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China's Economic Hegemony (1-2050 AD)

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Table of Content

Abstract

Strong economic growth in China and the concomitant increase in its share in global production constitute the most important geo-economic shift of the post war period. With the re-emergence of China as a truly global player discussions on Chinese world leadership have re-emerged. This paper takes a long-run economic-historic perspective and investigates global macroeconomic conditions indicated by theories of collective action and hegemonism (in particular [lack of] dominance in production and fragmentation of global production) in order to assess the future outlook for the production of global public goods. The importance of these measures follows from the fact that in a fully fragmented world economy public goods cannot be arranged. If the share of the hegemon or the leading group in the benefits provided by the global public good is low, then the public good is less likely to be produced. What will be the consequences of China's emergence for global governance, its efficacy and its sustainability?

Keywords

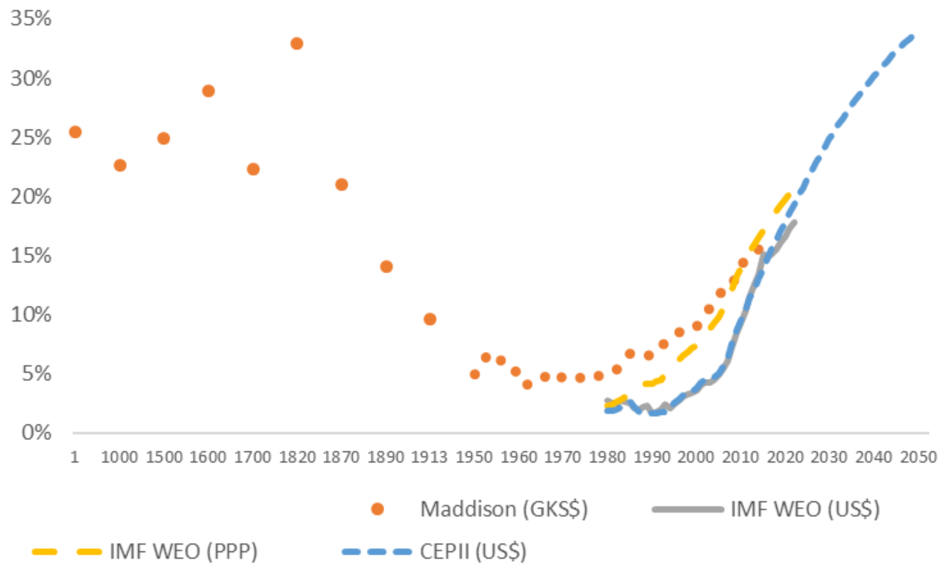
China, hegemon, global governance, concentration, Herfindahl.

China's Economic Hegemony (1-2050 AD)[1]

1 Introduction

Strong economic growth in China and the concomitant increase in its share in global production constitute the most important geo-economic shift of the post Second World War period. However, China's large share in global production is not a completely new phenomenon as illustrated in Figure 1. Indeed, from a perspective spanning more than twenty centuries, China's emergence since the start of the Third Millennium is a return to *status quo ante* (see, e.g., Golub 2016). Until the 18th century China's share in global production was circa a quarter (Maddison, 1995). At the start of the Industrial Revolution its share was about a third.

FIGURE 1
China's share in world production (1-2050 AD)



Sources: Updated estimates of Maddison (1995) in Internationale Geary-Khamis Dollars by Bolt et al. (2018) IMF World Economic Outlook October 2017 in PPP and current US dollars and MaGE 2.1 model output by the Centre d'Etudes Prospectives et d'Informations Internationales CEPII (Fouré et al., 2012).

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[1] A Dutch language version that covers parts of this paper appeared as P.A.G. van Bergeijk, 'China als Hegemoon' 13-2-2018 *Economisch Statistische Berichten* **103** (4758), 56-59, available at: https://esb.nu/esb/20037400/china-als-hegemoon. This paper updates the discussion in Chapter 13 of Van Bergeijk (2013). Useful comments by S. (Cape) Kasahara, Selwyn Moons, Frans-Paul van der Putten and Ward Warmerdam are gratefully acknowledged.

From this perspective a share in global production of 20 to 30 percent could be considered to be a long-run equilibrium for China. This paper investigates the implications of the re-emergence of China for global governance, in particular the production of global public goods.

1.1 A caveat on the data used in this analysis

A caveat is in order at the start of this paper. Data sources are scarce. Before the Second World War the number of years for which sufficient data on production in China (typically an estimate of Gross Domestic Product, GDP) and the world economy (GPP or Gross Planet Product; see van Bergeijk 2013) are available is limited; starting with the 1950s annual data are available.

When we take the long-run perspective, as for example in Figure 1, typically three data sources are combined. Maddison's historical series (updated by Bolt et al. 2018) are reported in International (Geary Khamis) Dollars, the estimates of the International Monetary Fund are reported in Purchasing Power Parity (PPP) and in current US dollars, as are the forecasts of the MaGE 2.1 model[2] of the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII).

The underlying methodologies and units of measurement differ and although we are interested in shares (so in percent and thus without a dimension) this is not a minor problem. Each data source has its own merits and problems. Sometimes estimates are 'consistentized'. Such procedures imply that rates of growth based on National Accounts are 'adjusted' by data producers in order to ensure that international comparisons of levels of GDP in PPP at certain moments in time are being met (van Bergeijk 1998). This creates inconsistencies between the 'adjusted' rates of growth and the official National Accounts-based numbers. Measurement errors are substantial for GPP also for long-run growth rates (see van Bergeijk 2017 on IMF World Economic Outlook data). Macroeconometric models such as MaGE are vulnerable to the Lucas Critique (Lucas 1976) that structural change and transformation impact on the coefficients that drive the model and thus the results.[3]

With this caveat in mind and despite all the methodological differences the agreement of the four series is striking: China will return to its historic share in

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[2] MaGE stands for **Ma**croeconometrics of the **G**lobal **E**conomy.

