

# UNITED STATES, CHINA AND THE DISPUTE FOR GLOBAL HEGEMONY: A COMPARATIVE ANALYSIS

JUAN VÁZQUEZ ROJO Corporación Universitaria de Asturias, Colombia Universidad Camilo José Cela, España

#### **KEYWORDS**

Hegemony United States China International Order Trade War Tech War Comparative Analysis

### ABSTRACT

The trade and technological war initiated in 2018 between China and the United States has increased interest in the possible hegemonic succession. In this paper, starting from the concept of interstate hegemony, a comparative analysis of the material capabilities of each power in five areas: productive, technological, commercial, monetary-financial and military. This analysis makes it possible to quantify whether China can surpass the United States. As a result, it is concluded that China is far from surpassing the United States in the military and monetary-financial areas, but it can compete in the productive, commercial, and certain critical technological sectors.

### PALABRAS CLAVE

Hegemonía Estados Unidos China Orden Internacional Guerra comercial Guerra tecnológica Análisis comparativo

#### RESUMEN

La guerra comercial y tecnológica iniciada en 2018 entre China y Estados Unidos ha incrementado el interés por la posible sucesión hegemónica entre ambas potencias. En el presente trabajo, partiendo del concepto de hegemonía interestatal, se realiza un análisis comparativo de las capacidades materiales de cada potencia en cinco áreas: productiva, tecnológica, comercial, monetario-financiera y militar. Este análisis permite cuantificar si China está capacitada para superar a Estados Unidos. Como resultado, se concluye que China está lejos de superar a Estados Unidos en el ámbito militar y financiero-monetario, pero puede competir en el productivo, comercial y ciertos sectores tecnológicos críticos.

> Recibido: 02/ 05 / 2022 Aceptado: 28/ 07 / 2022

# **1. Introduction**

A t the end of World War II, the United States (US) dominated all spheres: productive, technological, commercial, monetary-financial and military, which enabled it to assume leadership of the world order (Arrighi and Silver, 1999; Arrighi, 1994; Harvey, 2003). The regulations and configuration of this new order were established at the Bretton Woods conference (Orduna, 2007; Cooley and Nexon, 2020) and through the set of institutions created thereafter, such as the World Bank (WB), the International Monetary Fund (IMF), NATO, the General Agreement on Tariffs and Trade (GATT), the subsequent World Trade Organisation (WTO) and the establishment of the dollar as the central currency of the international monetary system (Agnew, 2005; Parmar, 2018; Cooley and Nexon, 2020).

However, since the 1980s, US-led financial and trade globalisation led to a progressive shift of economic weight from the West to Asia, resulting in the emergence of economies of notable importance, with China standing out above all (Arrighi, 2007; Cooley and Nexon, 2020). This process has changed the correlation of forces between the major powers, giving rise to power conflicts between the United States and China, the ultimate expressions of which have been the trade and technology conflicts (Dunford and Liu, 2017; Cooley and Nexon, 2020; Xuetong, 2020).

Over the past thirty years, China has managed to integrate into the global economy and US-led frameworks, achieving growth figures that have led it to become the world's leading economy in terms of GDP in purchasing power parity (Li, 2017). Furthermore, in the last decade, Beijing has developed various projects to change its production model to have a more active presence abroad, through plans as diverse as Made in China 2025, which aims to turn the Asian country into a technological superpower (Wagner, 2019) and the Belt and Road Initiative, an investment project in maritime, land and digital infrastructure with more than 100 countries (Lai, 2020). All of this raises the debate of whether China can succeed the United States as a hegemonic power (Arrighi, 2007; Li, 2017; Cooley and Nexon, 2020 and Xuetong, 2020).

In order to provide some insight into this debate, starting from the concept of interstate hegemony (Arrighi, 1994; Arrighi and Silver, 1999; Ikenberry and Nexon, 2019; Cooley and Nexon, 2020), the aim of this paper is to carry out a comparative analysis of US and Chinese material capabilities in five areas: productive, technological, commercial, monetary-financial and military. The article's contribution is focused on showing whether China's material capabilities are sufficient to overtake the United States by providing an empirical application of the concept of hegemony to a specific case.

To achieve the aim of the paper, the theoretical framework, and a literature review of the concept of inter-state hegemony will be developed in the first place. Secondly, the theoretical framework will be applied to the case study of the United States and China, comparing the two economies in the five areas already mentioned. Finally, the conclusions reached in the elaboration of the text will be presented.

