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The Sino-American dispute for world hegemony according to extrapolations from Ray Cline's model

La disputa sinoestadounidense por la hegemonía mundial según extrapolaciones del modelo de Ray Cline

Abstract: In view of the increasing intensification of the Sino-American rivalry for leadership in the international system, this text analyzes the power of two prominent contemporary powers—the United States of America and the People's Republic of China—according to the model conceived by Ray Cline (1970), duly adapted with extrapolations. Its purpose is to outline a possible final scenario of this rivalry, taking as the central object of research the competition between two prominent States in the international system for global hegemonic power. Methodologically, it employs the comparative-deductive model, with both qualitative and quantitative approaches. Based on objective data applied to Cline's equation, it also uses subjective analyses to deduce the current reality and a future scenario, reapplying numerical data to the adjusted model. For this purpose, it employs the formula of perceptible power developed by Cline, with the necessary modifications, in order to avoid anachronism. It is grounded in bibliographic sources on the theory of power and Cline's equation, as well as statistical data collected from the hemerography. The study concludes, based on the numerical results obtained and the analyses conducted, that there is a relative US advantage over its rival, especially given the Chinese governance pattern, which hinders the State's capacity to meet social aspirations and, consequently, undermines the perception that China may become a hegemonic power.

Keywords: Power Theory; Global hegemony; USA; China.

Resumen: Ante la creciente intensificación de la disputa sinoestadounidense por el protagonismo en el sistema internacional, este texto analiza el poderío de dos potencias prominentes de la actualidad según el modelo concebido por Ray Cline. La investigación tiene como objetivo esbozar un posible escenario final para esta rivalidad mediante el uso del modelo comparativo-deductivo, con un enfoque tanto cualitativo como cuantitativo. A partir de datos objetivos, se realizan análisis subjetivos para deducir la realidad actual y el escenario futuro, volviendo a aplicar los datos numéricos al modelo ajustado de la ecuación. Para ello, se utiliza la fórmula del poder perceptible, con las modificaciones necesarias, evitando anacronismos. La investigación se basa en fuentes bibliográficas sobre la teoría del poder, en la ecuación de Cline y en datos estadísticos recopilados en la hemerografía. El estudio concluye que Estados Unidos tiene una relativa ventaja sobre su rival, sobre todo ante el modelo de gobernanza chino, que dificulta que el Estado atienda las aspiraciones sociales y perjudica la percepción de que China pueda convertirse en una potencia hegemónica.

Palabras clave: Teoría del Poder; Hegemonía mundial; EE. UU.; China.

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1 INTRODUCTION

This research analyzes the two greatest global powers of today and their dispute for hegemony in the international system: the United States of America (USA) and the People's Republic of China (PRC).

The intensification of the rivalry between these global powers serves as the motivation for this research, which aims to scrutinize the perceptible power between both contenders today and in the presumed future.

In the 20th century, after World War II, the international power system was clearly divided between two nations: the USA and the Union of Soviet Socialist Republics (USSR), both considered central to international politics. "Each superpower dominates a coalition of allied states and competes with the other superpower for influence among nonaligned countries" (Huntington, 1999, p. 35).

This bipolarity lasted until the dissolution of the USSR in 1991, bringing the Cold War to an end. From then on, world geopolitics was guided by USA prominence. This model was evident in the Gulf War in the early 1990s, when the invasion of Kuwait by Iraqi troops provoked an armed reaction led by the USA and authorized by the United Nations (UN).

According to Huntington (1999, p. 36), from the 1990s onwards, the international scene was characterized by a "uni-multipolar system with one superpower and several major powers [...] The United States, of course, is the sole state with preeminence in every domain of power – economic, military, diplomatic, ideological, technological, and cultural [...]".

However, this period of broad USA leadership suffered a major setback with the collapse of the investment bank Lehman Brothers Holdings Inc. in 2008, triggering a crisis in the global financial system. Even at this negative moment in the global economy (2008), the PRC began a process of improving its finances. Its average annual gross domestic product (GDP) growth rate from 2008 to 2018 reached 10%, higher than that of other nations during the same period (Silva, 2021).

Starting with China's robust economic growth, the world power system began to undergo more intense transformations, with the USA losing part of its large share of global authority to an Eastern competitor. Since then, the USA and the PRC have been engaged in an escalating struggle for influence in various regions of the globe.

However, returning to the second half of the 20th century and the evolution of the Cold War, it is clear that several tools were developed to measure the power of states, all basically focused on the two great powers (the USA and the USSR), as well as to assess the emergence of other protagonists in the international system. In this regard, USA intelligence analyst Ray Steiner Cline (1918-1996) formulated an equation whose function is to quantify the power of nations and rank them according to a set of values.

In order to better understand and assess this clash that had already been establishing itself between the USA and China for world prominence, Cline's (1977) formula will be used as an indicator of the historical trajectory of development of these states. This will be based on information from the publication of this author's work (1970s) to the present day, using variations

of the equation (mainly to avoid anachronism) and future projections. To this end, the text uses current data and makes extrapolations that reveal scenarios over an extended time horizon.