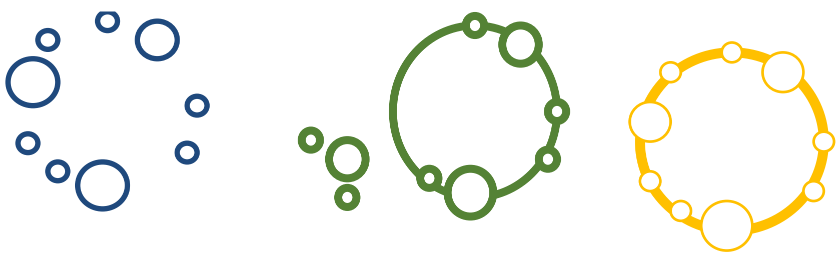
[3] The validity of the Lucas Critique is, however, a hardly tested axiom (van Bergeijk and Berk 2001). It is moreover important to recognize that MaGE as any macroeconometric model can take feedback mechanisms into account and therefore goes beyond simple extrapolation of existing trends (China's 2013 growth rate of 8% *per annum* would, for example, result in a 21 fold increase in GDP by 2050; in the MaGe model the increase is 'only' 8-fold and incidentally in line with China's 2018 6.5% growth rate forecasted by the IMF). The endogeneity of growth rates is important in view of criticism on constant growth extrapolation (see, e.g. Nye 2010).

global production in the foreseeable future. The difference between the series is thus not about what happens but only about when this happens.[4]

1.2 Global governance and global public goods

Recently policy makers have started to pay more attention to the occurrence of multipolarity (a system with several lead economies) and its implications.[5] World governance in a multi-polar system requires that small states align with large states while the poles in the system basically compete (although co-ordination and cooperation are possible of course) (as illustrated in the left-hand panel of Diagram 1). The multi-polar world has both in Development Studies (Lin and Rosenblatt, 2012) and in International relations (Callahan 2008) been linked to the role and rise of China. De facto the multi-polar world that many observers see developing, however, is actually a multi-system world because many important countries are not included in the formal global decision-making institutions (middle panel Diagram 1). Consequently, regional governance systems are developing that compete with (multilateral) forms of global governance. Thus we have seen, for example, regional initiatives to organize regional alternatives to the IMF and the World Bank. A negative scenario is that power is not (or too slowly) handed over to the big emerging economies because that will obviously stimulate them working towards new and different forms of global governance and institutions, that are based on other norms, values and rules. The key challenge for old hegemons actually is to accept the emerging countries as peers and thereby strengthen the legitimacy of global governance in the long run.

Diagram 1
Multi-polar (left), multi-system (middle) and multi-lateral (right) governance



Source: Van Bergeijk (2013), Diagram 14.1 p. 163

[4] Note that the selected CEPII data are in current US dollars and that it is the current US dollars series of the IMF that is the last series to indicates the turnaround in China's share. Therefore the CEPII forecasts could be seen as conservative.
[5] The World Bank (2011) study *Global Development Horizons 2011: Multipolarity - The New Global Economy* is an early example.

The rise of populous economies such as China and India, is one of the drivers of multipolarity. This raises the question of the uniqueness of China's economy. Can its growth trajectory be followed by other countries? The argument to be developed in this paper is that China is unique, not because its policies cannot be followed or because other countries cannot catch up (because they can and do; see Nayyar, 2013), but because from a historic long-run perspective China was and will in all likelihood be in the driver's seat of the world economy.[6] This paper focusses on the share of the leading economies in GPP as the determinant of global public good provision. Taking a longer time perspective, the key issue is not multipolarity but hegemony, although it may be possible to develop and alternative for hegemony if a small group of leading economies can work closely together to provide the necessary governance and global public goods. This paper studies the impact of China's rise for global governance, investigating the potential for China becoming the new hegemon.

The governance of the international system and the relationships between independent states are changing substantially. In need of a practical definition of governance I am quite happy to use Bell's 2002 description of governance as "the use of institutions, structures of authority and even collaboration to allocate resources and coordinate or control activity in society or the economy". The shifting economic balance of power will affect one of the most important global public goods: the rules, regulations and institutions that govern the world economy. Section 2 sets the stage discussing some theories of global public goods and the role of the hegemon. Section 3 measures dominance and fragmentation in the world economy. These measures are relevant for analyses of hegemonism and multi-polarity because they express the costs of organizing public goods in the sense that these measures indicate the technical possibility for sufficient economic mass amongst the largest players. In a nutshell: the importance of these measures follows from the fact that in a fully fragmented world economy public goods cannot be arranged. Section 4 provides a further empirical analysis as it discusses the change of hegemonic status focussing on the present hegemon US and the emerging hegemon China.[7] Section 5 investigates implications of the geo-economic and geo-political shifts. Section 6 concludes highlighting our findings regarding the key research question of this paper: What will be the consequences of China's emergence for global governance, its efficacy and its sustainability?

[6] Multi-system governance logically makes the production of global goods more difficult (although it allows for the production of regional public goods even at a cross continental basis, See Cheng, 2016). This is an additional reason to focus on the two largest economies in the world today.

[7] We will not study the European Union, because as a consequence of Brexit the EU share in the world economy always stays below that of the US and China.

2 Global Public Goods Provision and the Need and Opportunities for Collective Action

Global institutions and norms, rules and regulations constitute the basis for a well-functioning world economy. Examples include amongst others the United Nations Framework Convention on Climate Change (see http://unfccc.int/paris_agreement/items/9485.php), rules against economic discrimination provided by the World Trade Organization (see http://www.wto.org/english/docs_e/legal_e/04-wto_e.htm) or the labour standards provided by the International Labour Organization (see http://www.ilo.org/global/standards/lang--en/index.htm) These forms of governance are important facilitators if not drivers for global economic cooperation and the global division of labor. Indeed, the global economy cannot flourish without such global public goods. Clearly these institutions and rules are public goods because

- they cannot be made excludable: the rules are available and unavoidable to all; consumers and users can neither be made to pay for the global public good nor escape from the global public bad (or only at extremely high costs).
- the consumption and use of global institutions, norms, rules and regulations are non-rival in the sense that consumption of additional units by others does not increase the costs of providing this global public good (or the additional costs are near zero). Similarly, this does not reduce the quantity available to others.