## 2. Interstate Hegemony

The concept of hegemony is one of the most discussed terms in the field of International Relations (Rapkin and Braaten, 2009; Anderson, 2017; Herrera, 2017a and 2017b; Norrlof, 2017; Schenoni, 2019; Ikenberry and Nexon, 2019; Fusaro, 2019, Sanahuja, 2020; Saull, 2012; Schenoni; 2019 and Worth, 2020). Its origin comes from the Greek word hēgemony, which as a verb means to guide or lead and as a noun it refers to leadership exercised by a state or group of states (Anderson, 2017; Herrera, 2017a, Ikenberry and Nexon, 2019 and Sanahuja, 2020). Since its beginnings in Greece, the term is used in contrast to arché, the former representing a form of leadership by (legitimate and passive) consent and the latter by coercion or the explicit use of violence (Anderson, 2017 and Worth, 2020). In this sense, the term has always referred to various forms of dominance or leadership: by consensus or by coercion, something that will accompany the term throughout its historical evolution, from the writings of Thucydides in Ancient Greece to the present day (Fusaro, 2017, Worth, 2020 and Sanahuja, 2020).

Although the study of the concept has generated extensive debate throughout the 20th and 21st centuries, there is some consensus among the different views. Specifically, for a state to have hegemonic dominance, it requires a material capacity superior to the rest, as well as superior characteristics in terms of the political, economic, social and cultural ideas it proposes, in order to exert influence on the rest of the actors (Nörrlof, 2017; Ikenberry and Nexon, 2019 and Sanahuja, 2020).

In this way, interstate hegemony refers to the superior capabilities of a state that allows it to exercise leadership and governance functions over a system of sovereign states through the maintenance of the rules of the game of the international system (Keohane and Nye, 1977, Arrighi and Silver, 1999; Kindleberger, 1996; Gilpin, 2001 and Sanahuja, 2020). The most outstanding material capabilities when studying hegemony are productive, technological, commercial, financial-monetary and military (Strange, 1988; Wallerstein, 1984; Arrighi and Silver, 1999; Kai, 2017 and Wohlofth and Brooks, 2016).

Related to the classical origin of the concept, it acquires greater explanatory power if it is understood beyond pure military dominance or superiority (Arrighi and Silver, 1999; Cooley and Nexon, 2020). Thus, a state's dominance can be considered hegemonic if it drives the interstate system in the desired direction and this is

perceived as the pursuit of the general interest by all other state actors (Arrighi and Silver, 1999; Nexon and Cooley, 2020). In this situation, the correlation of power is unbalanced (Kai, 2017), because one country can largely impose its rules and its particular vision in the political, economic, military, diplomatic or cultural sphere (Ikenberry and Nexon, 2019; Nexon and Cooley, 2020).

Hegemony is exercised through leadership and the construction of an international order formed by a set of stable relationships, practices, institutions, and norms over time, in which all other countries are expected to move (Strange, 1988, Kai, 2017; Cooley and Nexon, 2020). This order constraints and directs in a certain direction the sharing of actors operating within it, including the hegemon (Ikenberry and Nexon, 2019; Cooley and Nexon, 2020).

However, though the hegemon has great influence, it does not determine all aspects of the international order, as these are in continuous tension between coercion and consent, cooperation, and contestation by all other parties (Ikenberry and Nexon, 2019; Cooley and Nexon, 2020). In this sense, it is crucial for a hegemon to maintain the complicity of secondary state powers which support its leadership, as well as the rules and institutions of international orders (Kai 2017; Ikenberry and Nexon 2019; Cooley and Nexon 2019; Cooley and Nexon 2020). These agreements and relationships shape the legitimacy and functionality of international orders, create support for the hegemon, and diminish the chances that countries will emerge that want to change the status-quo (Kai, 2017).

On the other hand, hegemonies and international orders are historical and cyclical (Arrighi and Silver, 1999; Wallerstein, 1984; Cooley and Nexon, 2020), as the situation of each state changes and feeds back into the context of the international order, varying relations, agreements, and support for the prevailing order of things. A country's hegemony over the international order is therefore neither natural nor constant, but cyclical and with its own endogenous dynamics that generate phases of boom and bust (Arrighi and Silver, 1999; Arrighi, 2007).

As a result, stability phases occur when the international order represents the interests of most countries operating within it and dissatisfied actors do not have sufficient power to change it. This allows the dynamics of prevailing institutions, relations, and norms to work quasi-automatically and thus curbs the tendency of states to try to impose their particular interest without regard for the system level (Arrighi and Silver 1999).

When the correlation of forces changes, either due to the deterioration of the hegemon's material capacities or the rise of new powers, international rules lose part of their functional character, breaking down the automatisms of the international order and making room for reformist or ruptures' positions on the part of states (Kai, 2017; Cooley and Nexon, 2020). Consequently, moments of crisis arise when the international order does not represent the correlation of forces of the moment, leading to the deterioration of the rules of the game, the growth of interstate confrontation, competition between companies and the emergence of new configurations of power, which leads to the deterioration of hegemony (Arrighi, 1994; Arrighi and Silver, 1999).

## 3. Methodology and data

When engaging in this debate, there are major limitations to quantifying the power or weight of each country in the international system (Norrlöf, 2014; Wohlofth and Brooks, 2016; Winecoff, 2020). Most analyses that have been conducted to study hegemony are descriptive and theoretical, regardless of the approach used, although there are attempts to empirically measure hegemony or state power (Beckley, 2018; Liu and Tsai, 2020; Winecoff, 2020).

