

Can a collapse of current economic empires be predicted?

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Abstract

The social sciences have traditionally been quite weak in terms of formulating scientific cause-and-effect theories that would be useful for making predictions. In recent years, however, a number of theories with predictive potential have come up. The article applies a number of such theories from diverse areas including economics, history, systems theory and evolutionary psychology in an attempt to look into the future world situation. It is found that current political and economic power structures in the world have certain similarities with great empires of the past, but also important differences. Four possible future scenarios are constructed, all of which indicate pervasive changes in the power structures of the world. None of the four scenarios are completely avoiding economic chaos, overexploitation of resources and destruction of environment.

The article differs from previous studies in futurology by trying to find the most promising scientific theories from many different areas of science and applying them to some of the important critical and emerging issues of today. It is hoped that this article will inspire future studies of social change that are based more on testable scientific theories and less on ideology and wishful thinking.

Keywords: predictions, social systems, world-systems, war and peace, cycles of empires, economic cycles, Matthew effect, regality theory, resource crisis, mass media, democracy.

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Introduction

Historical studies show that great empires typically go through the phases of growth, stagnation, crisis and collapse; after which a new empire starts to grow from another center¹. Mathematical modeling indicates that such collapses can be explained by the interplay of economic and ecological factors, and that collapses are almost unavoidable in stratified societies². The fate of past empires has led some scholars to predict that current political and economic empires will collapse soon^{3,4,5}. These predictions are mostly based on a single theoretical framework or on simple extrapolations of past cyclical trends.

It would have far-reaching consequences for the balance of power around the world if a superpower such as the USA should collapse and lose its political and economic influence. Predicting such radical changes in the world order is an audacious task that requires more theoretical analysis than just an extrapolation of past cycles. The current article tries to include many different scientific theories and disciplines in order to get closer to a realistic scenario of how the political and economic world order may change in the coming several decades. The article will draw upon very different theories from both the natural sciences and the social sciences in order to identify important moving forces and mechanisms. The reader may not be familiar with such a broad range of theories, but the article tries to explain the important findings in generally comprehensible terms. A number of important and little-known theories will be explained briefly in the text. However, there is not space for explaining everything, and the reader should be prepared that it may be necessary to look up unfamiliar concepts.

A major problem in futures studies is the shortage of social theories with predictive power. The hallmark of science, according to Popper's falsificationism⁶, is its ability to make testable predictions of the type $A \rightarrow B$. If the conditions A hold, then B will happen. Unfortunately, scientific "laws" of the type $A \rightarrow B$ are rare or out of fashion in cultural studies, and some sociologists explicitly reject such laws⁷. In recent years, however, we have seen more social theories with predictive potential, and the present article is based on several such theories.

The predictive power of some of these theories has already been demonstrated by a few successful predictions made by the author at the turn of the century. At New Year 2000, the author predicted that we would have more international terrorism; and that this would create widespread media panic, which would push society in an authoritarian and bellicose direction. The terror attacks of September 11, 2001 and their political aftermath have certainly proven this prediction successful. The Arab spring was also predicted⁸.

Critical and emerging issues

We are currently living in a time of multiple threats from climate change, energy shortages, globalization, financial instability and other critical problems. A group of futurists has characterized this as a global *megacrisis* that is likely signaling radical changes in a not-so-far future⁹. If they are right, then we may be heading for some very turbulent years. Making predictions in a turbulent situation is extraordinarily difficult, but also extraordinarily interesting. We will be putting the predictive power of the theories to the ultimate test.

In futures studies, *critical issues* are problems that pose serious obstacles to the course of development that society or its rulers desire¹⁰, and *emerging issues* are issues and grievances that are not yet part of conventional knowledge or the mainstream political agenda, but which may have a significant impact if they come to the fore¹¹.

It is well known in sociology that sociocultural change often comes from deviance and deviants¹². We may have to rely on publications from dissidents and grassroots movements if we want to seek information about deviant opinions and emerging issues that may give us a clue about future change. When evaluating such publications, we must consider that they may be providing biased and exaggerated claims in order to promote their agenda. On the other hand, dissidents sometimes see themselves in a defensive position where they have to make sure that they have strong evidence to support their claims because they expect criticism.

This chapter will focus on a number of critical and emerging issues and discuss their potential social impact and likely political reactions.

Economic crisis

It is well known that the economy goes in cycles and that crises occur repeatedly. Nevertheless, the deep economic crisis that started in 2007-2008 came as a big surprise to most economists, even though there were plenty of signs of an impending crisis^{13,14}. The failure of the economists to predict the crisis and the many failed predictions that the crisis were soon over has led to criticism of the economists for groupthink and for being too much influenced by special interests^{13,15}. The psychology of denial is aptly illustrated by fig. 1, showing how the International Monetary Fund (IMF) repeatedly predicted that Greek economy would recover while it was still in free fall. In the wake of the criticism of mainstream economists for misjudging the crisis, we have seen an emerging literature that criticizes traditional economic theories, criticizes the current economic system for causing repeated crises, and provides new explanations for the current crisis^{15,16,17,18}.