Clearly such global public goods do not develop in a void, but are the consequences of negotiation, compromise and cost sharing between nations.[8]

Mancur Olson (1965 and 1982) developed the theory of collective action. His work is still one of the main tools to analyze the mechanism of cooperation in public goods provision both within countries and between governments. Olson's key argument is that the free rider problem is a challenge for collective action because rational beneficiaries that cannot be excluded from the consumption of public goods have no incentive to share in the costs of its provision. Consequently, according to Olson, only small and coherent groups can and will effectively engage in collective action (provided that it is mutually beneficial). As a collar, public goods will typically be underprovided when the proceeds are divided by (too) many and cannot be appropriated by the key producer(s). Olson applied his analysis to international organizations such as NATO substantiating that the theory of collective action fits the international domain well. It was Charles Kindleberger who argued that the problem of

[8] Sometimes global public goods are provided by NGOs. The Bank Identifier Code provided by the Society for Worldwide Interbank Financial Telecommunication (SWIFT) and your IP (internet address) provided by the Internet Corporation for Assigned Names and Numbers (ICANN) are examples of public goods that are essential facilities for the proper functioning of the world economy.

public good provision was even more pronounced at the international level pointing out that the

> *'tendency for public goods to be underproduced is serious enough within a nation bound by some sort of social contract, and directed in public matters by a government with the power to impose and collect taxes. It is (…) a more serious problem in international political and economic relations in the absence of international government.'* (Kindleberger, 1986, p.2)

Kindleberger (1981, 1986) argues that global public goods will only be produced by a hegemon with enough economic power both to originate and to support the norms, values, standards, and other global public goods. Sandler (1998) identifies a small number of essential countries and the presence of an influential leader as prerequisites for supranational collective action. In this view a natural candidate for judging the future possibilities for public good provision is the share in the benefits that a leading country (or group of homogeneous lead countries) can expect from providing the global public good. In short, if the share of the hegemon or the leading group in the benefits provided by the global public good is low, then the public good is less likely to be produced.

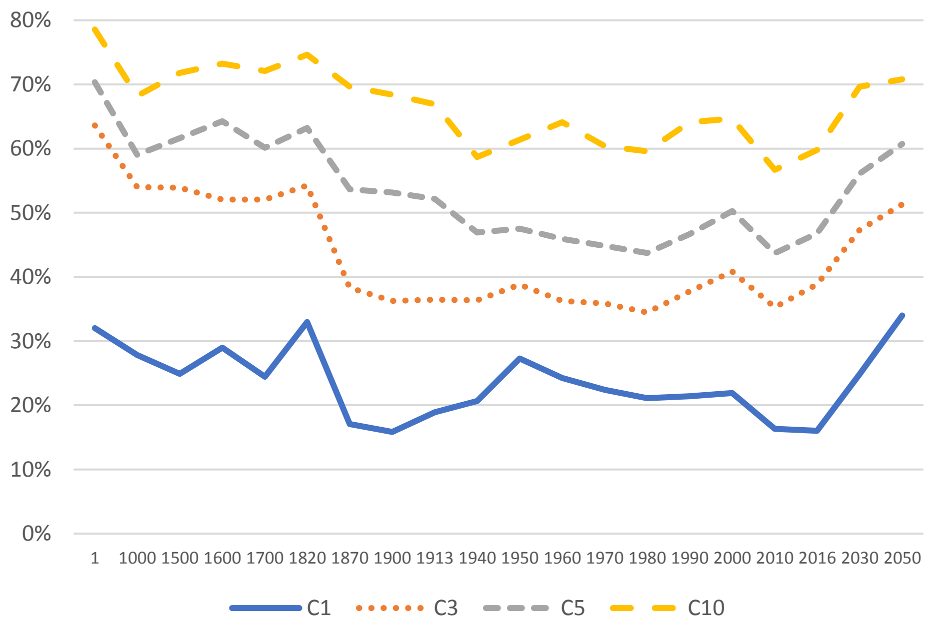
It is, however, not easy to measure the share in the benefits so an auxiliary hypothesis is necessary: the benefits are in proportion to the hegemon's share in GPP. The motivation for this working assumption is straightforward. First, if the public good is necessary for production, then it follows directly that the benefits are proportional to the share in GPP. Second, if the benefits that can be derived depend on economic or market power, then the share in GPP is also relevant as an indicator of economic dominance, but from this perspective it is not only the share of the hegemon but also the shares of the other countries that are important. The intuition reflects that market power is the power to influence the market outcome to one's benefit and this is exactly what a hegemon aims to do. [9] Note that this argument fundamentally differs from the traditional interpretation of the conditions for collective action, namely that it would be too low a group size that makes the provision of global public goods difficult. The point is thus that it is not only the group size but also the fragmentation both of the leading group and of the rest (so the non-leading countries) that matters. Therefore, we will study both the size of the hegemon and the fragmentation of global production in the next sections.

[9] This is much in line with competition policy analyses: economic dominance in a concentrated market can be achieved by a smaller lead firm than in a comparatively speaking more fragmented market; see van Bergeijk and Haffner 1996

3 Dominance and fragmentation in the world economy

In this section we will take a numerical approach to the economic-systemic characteristics in order to assess the future potential for global public good provision. Figures 2 and 3 present five key statistics that have been developed in industrial economics to measure market power (that is: the power to influence the market outcome). Hegemons only have the power to change institutions, rules and regulations if they have sufficient clout.[10]

FIGURE 2
Share of largest 1, 3, 5 and 10 economies (1-2050 AD)



Source: Calculations based on Bolt et al. (2018) and Fouré et al. (2012)