Taking into account the different areas that allow a power to aspire to hegemony (Strange, 1988; Wallerstein, 1984; Arrighi and Silver, 1999; Kai, 2017; Wohlofth and Brooks, 2016; Beckley, 2018), it is possible to analyse whether the capabilities of the Chinese economy are close to those of the United States. Thus, a comparison of the mentioned countries and their productive, technological, commercial, monetary-financial and military areas will be made (Strange, 1988; Wallerstein, 1984; Arrighi and Silver, 1999; Kai, 2017; Wohlofth and Brooks, 2016; Nye, 2020). Along these lines, it is possible to quantify whether China already has sufficient material capabilities to be able to compete with the United States and, specifically, which areas are the most critical in this dispute.

For this proposal, data from various sources will be used, such as World Bank, (Feenstra, Inklaar and Timmer, 2020), World Intellectual Property Organization (WIPO), Organisation for Economic Co-operation and Development (OECD), (Kim, Lee and Kwak, 2020), World Trade Organization (WTO), International Monetary Fund (IMF) and SIPRI Military Expenditure Database.

### 4. Results

China has overtaken the US as the leading economic power in terms of GDP in purchasing power parity (Figure 1), although it is still lagging when measured in constant dollars (Nye, 2020). The main difference between the two countries is still in GDP per capita (Figure 2), with the US at over \$65,280 compared to China's \$16,784, i.e. the Asian country is in the middle-income group (Nye, 2020).



#### Figure 1. GDP in purchasing power parity in dollars

Source: World Bank.

In terms of growth, according to IMF data, China's average growth rate has been 10%, compared to 3.05% for the US in the period 1980-2007 and 8% to 1.68% between 2008 and 2019, respectively. China's rates are expected to decline in the future, although they remain higher than those of the US (Li, 2017). Overall, according to IMF data, the trend shows a shift of global GDP from West to East, with China leading the way with 21% in 2024. In terms of the size of the top companies, China is the economy with the largest presence among the world's 500 largest companies (Global Fortune 500), up from just three in 1995. However, the international presence of US companies is much larger (Liu and Tsai, 2020).





Source: World Bank.

Productivity in both economies (Figure 3) has grown faster in China than in the US in recent years. Specifically, the transformation of the Chinese economy has allowed productivity to reach 30 per cent of the world frontier in 2018, up from 15 per cent in the 1990s (Zhu, Zhang and Peng, 2019), although it is still far from Washington levels (Li, 2017).

,,



#### Figure 3. Labour Productivity per person employed

Source: (Feenstra, Inklaar and Timmer, 2020).

In both countries there is a trend towards industrialisation (Figure 4), with China 's industrial sector twice as large as that of the US. Despite the fact that, overall, industrial productivity is about 1.3 times the productivity of services (Zhu, Zhang and Peng, 2019), the Chinese industrial sector has a lower value added than the US; thus, although the industrial sector is larger, it is less productive.

Consequently, as Zhu, Zhang and Peng (2019) mentioned, productivity growth in China will have a gradual downward trend as they approach the global productivity frontier, reaching 57% of the frontier in the industrial sector and 44% in the service sector at present (Zhu, Zhang and Peng, 2019).



Figure 4. Value added of the industrial sector as a percentage of GDP.

This point becomes even more important for China, as the country is in the process of changing its growth model, which aims to increase the weight of the domestic market by increasing consumption and high valueadded production (Li, 2017; Wagner, 2019, Klein and Pettis, 2020). This is due to the exhaustion of the model that allowed Beijing to grow at rates of 10%, based on high levels of investment and low value-added production (Li, 2017, Klein and Pettis, 2020). However, according to Klein and Pettis (2020), the slowdown in population growth implies the need to grow more intensively (by increasing productivity) and improve Chinese citizens' lifestyle with a greater distribution and redistribution of surplus, thereby increasing domestic consumption to shape more sustainable growth (Klein and Pettis, 2020).

One of the most important areas of hegemonic confrontation is in technology. As Kim, Lee and Kwak (2020) and Lewis (2018) point out, the focus of power disputes today is not military force or territorial expansion,

Source: World Bank

#### HUMAN Review, 2022, pp. 6 - 13

but the dominance of global rules and institutions in trade and technology. Specifically, the struggle is centred on the creation of new technologies, such as 5G and Artificial Intelligence, which are a fundamental part of the technological conflict between China and the US (Kim, Lee and Kwak, 2020). (Kim, Lee and Kwak, 2020).

In the last decade, the Chinese authorities have focused on what Hu Jintao called "Scientific Development", a plan to bring China up to the technological level of the world's leading powers (Molero-Simarro, 2014). In general, China's strategy is framed by techno-nationalism (Kim, Lee and Kwak, 2020), i.e. the main objective is to reduce dependence on foreign technology and turn the Asian country into a technological superpower, as part of the change of growth model. This has materialised in various projects, such as "Made in China 2025" (Wagner, 2019), which have been criticised by the US authorities, as competition in the production of high value-added goods is perceived as a threat to US hegemony (Xuetong, 2020).