For reasons of logic and didactics, this article uses a comparative-deductive methodology, following a quantitative and, at the same time, qualitative approach. It combines the objectivity of the data collected with subjective information and assessments, as well as their meanings, thus allowing for the deduction of the present reality and the future.

Thus, in addition to these introductory writings, the text discusses the conceptual framework regarding the characteristics of power and Cline's equation. It also addresses the phenomenon of competition between countries for prominence in the international system. Based on this theoretical construct, through the application of Cline's formula, a comparative analysis of the perceived powers of the USA and the PRC is carried out, both today and in a prospective scenario.

Finally, based on the quantitative data obtained by applying Cline's equation, combined with subjective analyses of the factors that comprise it, the text addresses the current situation and projections regarding the difficulties of the USA and the PRC in maintaining or ascending, respectively, as hegemonic powers in the international system.

2 CONCEPTUAL FRAMEWORK

This section presents some introductory aspects of the power struggle that rages in the international system and, from there, applies the formula developed by Ray Cline, with the necessary adaptations and extrapolations conceived by the authors, with a view toward contextualizing the equation from the past to the present day and translating it to the future.

2.1 Preliminary considerations

According to Morgenthau (2003), states occupy positions in the international system according to their power and characteristics, which give them greater or lesser prominence.

In this vein, for Hoffmann (1991 *apud* Silva; Gonçalves, 2010, p. 255, our translation), said system can be defined as

> A pattern of relations between the basic units of world politics, which is characterized by the scope of the objectives pursued by those units and of the tasks performed among them, as well as by the means used in order to achieve those goals and perform those tasks. This pattern is largely determined by the structure of the world, the nature of the forces, which operate across or within the major units, and the capabilities, pattern of power, and political culture of those units.

The imposition of a nation's will within a political-economic context also impacts dominance relations. The goal of power is to achieve the desired results, sometimes in a milder way, sometimes in a harsher way (Nye, 2011 *apud* Reis, 2011, p. 188).

According to Moreira Neto (1992 *apud* Brasil, 2018, p. 29, our translation), "power is a phenomenon in which one's will manifests itself, with the ability to establish a relationship that results in desired effects that would not occur spontaneously."

The rules of power, in order to be exercised, require two or more actors. For Bobbio (1998, p. 934, our translation), "there is no Power if, alongside the individual or group that exercises it, there is no other individual or group that is induced to behave as it wishes. Undoubtedly, as we have just shown, Power can be exercised through instruments or things".

In this sense, Aron (2002) understands that power between nations requires more than one agent, consisting of a link between interests. This author mentions that "In the field of international relations, power is the ability of a political unit to impose its will on others. In short, political power is not an absolute value, but a relationship between men" (Aron, 2002, p. 99, our translation).

The power of a state is directly linked to its available material resources. Silva and Gonçalves (2010, p. 218, our translation) emphasize that "the scope of foreign policy, whether regional or global, for example, results from the relative power that a country exercises in relation to other members of the international community".

In the international system, the power to control – to a certain degree – the attitudes between states or groups are known as relative power. Waltz (1979) argues that states occupy different positions in the international system based on their power, which is assessed by comparing their capabilities. Although these capabilities belong to the states themselves, the way in which these factors are distributed is a characteristic of the system as a whole, not of isolated units. In short, this means that state power is completely relative.

In line with Waltz's (1979) thinking, Strange (1988) portrays that power gives the strongest entity the ability to make decisions about those less favored.

For Mearsheimer (2001), states act in an attempt to maximize their relative power and, therefore, their position in the global balance of power. The author goes on to mention that great powers tend to think in terms of a "zero-sum" mentality, in which one state's gain in power means another's loss.

To lend greater objectivity to the theoretical precepts outlined above, without, however, discarding the subjectivity of the humanistic context, we find the formula developed by Ray Cline (1977). This author's proposal consists of the following equation: **Pp=(C+E+M)x(S+W)**. Table 1 describes the elements in the formula.

Table1 – Meaning of the elements in Cline's equation (1977)

FACTORS	MEANING
Pp	perceptible power
C	critical mass (population + territory)
E	economic capacity
M	military capacity
S	national strategy
W	national will

Source: Cline (1977, pp. 33-37).

It should be noted that, according to Cline's equation, the power of a state depends not only on its tangible resources (such as its economy and military strength), but also on its ability to use them strategically and on its political will. The formula combines material and immaterial resources, making state power perceptible according to what it possesses, in addition to the political will and the ability to plan and execute it, as expressed by its society.

2.2 Dispute for global leadership

With the New World Order established in the post-Cold War era, the USA established itself as the sole global superpower. Thus, an international system shaped by USA hegemony was formed. Attempts to redefine global geopolitics, with an emphasis on the Persian Gulf and Asia, were carried out during the period of USA leadership in the nation's political order.

