Network Science and History:
Exposing the “Hidden Hand” in Historical Social Networks to Model Social Change
Network Science and History

What is the “Hidden Hand,” in economies, societies, and militaries in modern history, and how can we discover it through the application of Network Science?
By examining key points in history we may discern how networks change in response to internal and external forces.
Social Networks – An Analogy

Social networks transition between “phases” much like water. Social networks crystalize after formative events.

Key events in the realms of economic, social, political and military affairs may cause “crystalized” networks to become fluid.
Methodology

Understanding the influence of social networks is essential to create a predictive model of social change.

Developing a nodal analysis model will aid the analysis of nodes and clarify what nodal change looks like in time.

Dynamic network change may be predicted by analyzing past events and social network adaptations.
Test Case: Tanzania

Tanganyika achieved independence in 1961.

Mutiny of its armed forces in 1964

Union with Zanzibar in 1964

Reconstruction of Armed Forces in 1964-5
The Tanzanian People’s Defense Force and Civil-Military Relations

The Tanzanian Government wishes to avoid further issues of Praetorianism

Membership in the military becomes contingent on National Service and Party Membership in the CCM

Officers may stand for elected office and may also be party officials
A Model for Stability?

Initially the TPDF and the state structure is stable. However, Tanzania undergoes several shockwave moments in the following three decades.

The late 1970s and early 80s see Tanzania involved in a War with Uganda and Structural Adjustment via the IMF.

1992 marks the first multiparty election for Tanzania.
Continued Stability

Despite these moments that usually mark instability, Tanzania remains stable in its Civil-Military Structures.

This project has posited that the overt and covert dynamic networks of influence between the military, the central party, and the government enforced stability within the country and seeks to trace the evolutions of those networks.
Data Set Refinement

The periods 1978-79 and 1991-93 have been chosen for analysis based on available materials from the Tanzanian archives.
Key Events
Longitudinal Study - Economic

- Dec 9, 1961: Tanganyika independence
- 1967: Arusha Declaration
- 1973: Revillagization begins
- 2006: Visit by Chinese Prime Minister
- 2006: African development bank cancels $640 million debt
- 2008: Corruption prompts cabinet dismissal

Free Market Reforms
Start of Structural Readjustment

- 1985: President Nyerere retires; President Ali Hassan Mwinyi eases Ujama
- 1967: Arusha Declaration - African Socialism
- 1973: Revillagization begins
- 1995: President Benjamin Mkapa
- 1985: President Nyerere retires; President Ali Hassan Mwinyi eases Ujama
- Tanzania not part of British Commonwealth

Ujama declines

Chinese investment intensifies

- 2006: Visit by Chinese Prime Minister
Dec 9, 1961 Tanganyika independence

October 1964 Tanzania forms

26 April 1964 Tanganyika and Zanzibar merge

1973 Revillagization begins

1992 Multi-party democracy Constitution amended

1995 President Benjamin Mkapa

2001 Opposition offices raided

2008 Corruption prompts cabinet dismissal

Chinese involvement intensifies

First major political change

First multi-party elections
Key Events
Longitudinal Study - Social

Dec 9, 1961 Tanganyika independence

1967 Arusha Declaration
African Socialism

1973 Revillagization begins

1985 President Nyerere retires; President Ali Hassan Mwinyi eases Ujama

1995 President Benjamin Mkapa

2006 Visit by Chinese Prime Minister

Chinese begin to voice concerns over welfare of large numbers of Chinese in Tanzania

Regional groups regain voice in development choices

Ujama declines

Mass resistance to relocation

2008 Corruption prompts cabinet dismissal
Dec 9, 1961 Tanganyika independence

1967 Arusha Declaration Ğ African Socialism

1973 Revillagization begins

1978 Idi Amin attempts to annex Kagera province invades Tanzania

1979 Tanzania invades Uganda captures Kampala,

1979 President Benjamin Mkapa

American military influence increases

1998 American Embassy bombed

Tanzania not part of British Commonwealth

2006 British sell military equipment
The Initial 1970s Networks

The TPDF

The Chama Cha Mapinduzi

Network Science Center
West Point
The Combined 1970s Network
White Paper

Organization:
Introduction
Civil-Military
Social Aspects
Political Linkages
Economic Impact
Network Analysis and XY axis charts
Stability Equation
Conclusion
Length: 60-70 pages