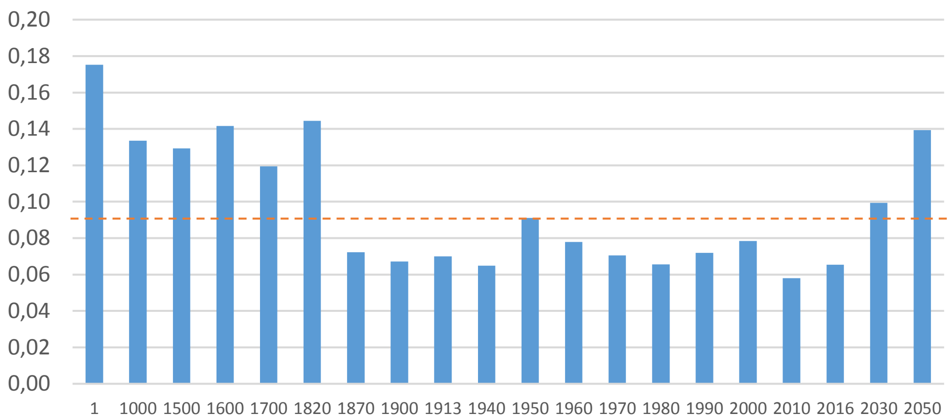
Figure 2 reports a first set of concentration measures in the form of so-called C_N – concentration ratios that are defined as the share in GPP of the N biggest producing economies (I use N = 1, 3, 5 or 10, so a range that runs from 1 (for the single largest economy or hegemon) to 10 (the share of the ten largest economies, say the G10 of the time). The most dynamic power shifts occur for the largest economy as shown by the C_1. This is of course not the same economy in all periods: before the 19th century China consistently had the largest share in GPP, the Industrial Revolution brings the UK (actually the British Empire) to the fore and at the end of the Second World War the US emerges as the hegemon. It is relevant to note that the share of the largest

[10] Mansfield (1992) uses an adjusted Herfindahl index that corrects for the number of countries. Note that the C_N ratios are not influenced by the number of economies.

economies decreases due to the Financial Crisis and its heterogeneous impact on growth rates in the Global North and Global South.

Figure 3 presents our second indicator, the Herfindahl index because the dominant economy is contested by a power that grows equally large in terms of its share of GPP. The Herfindahl index is defined as the sum of the squared shares. In this case the share Ω_i is the GDP of economy i in per cent of GPP. The Herfindahl index equals $\sum \Omega_i^2$. If there is one producer the Herfindahl index is 1 and if production is fully atomistic the Herfindahl index approaches 0. The advent of new hegemons is reflected in a reduction of the Herfindahl index (technically this due to the weakening of the existing hegemon and the strengthening – at a lower level – of the emerging hegemon) as we see happening at the start of the Industrial Revolution and during the Interbellum.

FIGURE 3
Herfindahl concentration index world economy (1-2050 AD)



Source: Calculations based on Bolt et al. (2018) and Fouré et al. (2012)

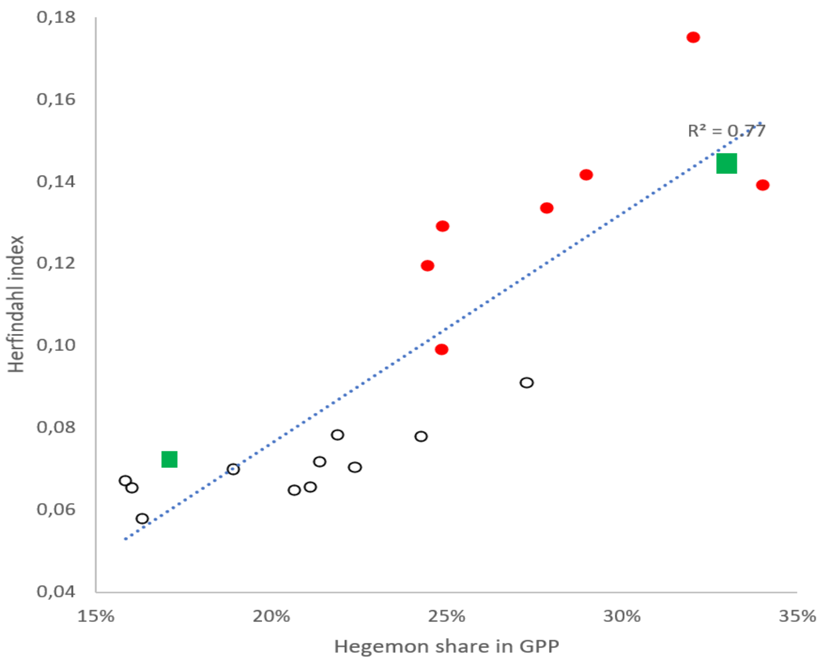
Note: the dashed line is the long run (historic) average.

Figure 3 illustrates that fragmentation has been relatively high since the industrial revolution. As of 1870 the Herfindahl index has values that are characteristic for situations with many players and a market outcome that is 'competitive'. The advent of British hegemony in 1820 is reflected in a higher Herfindahl index, because the dominant country China is, so to say, contested. By 1870 concentration and potential for dominance have decayed (this drop is statistically significant at the 99% level). The end of the Second World War brings US hegemony and the Herfindahl index increases again, but in the 1960s decay sets in. One issue that is worth further exploration is the idea that it is the openness of the interational system that enables both the emergence of a new hegemon and the speeding up of globalization. One of the hypotheses to be developed further is that an existing hegemon reacts to the treat of being replaced by retreating to open and hidden protectionism and/or isolationism.

Figure 3 shows that the Herfindahl concentration index bottoms out in the 1980s reflecting stronger growth in the periphery – suggesting the advent of a new hegemon. The new hegemon around 2050 will be in a fundamentally different position than the US has ever experienced as the predicted Herfindahl is above its long run average.

Of course, an obvious relationship exists between the share of the largest economy and the extent of concentration in the world economy as measured by the Herfindahl index (see Figure 4). At one side of the spectrum we find a single economy that completely covers the planet (so a 'global monopoly' with a share of 100% in GPP). This extreme case yields the theoretical maximum for the Herfindahl index of 1 ('prefect concentration'). On the other side of the theoretical spectrum, where all economies have a similar size, we observe an Herfindahl index of almost zero.[11] The point that this paper attempts to make is thus not to deny this relationship, but rather to draw attention to the fact that a hegemon will *ceteris paribus* be more effective (powerful) if for a given level of its share in global production the world economy is less fragmented.