#### Source: OECD

China 's strategy is reflected in the progress in research and development investment (Figure 5). Although Beijing has progressively increased the amount invested, the US still leads this indicator. Similarly, China is the top country in terms of researchers and scientific publications (Global Innovation Index, 2018). These improvements allowed China to lead in the number of patents for the first time since data has been available (Figure 6). However, the Human Capital Index based on years of schooling and educational attainment (Figure 7) shows the US outperforming the Asian country with an index of 3.7 to 2.5 (Feenstra, Inklaar and Timmer, 2020).

Furthermore, when comparing the technological development of the two countries, overall, the Global Innovation Index (2020) ranks the US as the third best performing country, while China ranks 14th. However, among middle-income countries, the Asian country comes first. This is reflected in more specific aspects that the index assesses as an indicator of innovation leadership. For example, in the sub-ranking of institutions and infrastructure, China is in 62nd and 36th place, respectively, compared to 9th and 24th position for the US. Similarly, in the sub-ranking of innovation and technological production, the Asian power rises to 7th place compared to 3rd place for the US.



Figure 6. Number of patents registered by country.

Source: WIPO

On the other hand, in relation to the technological conflict between China and the US (Vlados, 2020), one of the main concerns has been the development of 5G technology, in addition to advances in Artificial Intelligence. The race for leadership in these technologies is not only important economically, but also geopolitical and geo economically, as they are set to be the backbone of the global economy (Castro, McLaughlin and Chivot, 2019; Xuetong, 2020).





Source: (Feenstra, Inklaar and Timmer, 2020).

As Kim, Lee and Kwak (2020) point out, due to the technology push strategy, the Asian country has managed to lead in the development and application of disruptive technologies, accounting for one-third of all 5G-related patent applications in the world (Kim, Lee and Kwak 2020). Huawei leads in the number of 5G patents, with 15% of the total (Figure 8) and ZTE more than 11%, with Qualcomm, with more than 8% of the total, being the top US company. As a result, the US has focused its attacks on companies such as Huawei and ZTE, as well as promoting the blocking of these companies among its allies, albeit with limited success (Xuetong, 2020). In fact, countries in Europe, Africa, the Middle East, and the Americas allowed the use of Huawei's 5G equipment in the creation of 5G infrastructures (Feng, Cheng and Wilburn, 2019; Kim, Lee and Kwak 2020).



#### Figure 8. 5G patent holders.



The advantage Chinese companies are gaining will be key to leading the global market and earning royalties from the 5G patents they hold (Lee and Kwak 2020). Moreover, as 5G is set to be the skeleton of the new industrial revolution, these patents will also be used in smart cities and factories, autonomous/connected cars, or smart homes (Lee and Kwak 2020).

In relation to other emerging technologies that will be key to the Fourth Industrial Revolution, in general, the US continues to maintain some advantage. According to the analysis of Castro, McLaughlin and Chivot (2019), the US leads in hardware development, although China is beginning to close the gap in the manufacture of supercomputers and artificial intelligence semiconductors. In particular, the US is in a supercomputer race with China, and the former's position in developing the world's fastest supercomputers demonstrates both its strengths and China's growing capabilities (Castro, McLaughlin and Chivot, 2019).

In view of China's rapid technological development, since Trump took office in 2017, the United States has cracked down on the Asian country's high-tech industry supply chain, breaking its value chain and leading the "technological decoupling" (Song, Yu, Hao, & Chen, 2021). In the case of semiconductors, the coronavirus crisis accelerated the shortage of components, which, coupled with the US blockade of China's access to machines and intermediate inputs to manufacture these chips, has increased China's need to boost its technological autonomy (Song et al, 2021). This has been reflected in both the Biden Administration's measures to boost the sector and overhaul global value chains to eliminate China's presence, and China's efforts to gain autonomy in its production (Song et al, 2021). However, the Asian country is still far from ranking high on the chip value scale, with the most sophisticated chips being designed in the United States and produced in both Taiwan and South Korea (Garcia-Herrero and Ng, 2021).

Thus, China is increasing its capacity to develop disruptive technologies (as in the development of 5G, or Artificial Intelligence), although it has significant limitations in its ability to transfer it into an improvement in its overall technological capability, largely due to its weak institutional and infrastructural capacity (Brooks and Wohlforth, 2016).

With Donald Trump's accession to power, direct confrontations between the US and China became apparent through the trade war and the mutual imposition of tariffs (Vlados, 2020). The US government sought to reduce the bilateral deficit and justified its action by citing unfair trade practices, currency manipulation, intellectual property theft or forcing technology transfer from US companies to Chinese entities (Vlados, 2020).