The word "hegemony" originates from the Greek term *hegemonía*, which means the preponderance of one thing over another or absolute power. In Ancient Greece, army commanders were called *hegemons*. "In the context of contemporary international relations, the use of the term is related to the imposition of the preponderant power of a state and its interests over regional or global international systems" (Silva; Gonçalves, 2010, p. 118, our translation).

In the context of the early 21st century, the USA remains a leading power in the international system. With an annual growth of 2.5% (Economia..., 2024) and military spending of around US$ 877 billion in 2022 (Welle, 2023), this nation stands out prominently among other nations in the world.

However, on the world stage, the PRC has achieved levels of development well above those of the USA and other global powers, also based on the early years of this century. In 2023, the Chinese economy grew by around 5.2% (Lira, 2024). Its defense spending in 2022 was US$ 292 billion (Welle, 2023).

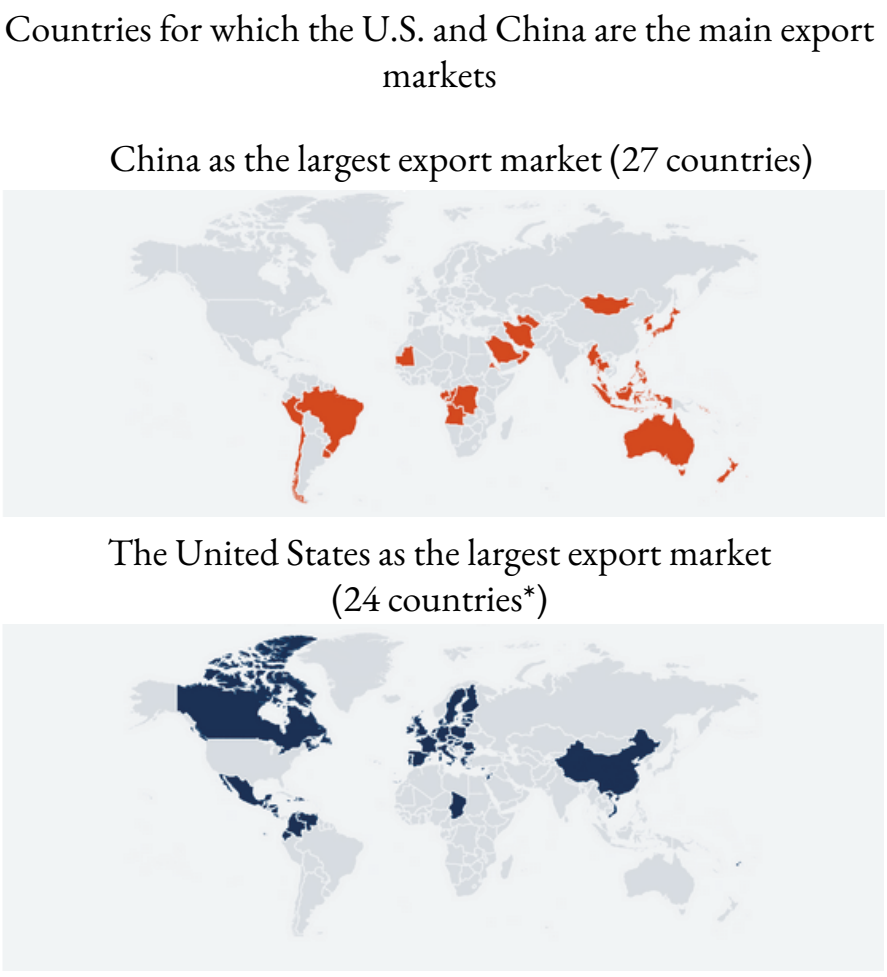
With indices that have been growing significantly in relation to the USA and other nations, the PRC has become a threat to USA leadership.

> [...] there has been a shift in state power among the states of the System, evidenced by the reduction in the relative power of the United States and the increase in the relative power of China, a nation that in 2018 already concentrated a large part of global financial and trade flows, greater participation in multilateral financial organizations, and greater military investment (Silva, 2021, p. 3, our translation).

Corroborating Silva's assertion (2021), it is clear that China's marked evolution is already bearing fruit for the country, as it "already trades more with emerging and developing countries than with the USA, Europe, and Japan combined" (Douglas; Fairless, 2023, our translation).

The Figure 1 illustrates China's real economic influence in the world, which already surpasses that of the USA in terms of the number of countries whose main export destination is one of the two contenders.