FIGURE 4
Herfindahl index versus hegemon share (1-2050 AD)



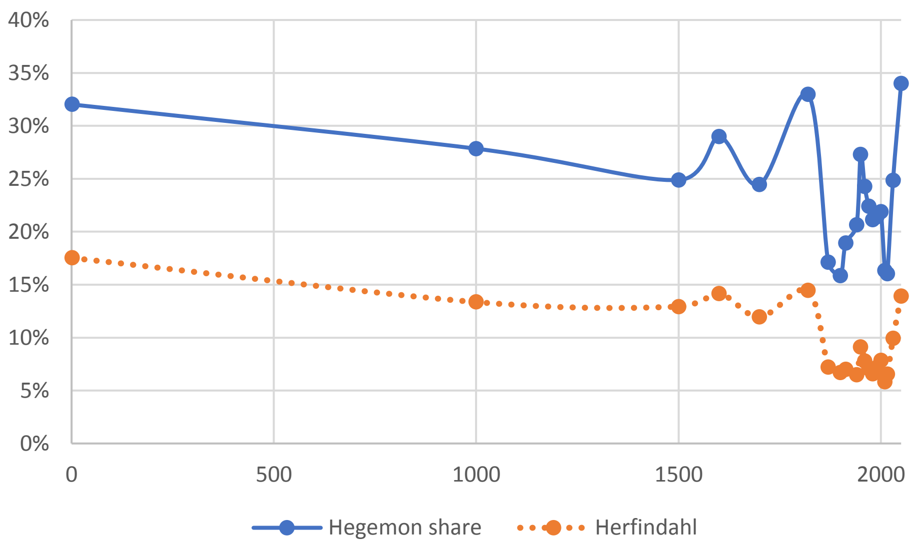
Source: Calculations based on Bolt et al. (2018) and Fouré et al. (2012)

Note: The three hegemons are indicated as follows: Red markers (round): China; Green Markers (square): British Empire; White markers (round) USA,

[11] If *N*, the number of counties, approaches infinity the Herfindahl approaches zero from above. Since the number of economies is limited in the current situation the empirically relevant minimum for the Hirfendahl is about 0.005.

Next, Figure 5 provides a historic overview of the global production share of the largest economy and the concentration in the world economic system. The period from the Industrial Revolution until the start of the third Millennium stands out as a structural break in which the Herfindahl index is most of the time at a historical low level (with a possible exception at the start of the 1950s).[12] With respect to the global production share of the leading economy it is important that China will become the leading economy, but equally important is that it will take until the 2040s before its global production share matches the level that the United States had at the start of 2000s.

FIGURE 5
Dynamics of the GPP share of the largest economy and the Herfindahl index of concentration of the world economy (1-2050 AD)



Source: Calculations based on Bolt et al. (2018) and Fouré et al. (2012)

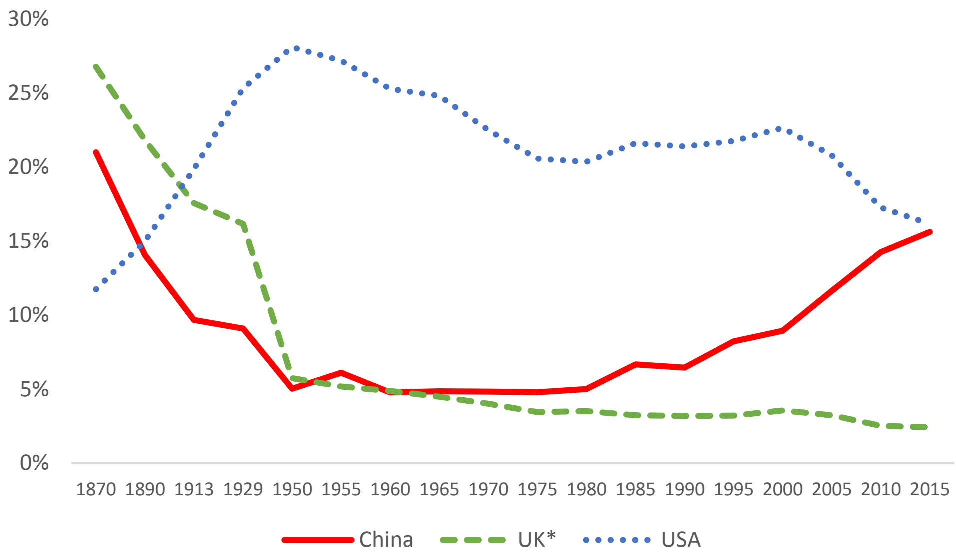
[12] A similar pattern emerges for the C_N ratios in Figure 2.

4 From Hegemon to Hegemon

It is increasingly clear that China is becoming the largest economy of planet Earth. It is already the case in terms of population and international trade and is almost the case or it will soon be the case in terms of share in GPP.[13] From a historic perspective this is China's natural position as said before. Only in the nineteenth century China lost that position to the British Empire and after the Second World War the US captured the lead.

Figure 6 illustrates how the position of hegemon is handed over. As in the 1930s we see that the eminent change at the top takes place in the context of a crisis and a slowdown (if not break down) of an era of globalization (van Bergeijk 2018). In the 1930s the US undercut economic power of the British Empire. Today we witness how the re-emergence of China challenges the position of the US.

FIGURE 6
Hegemon share in GPP 1870-2016



Source: Calculations based on Bolt et al. (2018)

Note: UK before 1950 covers British Empire

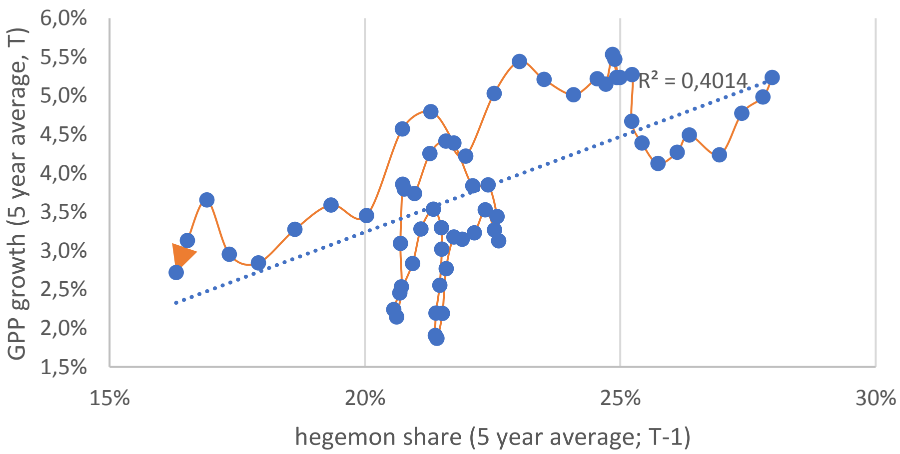
4.1 Old hegemon

It may very well be that hegemonism already carries the seeds of its own destruction because the hegemon acts as the guardian of stable trading conditions in an open system thus allowing competing nations to expand and

[13] According to CEPII's MaGE 2.1 predicitions this happens in 2021.

contest the hegemon position.[14] Relatedly, the existing hegemon may react to the treat of being replaced by a retreat to open and hidden protectionism and/or isolationism. Eroding hegemony may thus lead to systemic closure (Mansfield 1998). This pattern can actually be observed in the recent policy changes of the US. At yet another level the efficiency of the hegemon in terms of its impact on global growth may be relevant (or alternatively the impact of contestation of the leading position on global growth). Indeed, some indications exist that the efficiency of the US as a hegemon had already decreased substantially from its heydays in the 1950's.