In relation to hegemony, the key to the trade war is that the power that led the framework of trade globalisation in recent decades is attacking this construction. Indeed, globalisation was a key process in shaping trade and financial institutions, rules, norms, and standards around the world. Therefore, the fact that the US decided to break with this dynamic represents a qualitative shift, as the Trump Administration considered the maintenance of this international order a burden (Ikenberry and Nexon, 2019). In turn, this approach closed the stage in which both powers maintained a relationship of equilibrium and mutual gain (Steinberg, 2010).

Furthermore, in relation to trade links and the creation of a new parallel institutionality of both rules and agreements, China launched the Belt and Road Initiative in 2013 (Wagner, 2019). This macro-project consists of infrastructure investments in third countries to create maritime, land and digital connections, enabling China to increase its trade and diplomatic ties with the rest of the world (Wagner, 2019). Although this project was initially intended to be launched in Eurasia, China has reached agreements with countries on other continents, opposed by the United States (Wagner, 2019).



### Figure 9. Share of world merchandise trade



Precisely within the trade rules and practices that structured globalisation, China managed to become the world 's leading trading power (Li, 2017). If both countries are compared, according to WTO data, China is the world's leading trading power in terms of exports (Figure 9). More specifically, Beijing is the world's largest exporter of goods (12.8% of the world total) and the US the largest importer (13.2% of the total) and leads imports and exports in the services sector (Graph 10).







From a more geopolitical perspective, the trade links that each country has in the world are an important cornerstone of hegemony, due to its ability to influence other countries (Cooley and Nexon, 2020). Thus, taking 190 countries into account, if it is analysed which state is more important as a trading partner, China's growth since its entry into the WTO is remarkable (Rajah and Leng, 2018). In 2001, 80% of the 190 countries had a higher volume of trade with the US than with China. By 2018, two-thirds of countries trade more with China than with the US (128 out of 190). (128 out of 190). Specifically, about half of the 190 countries (90) traded twice as much with China as with the US (Rajah and Leng, 2018). (Rajah and Leng, 2018). However, despite China's large presence in world trade, when looking at value added in global value chains, the US has a larger presence in high-value sectors compared to China (Liu and Tsai, 2020).

Since World War II, the dollar has been the central currency in the international financial system, a fact that persists nowadays (Aglietta and Coudert, 2015). Specifically, in 2020, the dollar accounted for 62% of global foreign exchange reserves (Graph 11). The Chinese yuan is the fifth currency with 2% of the total, showing the non-correlation between the size of the Chinese economy and the international role of the currency. Moreover, according to data from various sources (Bank for International Settlements, IMF, and SWIFT), far from a weakening or loss of confidence in the dollar, in 2019 the US currency accounted for 54.1 percent of international lending, 40.8 per cent of global payments and 61.7 percent of foreign exchange reserves (Gourinchas, Rey and Sauzet,

2019). Thus, the Federal Reserve continues to act as the world's central bank, something that was reinforced after the 2008 crisis and the 2020 crisis (Brenner, 2020; Davies and Kent, 2020 and Norrlöf, 2020).



Figure 11. Global reserves by currency as a percentage of total in 2020

Source: IMF

However, for the rest of the world's countries, the supremacy of the dollar is a financial problem, as it forces them to hold reserves in this currency to have some flexibility in monetary policies, something that emphasises the strength and structural dominance of the US (Fields and Vernengo, 2011; Norrlöf, 2014 and Costigan et al., 2017). (Fields and Vernengo, 2011; Norrlöf, 2014 and Costigan et al., 2017).

In recent years, one of the countries with the largest reserves of US dollars and US Treasury securities is China, reflecting the Asian country's level of integration and dependence on the US currency (Klein and Pettis, 2020). With the aim of expanding its sovereignty and manoeuvrability in the financial area, China has initiated a process of internationalisation of its currency in order to reduce its dependence on the US dollar (Kwon, 2015; Barredo-Zuriarrain and Molero-Simarro, 2018). In this regard, the Asian power has promoted bilateral trade in the yuan with countries such as Russia, Iran, Venezuela, and Angola. Moreover, it has managed to have its currency included in the IMF's basket of currencies with Special Drawing Rights (Mathews and Selden, 2018).

As part of the gradual process of opening the financial system, China has signed bilateral and multilateral agreements to expand trade lines with at least 36 countries and created a yuan-denominated oil futures contract on the Shanghai International Energy Exchange (Barredo-Zuriarrain and Molero-Simarro, 2018). All this has allowed the yuan to rise from less than 1% of world reserves to 2% (Figure 11 and IMF data). Moreover, it has risen from 35th place in 2010 to between 5th and 7th place among the currencies most used in international transactions (Barredo-Zuriarrain and Molero-Simarro, 2018).