Figure 1 – Distribution of trade influence (USA and China)



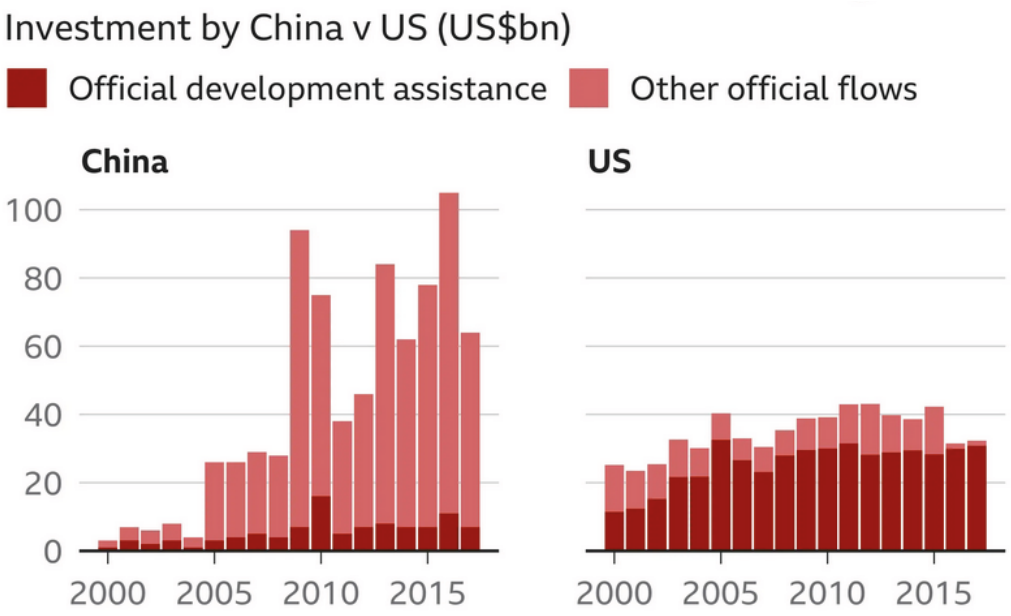
Source: Sullivan (2020).

The Graph 1 shows another significant example of the advancement of Chinese power on the world stage; Chinese investments and loans to other nations have grown in relation to those of the USA, reinforcing the thesis of the expansion of this Asian country's influence in the world.

2.3 USA and PRC according to Cline's formula

To obtain a more detailed view of the current relative power of the two largest world powers and the dispute for primacy in the international system, as depicted in general terms in Figure 1 and Graph 1, we will use Cline's Perceptible Power Theory (1977) as a basis – which will henceforth be expressed by the acronym "Pp." This power reflects "the capacity of a state to wage war and/or impose its will in the global political and economic context" (Bonfim, 2005, p. 74, our translation), and therefore corresponds conceptually to relative power.

Graph 1 – Loans made by China and the USA to other states



Source: Hatton (2021).

Cline's equation is obviously just one of several known tools used in an attempt to quantify the power of nations. This power is observed through both tangible and intangible aspects, in addition to possible data manipulation by states. Therefore, it gives rise to multiple interpretations that can sometimes affect the effectiveness of the measurement, as explained by Fontoura (2007, p. 16, our translation):

> What is required for a calm, lucid, and intelligent assessment of national power will encounter decisive obstacles in inadequate assessments, whether excessive or deficient, resulting from the tendency, due to overconfidence, to admit, not always justifiably, that one knows sufficiently well the possible tendencies, character, and animus of the state against which one intends to act; or to admit, without further inquiry, that the data set obtained is true and reliable; or that all the information gathered, directly or indirectly, is authentic, even though it may have been insidiously provided by the adversary itself; or that the interpretation of all the data collected is immune to error; or that excessively subjective judgments do not interfere, such as, for example, a misleading empathy towards the entity being judged. These are just some of the difficulties that the evaluator of a national power will face, despite all the precautions taken.

The first measurement made by the author of the perceived power of the USA and the PRC, dated 1978 (Cline, 2019), is shown in Table 1.

Table 1 – Pp of the USA and the PRC in 1978

Countries	Perceived power (1978)
USA	**304**
PRC	**83**
Percentage difference of Pp	**72.70%**

Source: Cline (2019, p. 342).

Thus, through extrapolations, taking into account the temporal reality that marked the launch of Cline's equation (1977) and the present day, we will seek to minimize the effects of this gap of just over 40 years.

2.3.1 Perceptible power of the United States of America today

First, we will focus on the "Pp" of the USA. Thus, in accordance with Cline's equation (1977), we will work on the first section of this formula: (C+E+M), starting with the measurement of critical mass (C), resulting from the sum of population and territory (C=P+T).

To this end:

> Cline ranked countries according to their population size, compiling a list that includes the most populous nations in descending order. He assigned 50 points to countries with more than 200 million inhabitants, 25 points to those with 100 to 200 million, 13 points to those with between 50 and 100 million, and so on, excluding from the study, as irrelevant (with the exceptions already mentioned), countries with less than 15 million. As for territory, taking into account area, geographical location, and detected potential, Ray Cline assigned 50 points to countries with more than 3.6 million square miles, 40 points to the group between 1.1 million and 3.6 million, decreasing successively to 1 point (Cline, 1975 *apud* Fontoura, 2007, p. 26, our translation).

