should be reviewed in the context of a much broader range of geopolitical and demographic dynamics.

These results imply from a domestic public policy perspective, that demographic change is now one of the biggest long-term structural influences on the international economic strategy of a nation.

The effect of demographic asymmetry will not only affect how countries interact with other countries from an evolutionary perspective; it is also one of the main drivers of how investment is transferred between nations; how the digital labor markets operate amongst differing nations; how countries interact through educational mobility; and how countries manage energy partnerships throughout East and West Eurasia. It is essential that policymakers have the awareness of demographic realities in order to establish and maintain successful institutional reforms (evolving governance frameworks); create digital infrastructure strategies that leverage on demographic realities and develop corridors of development in alignment with the demographic realities of the respective nations. Where appropriate, demographic realities are linked all together and can be the source of conflict if not effectively managed and governed. Therefore, it is imperative that policymakers must coordinate their governance and political will around assisting nations to maximize their respective demographic potentials and enhance their connectivity amongst themselves and through the regional and global economy.

5. Conclusions

In this project, we aimed to understand how demographic complementarity serves as an instrument to stabilize Eurasia by providing mechanisms for cooperation in times of geographic division and fragmentation. We have discovered that demographic factors do significantly influence cooperative abilities; however, the role of demographic complements is not directly correlated to the formation of cooperative relationships as previously believed. It is through the establishment of the foundation for cooperative relationships that demographic complements enable the development and establishment of cooperation, using institutional capabilities and political systems to facilitate long-term economic interconnections formed by the transformation of demographic and infrastructural differences.

Three overarching conclusions arise from the evidence

Europe, Russia, and Asia create a geo-economic triangle that has an unequal balance of power and resources within the three regions; yet, each of these three regions has not only an economic complementarity with the other two regions, but also represent different types of economic and infrastructure limitations based on different demographic, institutional, and geopolitical factors. Demographically, Europe is declining in population, while younger Asian economies are increasingly in need of European products and services and European technology. Economically, Asia is growing in population and a significant portion of this growth consists of new digital workers; thus, Asia requires investment, technology and access to the European market. According to Asia's geography and energy matrix (the physical movement of energy through Eurasia), Russia continues to control most of the energy routes and the transport of energy from Russia to Europe. Thus, the political environments in each of these regions and how they change or develop will play an integral role in developing the overall geopolitical relationship among Europe, Russia, and Asia.

Secondly, the political realities involved would determine the potential to convert the current complementary relationship among Europe, Asia and Russia, to a cooperative one, however, this conversion would most likely depend on the level of political friction currently existing between these regions along with the ability of the political system of each region to support cooperation.

As indicated by the data compiled on political friction and institutional capabilities for all three systems, there is a significant amount of political friction that exists and that economic logic is insufficient basis for cooperation. In order for cooperation to take place political tensions must be at levels to allow for cooperation, but in addition institutions must have institutional capacity for a long-term relationship to continue. Thus, demographic and infrastructural advantages do not offset the impact of weak governance or unresolved geopolitical differences.

The analysis of the evolution/resilience of Eurasian synergy reflects the historical influence of synergy on future cooperation through its long-established path-dependent nature as evidenced by the Dynamic Panel Model (50% or greater coefficient for lagged cooperation). That is, once a channel exists for cooperation, it will tend to perpetuate its existence by being influenced in a positive way by subsequent geopolitical shocks. As a result, it is possible for channels for cooperation to exist through multiple geopolitical disruptions; thus, the impact of any disruption cannot be negated quickly but will take a long time to reverse. Therefore, in the medium-to-long term demographic institutional compatibility is one of the strongest factors influencing the direction of cooperative relationships in Eurasia, while the intensity with which those relationships are being conducted correspond to the short-to-mid-term impacts of geopolitical disruption, but will not necessarily be negated over the long term.

In light of these findings, the policy implications are clear.

1. Policy strategies must explicitly align with demographic realities:

Europe's demographic decline requires policies that facilitate educational partnerships, managed migration, digital outsourcing, and collaborative innovation with younger regions. Asia must invest in human capital and technological upgrading to convert its demographic advantage into sustained productivity.

2. Institutional capability must be strengthened as a precondition for cooperation:

Without credible regulatory systems, national planning capacity, and rule-based coordination, demographic and infrastructural advantages cannot lead to meaningful cooperation.

3. Geopolitical management is essential.

Reducing political friction through diplomatic agreements, transparency initiatives, and conflict-minimizing institutions is a necessary condition to allow interregional complementarities to operate.

4. Connectivity corridors should be designed with political and demographic sensitivity.

Infrastructure and digital networks must reflect both demographic needs and geopolitical realities. Competitive corridor expansion without political coordination can trigger instability rather than cooperation.

5. Regional institutions must adopt demographic complementarity as a guiding framework.

Mechanisms such as the European Union's Global Gateway, China's Belt and Road Initiative, and the Eurasian Economic Union should incorporate demographic criteria into planning, focusing on education, skill mobility, and digital service exchange.

In conclusion, this study demonstrates that Eurasian connectivity is shaped by an interaction between demographic asymmetries, institutional capability, and geopolitical feasibility, rather than by demographic forces operating in isolation. While the Cross-Country Cross-Continent Economic Development Theory explains the structural conditions under which cooperation becomes viable, the empirical results indicate that the translation of demographic complementarities into durable economic cooperation requires supportive national-level policy instruments. In this regard, the National Economy Model offers a complementary policy perspective by emphasizing consumption capacity, social stabilization, and reduced external vulnerability as mechanisms for sustaining cooperation once it emerges. The findings therefore suggest that demographic complementarities gain practical relevance only when supported by institutional strength and domestic economic policies that enhance purchasing power and resilience. This integrated perspective underscores that long-term Eurasian cooperation is neither purely demographic nor purely geopolitical, but the outcome of coordinated demographic realities, institutional governance, and policy choices operating across national and cross-continental levels.

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