Although some authors such as Taskinsoy (2020) argue that the yuan is increasing its attractiveness as an international currency, it is far from being able to become a substitute for the dollar due to the particular structure of the Chinese economy (Barredo-Zuriarrain and Molero-Simarro, 2018; Klein and Pettis, 2020). Indeed, as Nörloff (2014) points out, even if the Asian powerhouse or other countries were to overtake the US in key respects, it is difficult to argue that the power of the dollar would diminish (Nörloff, 2014).

Similarly, according to Gourinchas, Rey and Sauzet (2019), in the short and medium term, the role of the dollar as the hegemonic currency is assured. However, since dollar liquidity is ubiquitous in international markets, with the declining relative size of the US in the world economy a new Triffin dilemma may emerge (Gourinchas, Rey and Sauzet, 2019). Thus, for Gourinchas, Rey and Sauzet (2019) the US will eventually become too small to provide safe dollar assets without exhausting its fiscal capacity.

As in the financial sphere, in the military area the United States remains the leader with the most powerful military in the world (Brooks and Wohlforth, 2016). In fact, according to the Global Fire Power index (2020), where the maximum score is 0, the United States ranks first with an index of 0.0606, followed by Russia with 0.0681 and China with 0.691. As Brooks and Wohlforth (2016) point out, while states may have some flexibility to rapidly increase investment in military equipment, the ability to increase actual military strength in the short term is very limited. This process would be similar to any investment in technological development (Brooks and Wohlforth, 2016).

Figure 12 shows how the United States outstrips China in total military spending. In proportion, according to SIPRI data, military spending amounts to 1.9 percent of Chinese GDP and 3.4 percent of US GDP, as well as 5.4 per cent and 9.4 per cent of total government spending, respectively. Despite the large differences, China's spending

has increased considerably in recent decades, doubling between 2009 and 2019 (SIPRI Military Expenditure Database).

As Brooks and Wohlforth (2016) point out, cumulative military spending over time produces levels of development that are difficult to match in the short and medium term, despite the existence of countries with high spending capacity. In other words, cumulative military spending over time generates a military stock that cannot be matched by increasing the flow of spending in the short term (Brooks and Wohlforth, 2016). It can therefore be concluded that the cumulative spending over the last decades by the US gives it a decisive advantage, something that China can hardly match despite the increase in spending in recent years (which is still far behind the US).



Figure 12. Military spending in 2019 in millions of dollars.



# **5.** Conclusions

Throughout this paper, the concept of interstate hegemony has been developed to apply it to the current context of a possible hegemonic succession between the United States and China. The analysis was carried out by comparing the material capabilities of the two economies in five categories: productive, commercial, technological, monetary-financial and military.

In this way, it has been possible to see how the size of the Chinese economy has reached the levels of the US in terms of GDP and trade, and even in specific and critical technological sectors such as 5G, but it is still far from catching up with Washington in terms of GDP per capita, productivity, technological development, presence of global value chains with high added value, or financial-monetary and military power.

The great rivalry has to do with China's plans to change the pattern of growth and move up the global value chain to become a technological powerhouse, leading the development of technologies that will mark the Fourth Industrial Revolution, such as 5G. The fact that China leads in the development of this technology has provoked a reaction from the US, applying a strategy of containment to curb Beijing's technological growth, manifesting itself in a trade and technology dispute since 2018. Under the leadership of Donald Trump and Joe Biden, a strategy of integration towards China (giving it more weight in decision-making and institutional design) has been declined, in favour of containment and disengagement. For its part, over the past decade China has also begun to create rules, institutions, and agreements parallel to the frameworks of the US order, such as the Belt and Road Initiative. Yet, while China's material capabilities are increasingly approaching those of the United States, the possibility of overtaking them is still distant.

## 6. Acknowledgments

Special thanks to Ricardo Molero and Stefano Visintin for their comments and suggestions. An earlier version of this paper was presented at the World Economics Association's Trade Wars After Coronavirus conference in October 2020. We are grateful for the comments received, although any errors that remain are our sole responsibility.

### UNITED STATES, CHINA AND THE DISPUTE FOR GLOBAL HEGEMONY: A COMPARATIVE ANALYSIS

# Referencias

Anderson, P. (2017). La palabra H. Peripecias de la hegemonía. Akal.