Thus, the USA has 333,288,000 inhabitants (Estados ..., 2022), earning it 50 points for the "P" criterion. For territory (T), covering an area of 9,525,019 km² (Estados ..., 2022), it also scores 50 points, since it exceeds the minimum established by Cline (1977 *apud* Fontoura, 2007, p. 26) of 3.6 million of mi², or 9,323,964 km². Thus, the critical mass (C) of the USA currently totals 100 points.

According to Cline (2019), with regard to economic capacity (E), the most realistic way to measure a nation's power should focus on GDP. Even though the author mentioned that there are tools that can add or subtract value to economic potential based on GDP, such as energy, essential minerals, and food production, among others, this study will follow a more "tangible" path, considering only GDP data, in order to avoid possible inaccuracies regarding China in this regard.

Moving on, Cline (2019, p. 126) considered, at the time of GDP measurement (1978), that the USA would score 100 points, since it was the country with the highest value in this

regard, at around US$ 2.02 trillion. Within the reasoning of adjusting the 1978 values to the present day, the USA GDP in 2023 was US$ 26.95 trillion (FMI lista..., 2023). Therefore, as this value continues to be the highest in relation to other nations, it can be concluded that the "E" factor for the USA remains at 100 points, with all other nations being evaluated proportionally according to their respective GDP (Cline, 2019, p. 130).

Furthermore, for Cline (1977), military capacity (M) has two components: conventional and nuclear. Each of these was assigned 100 points as their maximum rating. In this sense, equipment, adequacy, quality, command, and volume of the available arsenal are considered factors to be assessed "with some degree of certainty" (Fontoura, 2007, p. 28, our translation).

Moving on to the conventional component (Vc) of military power, we can rely on the assessment available in the Global Fire Power index (2025 United States Military Strength, 2025), which analyzes over 60 factors, such as the arsenal and military units, the budget allocated to the military, as well as its logistics and the geographical positioning of the forces in question. According to this source, the USA power index is 0.0744, with perfect military power being 0. Therefore, the United States of America's rating in this regard will be 100 points, as it is the country with the best global score[1].

Regarding the nuclear component (Vn), according to the Lowy Institute Asia Power Index (LIAPI, 2023a), its measurement is carried out by observing the nuclear power that can be used strategically to deter a potential aggressor with its retaliatory force. The USA scored 89.8 (LIAPI, 2023a). As Russia's nuclear power is 97.1 – which would earn it 100 points – the USA level is proportionally 7.52% lower than Russia's.

Therefore, the USA score, following this proportionality, will be 92.48 points. Thus, the total USA military capability (M) will total 192.48 points (Vc+Vn).

Following Cline (2019), the second section of the equation (S+W) is worth 1 point for each factor. This sum is known as the multiplication factor and directly impacts the first section of the formula (C+E+M). Continuing in this vein, Cline (2019, p. 340) emphasizes in his equation that

> [...] national purpose and national will make a critical difference in the relative power of nations. The multiplication sign is the most meaningful part of the formula that constitutes my calculus of perceived power and strategic drift.

Regarding national strategy (S), it is "conceived and executed by any state [and] aims to achieve the objectives set by the political power in the context of the national strategic concept" (Fontoura, 2007, pp. 28-29, our translation). According to Cline (2019, p. 218), "in the case of nations with clear-cut strategic plans for international exercise of power and aggrandizement of influence, a larger index number for the factor "S" may be assigned, up to an arbitrary maximum of 1."

1 From this point on, there is a clear adaptation of Cline's formula, given that the measurements obtained on the Global Fire Power website only date back to 2005, for example. Therefore, when Cline formulated his model in 1977, these and other scores were not available.

To measure "S," information from LIAPI (2023b) was taken into account, which analyzed two types of information: the form of organization and planning of states in the period from 2021 to 2022 in order to exercise control over the armed forces in the event of a conflict lasting approximately two years; and the extent and positioning of a state in its international relations. Thus, the sum of the indices for both items would be 200. This would be equivalent to the maximum value of 1 point. The USA scored 189.3 in this operation (LIAPI, 2023b). Thus, according to the principle of proportionality, the country obtained 0.95 points in this category.

Aligned with this robust assessment, the USA has a well-defined National Strategy that is consistent with the country's national objectives. According to USA government sources,

> President Donald J. Trump signed a National Security Presidential Memorandum (NSPM) aimed at promoting foreign investment while protecting America's national security interests, particularly from threats posed by foreign adversaries like the People's Republic of China. (Fact ..., 2025).

Regarding the "W" factor (national will), Cline (1981, p. 13, our translation) defines it as

> [...] the degree of resolution that can be mobilized among the citizens of a nation in support of government decisions on defense and foreign policy. National will is the foundation upon which national strategy is formulated and successfully executed.

For Cline (2019, p. 330), factor "W" would have to be analyzed according to its three constituent parts: level of cultural integration, strength of national leadership, and coherence between national strategy and national interest.

According to Cline (1981), at the time, only the USSR, the USA, and the PRC had an integrated strategic concept, that is, since the end of the 20th century, the national strategy of these States had been supported and enabled by the factor of "national will.