FIGURE 7
Hegemon (US) and global economic growth 1953-2013, centred 5 year moving averages



Source: Calculations based on Bolt et al. (2018)

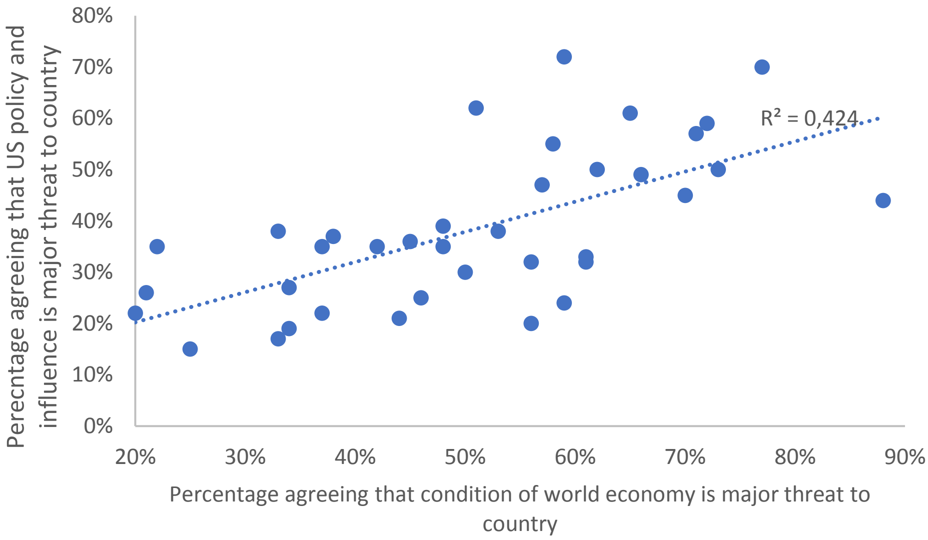
As illustrated in Figure 7 the hegemon's GPP share exceeded 25% in the years following the Second World War and global growth on average was 4.6% p.a.; more recently in particular since the US share in GPP decreased to below 20% global growth has been 3.4% p.a. only.[15]

[14] This is the more true since the US has not always been a benign hegemon, but also a self-centred hegemon as shown by the examples of its uneasy relationship with the International Court of Justice and the global trade and investment institutional framework from which in the end the World Trade Organization emerged (van Bergeijk 1994)

[15] Numbers based on 5 year moving averages calculated from Bolt et al. 2018. Note that concentration of growth substantially decreased (so heterogeneity of growth rates increased) since the 1970s (Lin and Rosenblatt 2012; Bergeijk and Marrewijk 2013).

Interestingly, global attitudes to the hegemon are reflecting this as well. Figure 8 illustrates that respondents that are worried about the condition of the world economy are also more likely to consider US influence and policy to be a major threat for their economy.

FIGURE 8
Global attitudes (world economy, US influence and policy, 2017, 37 countries)



Source: Calculations based on Poushter and Manevich (2017)

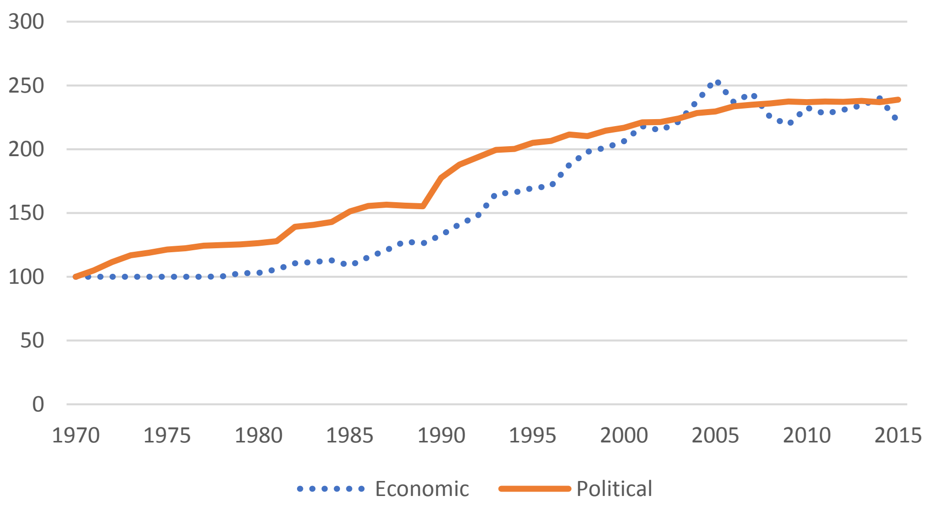
Notes: survey conducted among 41,953 respondents conducted from Feb. 16 to May 8, 2017 Countr coverage: Argentina, Australia, Brazil, Canada, Chile, Colombia, France, Germany, Ghana, Greece, Hungary, India, Indonesia, Israel, Italy, Japan, Jordan, Kenya, Lebanon, Mexico, Netherlands, Nigeria, Peru, Philippines, Poland, Russia, Senegal, South Africa, South Korea, Spain, Sweden, Tanzania, Tunisia, Turkey, UK, Venezuela, Vietnam

4.2 New hegemon

In addition to economics, other fields of social sciences are of course relevant as the dynamics of hegemonism also relate to international relations, political science, and sociology. The importance of the other factors can be illustrated by China's leading role in politics and trade as, for example, illustrated by the millennia-spanning history of the Silk Road (Barisitz 2017) that linked the East (the Orient, in particular China) and the West (the Occident, in particular the Mediterranean area). The Road was not an actual road but rather a network of potential geographical connections and its efficacy to function as a mode for transcontinental trade to a large extent depended on heterogeneous and changing institutional conditions. Indeed, its ability to truly connect required that each of its heterogeneous network elements was reasonably safe and stable. Therefore changing conditions of time and place are associated with periods in which the Road is a stronger trade route and periods of relative decline. Its continued re-emergence time and again testifies of the importance of historic conditions for international trade that echoes in the recent Chinese plans to create a China-centred trading network (the One Road, One Belt initiative) that aims to increase connectivity of the Eurasian countries.