- Aglietta, M. & Coudert, V. (2015). El dólar. Pasado, presente y futuro del sistema monetario. Capital Intelectual.
- Agnew, John A. (2005). Geopolítica: una re-visión de la política mundial. Trama Editorial.
- Arrighi, G. (1994). The Long Twentieth Century: Money, Power and the Origins of Our Time. Verso.
- Arrighi, G. (2007). Adam Smith en Pekín. Orígenes y Fundamentos del Siglo XXI. Akal.
- Arrighi, G. & Silver, B. J. (1999). *Chaos and Governance in the Modern World System*. University of Minnesota Press. Barredo-Zuriarrain, J. & Molero-Simarro, R. (2018). ¿Está China frente al dilema de Triffin?, XVI Jornadas de
- *Economía Crítica*, España: Universidad de León.
- Brenner, R. (2020). Escalating Plunder, New Left Review, (123), 5-22.
- Brooks, S. G., & Wohlforth, W. C. (2016). The Rise and Fall of the Great Powers in the Twenty-first Century: China's Rise and the Fate of America's Global Position, *International Security*, *40*(3), 7-53.
- Cooley, A. & D. H. Nexon. (2020). *Exit from Hegemony: The Unraveling of the American Global Order*. Oxford University Press.
- Castro, D., McLaughlin, M. & Chivot, M. (2019). Who Is Winning the AI Race: China, the EU or the United States?, *Center for data innovation*. http://www2.datainnovation.org/2019-china-eu-us-ai.pdf
- Costigan T., Cottle D. & Keys A. (2017). The US dollar as the global reserve currency: implications for US hegemony, *World Review of Political Economy 8*(1): 104-122.
- Davies, S. & Kent, C. (2020). US dollar funding: an international perspective, *CGFS Papers*, (65), Bank for International Settlements.
- Dunford, M. & Liu, W. (2017). A Century of Uneven and Combined Development: The Erosion of United States Hegemony and The Rise of China, *MGIMO Review of International Relations*, *5*, 7-32. Doi: 10.24833/2071-8160-2017-4-56-7-32.
- Feenstra, R. C., Inklaar, R. & Timmer, M. P. (2020). The Next Generation of the Penn World Table, *American Economic Review*, *105*(10), 3150-3182. https://www.rug.nl/ggdc/productivity/pwt/
- Feng, E., Cheng, A. & Wilburn, T. (2019). 'China's tech giant Huawei spans much of the globe despite U.S. efforts to ban it, NPR. https://www.npr.org/2019/10/24/759902041/chinas-tech-giant-huawei- spansmuch-ofthe-globe-despite-u-s-efforts-to-ban-it.
- Fields, D. & Vernengo, M. (2011). Hegemonic currencies during the crisis, *The Levy Economics Institute and Economics for Democratic and Open Societies*, Working Paper, (666).
- Fusaro, L. (2019). Crises and Hegemonic TransitionsFrom Gramsci's Quaderni to the Contemporary World Economy. Brill.
- Garcia herrero, A. & Gary, N.G. (2021). The symphony of technology: Bifurcation is not yet possible in the semiconductor industry, *Asia Sectoral Research*, Natixis Research. https://www.research.natixis.com/Site/en/publication/cx2ZmzkPFxJxqLHzWH4\_ag%3D%3D
- Gilpin, R. (2001). *Global Political Economy: Understanding the International Economic Order*. Princeton University Press.
- Global Innovation Index (2020). The Global Innovation Index 2020: Who Will Finance Innovation? https://cutt. ly/tfOHv2P.
- Global Fire Power (2020). Military Strength Ranking 2020. https://www.globalfirepower.com/countries-listing. asp
- Gourinchas, P., Rey, H., & Sauzet, M. (2019). The international monetary and financial system, *Annual Review of Economics*, *11*(1), 859-893. doi:10.1146/annurev- economics-080217-053518.
- Harvey, D. (2003). *The New Imperialism*. Oxford University Press.
- Herrera, D. (2017a). Hegemonía y Relaciones Internacionales/I. Un estado del arte, *Revista de Relaciones Internacionales de la UNAM*, *127* http://www.revistas.unam.mx/index.php/rri/article/view/61145
- Herrera, D. (2017b). Hegemonía y Relaciones Internacionales/II. Aproximaciones teóricas críticas en el estudio de la hegemonía mundial, *Revista de Relaciones Internacionales de la UNAM, 128* http://www.revistas.unam.mx/index.php/rri/article/view/62242
- Ikenberry, J., G., & Nexon, D., H. (2019). Hegemony Studies 3.0: The Dynamics of Hegemonic Orders, *Security Studies*, *28*(3), 395-421, DOI: 10.1080/09636412.2019.1604981.
- Kai, J. (2017). *Rising China in a Changing World*. Power Transitions and Global Lidership. Palgrave Macmillan.
- Keohane, R. O. (2002). Power and Governance in a Partially Globalized World. Routledge.
- Keohane, R. O., & Nye, J. (1977). Power and Interdependence: World Politics in Transition, *Political Science Quarterly*. 93 (1), 132-134.
- Kim, M., Lee, H., & Kwak, J. (2020). The changing patterns of China's international standardization in ICT under techno-nationalism: A reflection through 5G standardization", *International Journal of Information Management*, 54, 102145. doi:10.1016/j.ijinfomgt.2020.102145
- Kindleberger, C. P. (1996). World economic primacy: 1500 to 1990, Oxford. Oxford University Press

Klein, M. & Pettis, M. (2020). *Trade Wars Are Class Wars*, Yale University Press.