From Fontoura's perspective (2007, p. 31, our translation),

> The delicacy of the judgments to be made in assessing these elements has very subtle requirements, with an eminently subjective nature. The perceived national will results from the complex combination of elements that have their roots in the intricacies of the countries' history.

Therefore, considering the obstacles to a reliable measurement of national will, we chose to use Cline's (2019) notes from 1978, which establish a value of 0.4 points for the "W" factor for the USA.

As a total assessment of perceived power, following Cline's (1977) equation, after analyzing more recent information, we arrive at the score shown in Table 2.

Table 2 – Pp of the USA today

Items	Factors	Maximum score for factors	Perceived power of the USA (score)
1	Critical mass (C)	100	100
2	Economic capacity (E)	100	100
3	Military capacity (M)	200	192.48
4	SUBTOTAL (A)	400	392.48
5	National strategy (S)	1	0.95
6	National will (W)	1	0.4
7	SUBTOTAL (B)	2	1.35
-	PRODUCT (A×B)	800	529.85

Source: prepared by the authors (2024).

2.3.2 China's current perceived power

From this point on, this paper will analyze the Pp of the PRC. As the conceptual part about the factors that make up Cline's equation (1977) – Pp=(C+E+M)x(S+W) – has already been thoroughly examined, the text will be restricted to data processing and the consolidation of points and results.

Regarding the critical mass (C) of the PRC, the Chinese population (P) is 1,425,671,000 inhabitants (Estados..., 2022), which, according to Cline (2019, p. 85), would be worth 50 points. It should be noted that Cline (2019, p. 89), in 1978, deducted 25 points from China in terms of "P", given that this country had a GDP per capita below US$ 500, which would indicate a low-income population. However, as the PRC already had a GDP per capita of around US$ 1,060.00 in 2022 (GDP per capita, 2022), the loss of points mentioned by Cline (2019) is no longer applicable at the present time.

Regarding territory (T), China has an area of 9,562,862 km² (Estados ..., 2024), which gives it 50 points. Therefore, China's critical mass (C) will be assigned a value of 100 points at the present time.

As for the economic capacity (E) of the PRC, it appears that in 2023, China's GDP reached US$ 17.7 trillion (FMI lista ..., 2023). Based on the USA level, which has the world's largest GDP and is equivalent to 100 points, according to the proportionality addressed by Cline (2019, p. 129), the PRC will have 66 points.

Regarding China's military capacity (M), the power index of its conventional component (Vc) is 0.0788 (2025 United States Military Strength, 2025). Based on the USA level, which totals 0.0744, with 0 being the "state of the art," it can be observed that the Chinese power index is less than 1% lower than the USA index, which earns it 99 points.

As for the nuclear component (Vn) of military capability, the PRC has a power index of 75. Therefore, as the Russian nuclear index (97.1) is equivalent to 100 points, China obtains, proportionally, 77.24 points. Thus, China's military capability (M) is 176.24 points (Vc+Vn).

Analyzing the multiplier factors, with regard to national strategy (S), according to LIAPI (2023b), the PRC has an index of 153.9. Thus, as the USA level is 189.3 and equals 1 point, it can be concluded that the PRC will obtain 0.81 points.

Regarding Chinese national will (W), as explained by Cline (2019), the country was rated at 0.2 points. It should be noted that, despite China's robust economic evolution since 1978, it was decided to maintain the measurement of the attributed "popular will". This decision was based on the recommendations of Cline (1981) himself, who emphasizes the value of popular participation and support for government decisions in the valuation of "W". Therefore, as the PRC has not changed its form of state action and has not privileged popular involvement in national issues during these four decades, it is assumed that there is no relevant reason to revise the value of "W".

In consolidating the assessments of the multiplier factors (S+W) of the USA in relation to the PRC, it is possible to observe a significant disadvantage in relation to the Chinese score. In this vein, Cline (2019, p. 340) mentions that "a totalitarian system has many shortcomings and its suppression of individual freedom and initiative jeopardizes the development of a high level of achievement within a society". The author goes on to mention that the PRC, despite having some advantages in terms of the ease of imposing state decisions on the population, which is deprived of an "active voice," has, for the same reasons, shortcomings due to a lack of consistency between the state's strategic policies and national aspirations (Cline, 2019, p. 341).

Based on the information and calculations obtained, the Chinese "Pp" can be seen in the Table 3.

Table 3 – Pp of the PRC today

Items	Factors	Maximum score for factors	Perceived power of PRC (score)
1	Critical mass (C)	100	100
2	Economic capacity (E)	100	66
3	Military capacity (M)	200	176.24
4	SUBTOTAL (A)	400	342.24
5	National strategy (S)	1	0.81
6	National will (W)	1	0.2
7	SUBTOTAL (B)	2	1.01
-	PRODUCT (A×B)	800	345.66

Source: prepared by the authors (2024).

2.3.3 Comparison of Pp between the United States and China today

Consolidating the information obtained about the perceived power of the USA and the PRC, obtained in 1978 and today, we have the comparative model shown in Table 4.