The pivotal role of China for the success of the Silk Road, as well as the importance of political factors that determine the extent of Chinese opposition or support for the Road again points out that there is more to hegemonism than a large share in world production. The recent revival of the Silk Road in the context of the Asian Infrastructure Investment Bank (AIIB) also illustrates that there is more to globalization than pure economics as China is clearly also trying to expand its dispute settlement procedures in the region (Chaisse and Matsushita, 2018).

FIGURE 9
China's globalization (economic *vs.* political 1970-2015; index numbers 1970=100)



Source: http://globalization.kof.ethz.ch Accessed January 9, 2018

China's role as a hegemon (although it did not govern all corners of Earth) ends when the Ming Dynasty deliberately chose for isolationism fighting modern foreign influence and with political and economic autarky as a result (Kennedy, 2010). Also, the Communist Party initially to a large extent isolated China, either by choice or forced by COCOM sanctions initiated in 1950. Choice was the more apparent from the China-USSR conflict in the 1960s and the Cultural Revolution. Consequently, China maintained a policy of self-sufficiency, but this did not mean that it strictly maintained isolationism. Particularly, after Beijing managed to replace Taipei to represent China in the UN in the early 1970s, China began to interact more actively – directly or indirectly – through Hong Kong, with many Southern countries as well as some Western countries. The clear break in policy, however, did not come until the creation of Special Economic Zones in the mid-1980s where experiments with international trade and foreign investment were allowed. In the 1990s a jump can be observed in political globalization (including the membership of the World Trade Organization) and from then on China continuously and deliberately strengthens its role as one of the world's leading economies. Figure 9 corroborates that this is an intentional and strategic change because the movement in political globalization predates and leads the development in economic globalization.[16] Indeed, following China's 1971 UN (also: IMF, World Bank) membership it takes until China's Go Out Policy (a.k.a. the Going Global Strategy) initiated in 1999 before Chinese attempts at global economic leadership become clear.

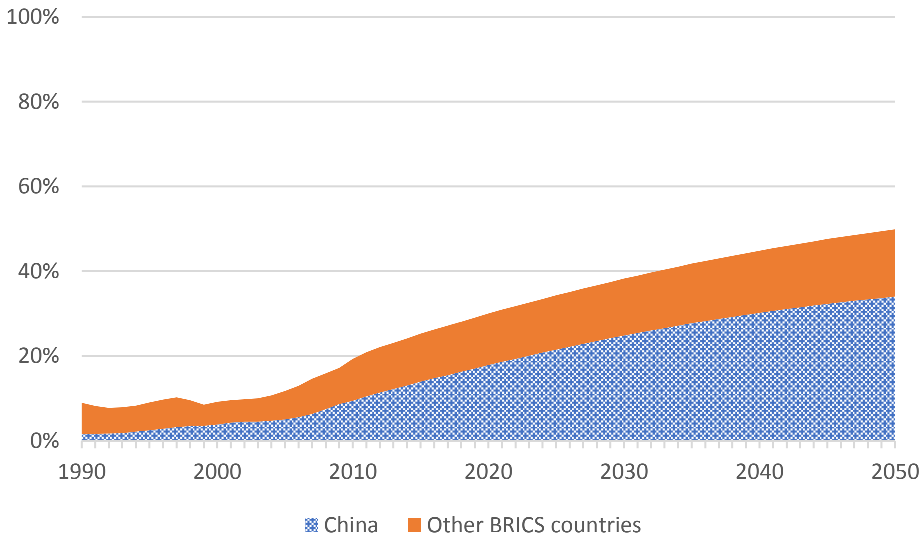
One of the most important aspects of the present phase of the globalization process is the fact that the formerly communist states have become more market-oriented economies and participate to a much larger extent in the world economic system than previously. Indeed, a key issue in the system of nation states is the entrée of China since the mid-1990s into the world economy. It is true that the world economic system has absorbed new entrants before, for example, in the essentially bi-polar system of the Cold War when Japan and the Asian Tigers made their entrée into the world economic system or in the 1990s when the Iron Curtain fell and the formerly communist countries of Eastern Europe moved from Marx to market. The impact will this time, however, be different given China's population and thus potential impact in terms of GDP and GPP.

China's entrée in the world production system is matched by its political involvement in treaties (see, e.g., Kaplinsky and Messner, 2008; Shambaugh 2015; Warmerdam 2015) and the creation of alternatives to existing international institutions. In the new Millennium this strategy leads to the creation of the New Development Bank (NDB) – the so-called BRICS bank – that offers an alternative for OECD dominated global development institutions, not as a replacement (yet) but as a supplement (Kasahara, 2017). The opportunity to create alternative international structures will increase significantly. Whereas the OECD countries had a 'majority share' in GPP in the previous century, the BRICS reach the 50% mark in 2050 (Figure 10). The point is not that the

[16] The KOF Index of Globalization (Dreher, 2006) recognizes that interaction can be social, economic or political. Economic globalization is a measure based on actual flows (trade and foreign investment openness) as well as restrictions (such as hidden import barriers and capital restrictions). Social globalization is a measure that takes into account the extent and intensity of personal contact of earthlings on different sides of borders (including international telephone calls and letters, tourism), the international composition of population, information attempts at flows (internet, television, foreign newspapers) and cultural proximity. Political globalization is a measure based on the network of embassies, membership in international organizations, participation in U.N. Security Council missions and the number of conducted international treaties. This measure indicates the extent (density) of political integration into global decision-making networks.

