A theory of geopolitical influence and imbalance

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Abstract In this paper, I describe a fundamental method of measuring geopolitical influence and imbalance for states. The paper ends with "The End"

Introduction

All states find methods to measure geopolitical imbalance and influence as these determine several economic and political outcomes including trade, diplomacy and war. A fundamental method of measuring geopolitical imbalance and influence is described in this paper.

The principal direction

The **principal direction** Ω is chosen differently by states depending on economic progress. Some choose it to be the direction of the rising sun and expand towards it. Others choose it to the be the direction of the nearest ally and trade towards it. Yet others choose it to be the direction of the nearest enemy and avoid that direction.

The method

The method involves geography, diplomacy and politics. Fundamentally, it involves the creation and analysis of the **geopolitical circle** of the state. A geopolitical circle is created by first mapping the directions of the capitals of neighbouring states on a circle. Meetings between representatives of the states usually follow. The geopolitical circle is then populated with **information** about the neighbouring states, including military, economic and political data which are co-operatively shared between the two states. The data is generally augmented with **intelligence** gathered by the state. Finally, the geopolitical circle is analyzed to determine geopolitical imbalance and influence on the state.

The geographic direction of influence

N is the **number of neighbouring states** given by the simple formula:

$$N = \sum_i 1$$

The **angles of the neighbouring states** θ_i are measured from the principal direction.

The **geographic direction of influence** θ_{geo} is given by the following formula:
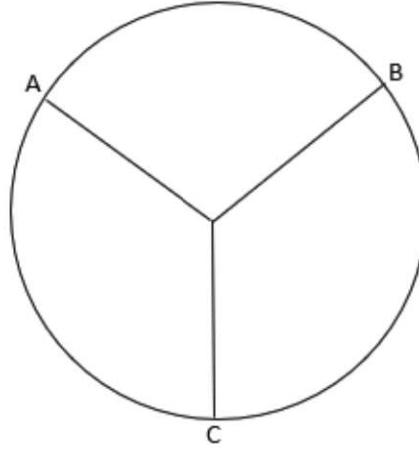
$$\theta_{geo} = \frac{\sum_{i=1}^{N} \theta_i}{N}$$

This is an estimate of the direction in which most of the **primitive trade** by the state is likely to occur.

Geopolitical circle of a hypothetical state

This is a geopolitical circle of a hypothetical state.

Figure 1: A hypothetical geopolitical circle

The neighbouring state capitals are marked A, B and C.

Progress

The state begins by populating some basic data of the neighbouring states on the circle.

1. M is the measure of the **size of the military** of the state.

2. W is the measure of the **wealth** of the state.

3. P is the measure of the **size of the population** of the state.

The construction of the circle proceeds by assigning three scores to the neighbouring states:

1. α is a score of the **military prowess** of the state.

2. β is a score of the **economic progress** of the state.

3. γ is a score of the **political stature** of the state.

The composite score Z of a neighbouring state is given by the following formula:

$$Z = \alpha \, log \, M + \beta \, log \, W + \gamma \, log \, P$$

The pole of primary influence

The **pole of primary influence** is given by the angle of the largest of the various Z_i of the neighbouring states. This is an estimate of the direction in which most of the **primitive diplomacy** and **post-primitive trade** of the state is likely to occur.

Angular gaps and geographic imbalance

The **angular gaps** ϕ_i are given by the differences between the various θ_i.

The **geographic imbalance** around the state can be measured by 2 estimators:

1. The **average angular gap** ϕ_{avg} is given by the formula $\phi_{avg} = \frac{\sum_{i=1}^{N} \phi_i}{N}$

   A large average angular gap is indicative of **large wars in the future**.

2. The **variance of angular gaps** $Var(\phi_i)$ is given by the formula $Var(\phi_i) = \frac{\sum_{i=1}^{N} (\phi_i - \phi_{avg})^2}{N}$

   A large variance of angular gap is indicative of a **war with a neighbouring state in the future**.

The zone of primary imbalance

The angluar gaps ϕ_i are arranged in decreasing order to give Φ_i. The **zone of primary imbalance** Φ_1 is given by the largest angular gap of the various ϕ_i. This is an estimate of the area where a large war is likely to occur in the foreseeable future. It is **also** the estimate of the area where diplomacy is likely to be found in order to **avert** the war.

The zones of early alliances

The **zones of early alliance** are generally found to be from Φ_n back towards Φ_2. This is an estimate of the area where alliances will **decide** large wars in the later future. They are **also** the estimate of the areas where diplomacy is likely to be found in order to **accelerate** the war.

Poles of secondary influence

The **poles of secondary influence** are given by the angles from the smallest of the various Z_i of the neighbouring states till Z_2. These are estimates of the direction in which most of the **prevalent diplomacy** and majority of **intermediate trade** of the state is likely to occur.

Geopolitical evaluation

The **average Z score** Z_{avg} is given by the formula:

$$Z_{avg} = \frac{\sum_{i=1}^{N} Z_i}{N}$$

This is a measure of the **geopolitical progress** of the **region** around the state including the neighbouring states.

The **variance of Z scores** $Var(Z_i)$ is given by the formula:

$$Var(Z_i) = \frac{\sum_{i=1}^{N} (Z_i - Z_{avg})^2}{N}$$

This is a measure of the **geopolitical imbalance** of the **region** around the state including the neighbouring states. The higher the variance, the more likely is **diplomacy in the short-term, trade in the medium-term but also war in the long-term**.

The **Z-weighted angle** Θ is given by the following formula:

$$\Theta = \frac{\sum_{i=1}^{N} \theta_i \, Z_i}{\sum_{i=1}^{N} Z_i}$$

This is the estimate of the **direction of geopolitical influence**.

The capital closest to this direction is the **seat of power**. **Immediate diplomacy, trade in the short-term, war in the medium-term and decline in the long-term** are likely at the seat of power.

The End