In order to illustrate the progress of the Chinese "Pp" in relation to the USA "Pp" between 1978 and the present day, the Table 5 was prepared, containing the score of these two moments.

Table 4 – Comparison of Pp between the USA and the PRC today

Items	Factors	Pp of the USA	PRC Pp
1	Critical mass (C)	10	100
2	Economic capacity (E)	100	66
3	Military capacity (M)	192.48	176.24
4	SUBTOTAL (A)	392.48	342.24
5	National strategy (S)	0.95	0.81
6	National will (W)	0.4	0.2
7	SUBTOTAL (B)	1.35	1.01
8	Current Pp (A×B)	529.85	345.66
9	Percentage difference between USA and PRC Pp today	34.76	

Source: prepared by the authors (2024).

Table 5 – Growth of the PRC's Pp in relation to that of the USA

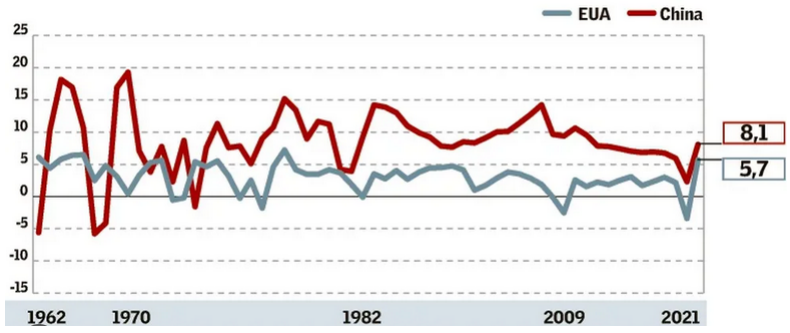
Items	Factors	USA Pp	PRC Pp
1	Pp in 1978 (Cline, 2019)	304	83
2	Percentage difference between USA and PRC Pp – 1978	72.7	
3	Pp (A×B) today	529.85	345.66
4	Percentage difference between USA and PRC Pp – today	34.76	
-	Reduction in the gap between the Pp of the PRC and the USA from 1978 to the present	37.94	

Source: prepared by the authors (2024).

Based on the data already shown in the Tables 4 and 5, it can be inferred that the difference in "Pp" between the USA and China decreased by 41.56%. Therefore, in just over four decades, there was a very significant drop in terms of the percentages observed in 1978.

In this sense, comparing the historical series of GDP percentage growth in the two countries, using Graph 2, it can be concluded that, if this factor continues to evolve, the economic prominence of the United States of America will lose relevance in the face of Chinese power.

Graph 2 – Percentage evolution of GDP USA/PRC



Source: Wei (2022).

Following this projection, Brazilian journalist Ricardo Gozzi (2023), based on estimates for the year 2075 made by Goldman Sachs Research, reported that China's GDP will reach

US$ 57 trillion, surpassing that of the USA, which will reach US$ 51.5 trillion. Looking at the percentage difference that would result from this projection, we arrive at the conclusion that the PRC will have 9.65% more economic power than the USA.

Continuing with this logic, using Gozzi's (2023) forecasts for the GDP of the two powers, which show Chinese economic dominance by 2075, a calculation of the perceived power of the USA and the PRC, considering these assumptions, would alter not only the economic capacity of the two states, but also their military power (M), since it is based on the financial capacity of both.

To this end, as the Chinese "E" factor would be the largest in the international system, it would receive 100 points. Using the proportion by which the USA would be supplanted (9.65%), they would be awarded 90.35 points.

As already mentioned, assuming that military capacity growth proportionally accompanies economic growth, China's estimated robust development would ultimately place the country as the nation with the greatest military capacity in the world, surpassing even Russia in terms of nuclear power. Therefore, the PRC would be assigned 200 points in the "M factor". The USA, consequently, on a proportional scale, 9.65% below the Chinese "M" level, would receive 181.93 points.

As no real transformation in the political models of the PRC and the USA is expected in the medium term, especially regarding the level of popular participation in the nation's destiny, as well as the link between the state's strategic plans and the interests of national society, the multiplier factors (S+W) should remain unchanged.

That said, the Table 6 reproduces this new calculation inspired by the estimates projected by Gozzi (2023) for the year 2075.

Table 6 – Comparison of Pp between the USA and the PRC according to Gozzi's estimates (2023)

Items	Factors	Pp USA	Pp PRC
1	Critical mass (C)	10	100
2	Economic capacity (E)	90.35	100
3	Military capacity (M)	181.93	200
4	SUBTOTAL (A)	372.28	400
5	National strategy (S)	0.95	0.81
6	National will (W)	0.4	0.2
7	SUBTOTAL (B)	1.35	1.01
8	Projected Pp for 2075 (A×B)	502.58	404.00
9	Percentage difference in Pp between the USA and the PRC (Year 2075 – estimate)	19.61	

Source: prepared by the authors (2024).