BRICS provides a cohesive group but rather that the position of the cohesive group of the past (the OECD) is evaporating. Thus a consequence of the geo-economic shifts since the early 1990s is the erosion of the position of the group of countries that negotiated and co-designed world governance in the 1950s to mid-1990s and therefore support for the Bretton Woods institutions, the OECD etc. cannot be taken for granted, especially if the emerging economies are not better represented in these international institutes. It is vital for world governance that they become the co-owners of the multilateral system.

FIGURE 10
Share of the BRICS in GPP (1990-2050)



Source: Calculations based on Fouré et al. (2012)

5 Implications

The detailed analysis of global dominance and global fragmentation helps to better understand the potential consequences of China's emergence for global governance, its efficacy and its sustainability. Four issues stand out: the strength of hegemonism, global public good provision, policy coordination, and (de)globalization.

5.1 Strength of hegemonism

On the basis of the previous discussion it is expected that China will become the largest economy in the current decennium, but it is also important to recognize that it will take a further quarter of a century before China's share in GPP matches that of the US at the beginning of the Millennium. Therefore, the hegemon (either the US or China) will be in a weaker position than before. A second and related issue is the increased fragmentation of the international power structure that is moving from a (bi)polar system dominated by the OECD to a less concentrated system; this move is clear from the development of concentration ratio's and the Herfindahl index reflecting a general tendency due to the number of economies participating in the world economy. This in itself increases the costs of international negotiation: an increase in the number of countries that participate in international negotiations and dispute settlement procedures will complicate and slow down international consensus building.

5.2 Global public good provision

The production of global public goods takes decades. It took the world community five decades to create the WTO foreseen at Bretton Woods in 1944; the creation of the World Health Organization required eight decades. The long-run perspective that we used in this paper is thus rather appropriate. This perspective is on the one hand sobering: the current hegemon is withdrawing from international treaties such as the Paris Agreement on climate change and it will take considerable time before a new hegemon has sufficient economic mass to be able to generate global public goods.[17] On the other hand China's decision-making processes seem better in reflecting long-run benefits and costs of considered policies than the short-termism of the Western world (see e.g. Barton 2017, Genç and Akkemik 2017, Hanusch 2017).

[17] It is expected that a new hegemon could be sufficient strong around 2030. That clearly implies a lost decade of world leadership, but from the perspective of the above analysis a ten year period is relatively short and as noted the new hegemon will operate in a context with less fragmentation that the US is currently experiencing.

5.3 Policy coordination

At a very basic level it is clear than China needs to be (and will be) better integrated into global decision making processes. China's voice will carry more weight both in policy coordination and in the actual global business cycle where it is becoming a force that needs to be reckoned with (Ikeda 2018). The point is that this requires that China will be allowed to speak as an equivalent partner in the IMF, World Bank, OECD and WTO. That voice will be different not only because of China's historic and political back ground but also because US macroeconomic conditions (quantitative monetary easing, current account deficit, mounting public debt) differs fundamentally from Chinese macroeconomic conditions. Moreover, the success of China's own development strategy provides and alternative for the Washington-consensus-based approach that inspires developing and emerging economies. The other side of this medal is that China's increasing share in global governance increases China's influence in stimulating opposition against Washington-consensus inspired policies by the international institutions (van der Putten 2013).

5.4 (De)globalization

One important change is the 'big shift' in political support for globalization and regional integration initiatives (Horner et al. 2018). In the post Second World War period the Global North for long was in the lead, but that has changed – also reflecting divergent developments in export and import growth rates. The previous and current hegemon have recently opted out of regional integration initiatives and seem to be following a policy track aimed at deglobalization.[18] As argued above, this may be a reaction to a perceived loss of power due to the emergence of new economic players. It may, however, also reflect Rodrik's (2000) policy trilemma that argues that democracy, national sovereignty and global economic integration cannot be achieved ate the same time. Nations allocate along the sides of the trilemma. For example, in a full democracy the choice for national sovereignty by definition implies that deep integration cannot be achieved. It may also reflect different reaction patterns of decentralized and centrally planned economies (Van Marrewijk and van Bergeijk 1990, 1993 and Di Malo and Valente 2013). On both accounts it is worth noting that China at present plays a more constructive role with regards to internationalization and globalization.

[18] See the special issues on deglobalization of the *International Social Science Journal (Chinese edition)* in 2017 and the *Cambridge Journal of Regions, Economics and Society* in 2018.

6 Concluding remarks

By taking a long run perspective this paper has shown that the emergence of China is not a new phenomenon but a return to the *status quo ante* before the Industrial Revolution – a point often not sufficiently appreciated in recent analyses of China's potential role as a hegemon that focus on its spectacular rise since the 1970s (see e.g. Noble 2017).

A methodological implication of our findings is that the theory of hegemonism was developed and empirically tested in a period when the conditions for hegemonic leadership in terms of GPP share and fragmentation were not optimal (from a historic statistical point of view) and actually on average in decline (Figure 3). Currently these conditions are even weaker. This is important for a better understanding the validity of reported empirical tests of (the efficacy of) hegemonism that are inconclusive and often contradictory (see also Gowa 1989)

Our conclusion is that one of the economic conditions for Chinese hegemonism (its share in GPP) will in all likelihood be met in the short to medium term. This is better understood as a necessary condition; it certainly is not a sufficient condition. It is often argued that China is too vulnerable due to weaknesses and underdevelopment of its financial sector and a lack of democratic control to play the role of leader of the world economic system (e.g. James 2017; Hung 2017) or because it is not superior in terms of military power (Nye 2010). This is also relevant because prestige is one of the pillars of world leadership (Mazarr 2017). Also therefore, the findings of this paper need to be interpreted with caution. Moreover, China's leadership for long has opposed US hegemonism stressing the benefits of a multipolar world order and although it is likely that this worldview will change when China further develops, this should not be taken as a given fact for the future.

All in all, We have established the likeliness that China wants to assume economic world leadership, although the content of that leadership is not completely clear yet[19], and that China will be able to meet the basic requirement for economic hegemonism and that position will in all likelihood further strengthen in the next decades. Whether China actually will emerge as the hegemon depends on internal and external political dynamics and therefore is still uncertain. For the world economy this uncertainty is bad news. Uncertainty about global leadership creates a bad environment for global good provision.

[19] Fusaro (2017) for example discusses assimilation of neoclassical versus revisionist strategies of Chinese hegemonism.

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