- Kwon, E. (2015). China's Monetary Power: Internationalization of the Renminbi, *Pacific Focus*, *30*(1), 78-102. doi https://doi.org/10.1111/pafo.12038
- Lai, H. (2020). The Rationale and Effects of China's Belt and Road Initiative: Re-ducing. Vulnerabilities in Domestic Political Economy, *Journal of Contemporary China*, 1–18. https://doi.org/10.1080/10670564.2020.179 0896
- Lewis, J. A. (2018). *Technological Competition and China*. Centro de Estudios Estratégicos e Internacionales.
- Li, M. (2017). Profit, Accumulation, and Crisis: Long-Term Movement of the Profit Rate in China, Japan, and the United States, *The Chinese Economy*, *50*(6), 381-404. https://doi.org/10.1080/10971475.2017.137993 5
- Mathews, J. A., & Selden, M. (2018). China: the emergence of the petroyuan and the challenge to US Dollar hegemony, *The Asia-Pacific journal*, *16*(22), 1-12.
- Molero-Simarro, R. (2014). La distribución primaria como factor determinante de la relación entre crecimiento económico y desigualdad de la renta: el caso de la China de la reforma (1978-2007). [Doctoral Thesis]. Universidad Complutense de Madrid. https://eprints.ucm.es/25595/
- Norrlöf, C. (2014). Dollar hegemony: A power analysis, *Review of International Political Economy*, 21(5), 1042-1070, DOI: 10.1080/09692290.2014.895773
- Norrlöf, C. (2017). Hegemony, hierarchy, and unipolarity: Theoretical and empirical foundations of hegemonic order studies. In W. R. Thompson (Ed.), *Oxford research encyclopedia of politics*, Oxford University Press
- Norrlöf, C. (2020). Is COVID-19 the end of US hegemony? Public bads, leadership failures and monetary hegemony, *International Affairs*, 96(5), 1281–1303.
- Nye, J. S. (2020). Power and Interdependence with China, *The Washington Quarterly*, 43(1), 7–21. doi:10.1080/0 163660x.2020.1734303
- Orduna, L. (2007). "Las ideas de Keynes para el orden económico mundial, *Revista de Economía Mundial*, nº 106, pp. 195-223.
- Parmar, I. (2018). "The US-led liberal order: imperialism by another name?", *International Affairs*, 94(1), pp. 151-172
- Rajah, R., & Leng, A. (2018). The US-China Trade War. Who dominates global trade?, *Global Economic Futures* project at the Lowy Institute Lowy. https://interactives.lowyinstitute.org/charts/china-us-trade-dominance/us-china- competition/
- Rapkin, D. & Braaten, D. (2009). Conceptualizing hegemonic legitimacy", *Review of International Studies*, *35*(1), 113–149.
- Sanahuja, J.A. (2020). Hegemonía, crisis de globalización y Relaciones Internacionales. Concepciones clásicas y teorización crítica. En *El sistema internacional del siglo XXI. Dinámicas, actores y relaciones internacionales.* Tirant lo Blanch (pp. 19-51).
- Saull, R. (2012). Rethinking Hegemony: Uneven Development, Historical Blocs, and the World Economic Crisis, *International Studies Quarterly*, *56*(2), 323-338
- Schenoni, L. L. (2019). Hegemony, VVAA, *Oxford Research Encyclopedia of International Studies*. Oxford University Press / International Studies Association (ISA).
- Song, Y., Chunjiao, Y., Hao, L. & Chen, Xi (2021). Path for China's high-tech industry to participate in the reconstruction of global value chains, *Technology in Society*, *65*, 101486
- Steinberg, F. (2010). China, EE. UU. y el futuro de Bretton Woods II, *Revista de Economía Mundial*, (25), 109-129. Strange, S. (1988). *States and Markets*. Pinter.
- Taskinsoy, J. (2020). Diminishing Dollar Hegemony: What Wars and Sanctions Failed to Accomplish, COVID-19 Has, SSRN Electronic Journal. Doi: 10.2139/ssrn.3613367
- Wagner, H. (2019). On the (Non-) sustainability of China's Development Strategies, *The Chinese Economy*, 52(1), 1-23. https://doi.org/10.1080/10971475.2019.1580822
- Wallerstein, I. (1984). *The Politics of the World-Economy: The States, the Movements, and the Civilization*. Cambridge University Press.
- Winecoff, K.W. (2020). The Persistent Myth of Lost Hegemony, Revisited: Structural Power as a Complex Network Phenomenon, *European Journal of International Relations*, *26*(S1):209–252.
- Worth, O. (2020). The concept (s) of hegemony in *IPE The Routledge Handbook to Global Political Economy: Conversations and Inquiries.* Routledge.
- Xuetong, Y, (2020). Bipolar Rivalry in the Early Digital Age, *The Chinese Journal of International Politics*, *13* (3), 313–341, https://doi.org/10.1093/cjip/poaa007
- Zhu, M., Zhang, L. & Peng, D. (2019). China's Productivity Convergence and Growth Potential—A Stocktaking and Sectoral Approachs, Working Paper No. 19/263, *FMI*. https://n9.cl/3e0