2.3.4 Importance of the technology sector and USA leadership

In today's world, technology has become one of the main drivers of State power. More than just an economic sector, it defines each country's ability to compete, innovate, and project international influence. According to Schwab (2016), we are living in the midst

of a technological revolution that will profoundly transform the humanity. Schwab also mentions that the States that best adapt to these changes will be able to gain more advantages over the others.

Therefore, we believe adding aspects relating to the technological development of the powers in question to Cline's (2019) formula to be a legitimate effort. It is for this purpose that world-renowned reports such as the Network Readiness Index (NRI) and the Global Innovation Index (GII) stand out, seeking to measure the extent to which nations are prepared to respond to the challenges of the digital age.

The NRI (Dutta; Lanvin, 2024) is one of the main global indices on the application and impact of information and communication technologies on the world's economies. In the 2024 edition, the USA ranks first with 78.96 points, whereas the PRC ranks 17th with 68.70 points (Table 7).

Table 7 – Country scores according to the NRI

Rank	Country	Score
1	**USA**	**78.96**
2	Singapore	76.94
3	Finland	75.76
4	Sweden	74.99
5	South Korea	74.85
6	Netherlands	73.94
7	Switzerland	73.71
8	United Kingdom	73.57
9	Germany	73.54
10	Denmark	72.7
11	Canada	71.76
12	Japan	70.96
13	Israel	70.46
14	Norway	69.7
15	Australia	69.43
16	France	68.71
17	**China**	**68.7**

Source: adapted by the authors based on NRI (Dutta; Lanvin, 2024, emphasis added).

The GII (WIPO, 2024), on the other hand, deals with indices that, in the form of rankings, serve to position and evaluate the innovation capabilities and results of the economies of 133 countries, as well as the world's 100 leading science and technology clusters. The measurement is based on criteria that include institutions, human capital and research infrastructure, credit, investment, links, creation, absorption, and diffusion of knowledge and creative results. According to the 17th edition of the GII, released in 2024, the USA ranks third, with 62.4 points (Table 8). The PRC appears in 11th place, with 56.3 points.

Table 8 – Country scores according to the GII

Rank	Country/Region	Score
1	Switzerland	67.5
2	Sweden	64.5
3	**United States**	**62.4**
4	Singapore	61.2
5	United Kingdom	61.0
6	South Korea	60.9
7	Finland	59.4
8	Netherlands	58.8
9	Germany	58.1
10	Denmark	57.1
11	**China**	**56.3**

Source: adapted by the authors, based on GII (WIPO, 2024, emphasis added).

Given the results shown in the Tables 7 and 8, it is clear that the technological dimension, notably marked by the digital economy and scientific innovation, ultimately demonstrates the leading role of the USA in relation to the PRC. Therefore, the USA prominence in the area of technology does not alter the calculations presented in item 2.3.3, but rather complements and reinforces them by proving that the Western power's prominence in terms of "Pp" is also supported in the fields of science, technology, and innovation.

3 CONCLUSION

USA's power has remained at the top of the global scale since the last century. However, this status quo has been subject to a Chinese revisionist attitude, underpinned by its booming economy.

Based on the "zero-sum" reasoning mentioned above, the power gained by the PRC results in a decline in USA primacy. In this sense, the two powers have used measures aimed at boosting their respective powers and curbing the influence of the other on the international stage.

According to an analysis of the first elements of Ray Cline's equation (C+E+M), which measure more concrete and objective aspects of perceptible power, it is clear that the economic and military capacity of the United States of America still demonstrates significant superiority over that of China, even if, over the years, this gap has narrowed substantially.

Regarding the multiplier factors (S+W), which are responsible for giving the first part of Cline's formula, albeit subjectively, a valuation that significantly influences the first part of the equation, in addition to presenting content focused on government policies and the symbiosis between the State and society, it is clear that the USA has a significant advantage over the PRC. This superiority denotes the close connection with the ability of American USA society to influence and be represented in the development of strategies aligned with its national interests.

Based on the mathematical exercise consolidated in Table 6 – Comparison of Pp between the USA and the PRC, according to Gozzi's estimates (2023) – it can be deduced that, even assuming that the Chinese economy continues its upward trajectory on the international stage, its "Pp", according to Cline's equation (1977), would not exceed that of the USA. This is mainly due to the authoritarian model of the Chinese government and its negative influence on the country's "Pp".

At the same time, the competitive landscape cannot be understood without incorporating contemporary variables, especially the technological dimension. As seen in section 2.3.4, the results of the NRI and GII confirm USA leadership in digital infrastructure and scientific innovation, factors that reinforce the USA "Pp" in the international system.

Therefore, it can be inferred that, following the format of Cline's equation with regard to the USA and Chinese "Pp", in order to establish a real possibility of change in the status quo (USA leadership) in favor of the PRC, according to the methodology of this study, it is necessary, among other aspects, to significantly transform the Chinese model, following more democratic principles and valuing the aspirations of its society.

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