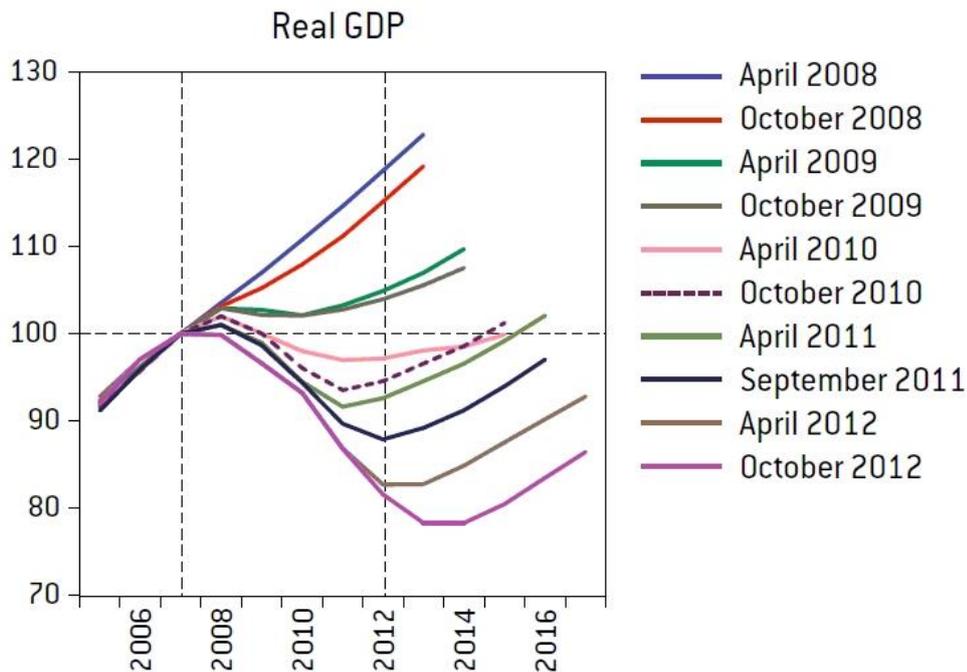


Fig. 1. IMF forecasts of Greek GDP (2007 = 100)¹⁹.

The finance sector has grown dramatically in the decades up to the 2007 crisis, just as it did prior to the great depression in 1929. The growth in the finance sector contributed significantly to the GDP in the USA, UK and other advanced economies, but this growth reflected the effects of higher risk-taking, leverage and higher trading profits, rather than any activity in the real economy²⁰. The pervasive deregulation of the financial sector is seen as a major contributor to the financial crisis²¹.

An important issue that has come to light in the wake of the financial crisis is a fundamental criticism of the way money is created in the fractional reserve banking system of most western countries. Private banks are allowed to lend out more money than they have. This is done simply by typing numbers into a bank account. Such electronic money has been circulating and multiplying to a point where almost all of the money in circulation has been created *ex nihilo* as debt by private banks. The main problem is that this debt has to be paid back with interest. The total debt plus interests exceeds the total amount of money in circulation. The consequence of this is that it is mathematically impossible to pay back all debt^{18,22,23}. There will always be some debtors who cannot pay back their debt. These debtors can be persons, corporations and even states. Today, we are seeing an increasing number of countries whose government debts exceed their GDP²⁴.

The main political response to the debt crisis has so far been to demand economic growth. Growth can keep the spiral of debt going as long as the growth rate exceeds the interest rate, but critics argue that indefinite growth is impossible and that the basis for continued growth is dwindling^{17,25}.

The fundamental problems with fractional reserve banking have been hidden in obscurity for many years²², but are now being discussed by a growing number of grassroots organizations, internet websites, books, films and finally banks. This is an emerging issue that has not yet reached the mainstream political agenda, but a change of the banking system is a mathematical necessity if we want a stable economy.

Poverty and inequality

The gap between rich and poor countries has grown wider and wider since the industrial revolution²⁶. While the situation has improved in recent decades in some developing countries - with China in the front²⁷ - many countries are today ridden by high levels of debt that they are unable to repay^{24,28}.

Some critics and whistleblowers claim that this debt is deliberately imposed upon resource-rich countries in order to control them. Organizations such as IMF and the World Bank, as well as private banks, are giving loans for large development projects, but these projects rarely return enough profit to repay the loans^{28,29}. The same organizations are imposing the so-called *structural adjustment programs* as conditions for loans or debt settlements, effectively dictating important aspect of the economic policy of the debtor countries. Many critics argue that these structural adjustments have had negative social consequences in the poor countries rather than benefitting the economy of these countries³⁰.

Foreign investment is good for the economy of developing countries according to conventional economic theory, but practice does not always agree with theory, and the predicted growth does not always materialize³¹. The profit from investments in development projects in poor countries may all too often end up in corruption, payment to foreign contractors, and tax-evading multinational companies, rather than trickle down to the population of the country²⁸.

Inequality between countries may have decreased in some cases in recent years, but inequality within countries has increased dramatically in the years up to the 2007 financial crisis^{32,33}. Inequality of income is traditionally explained by unequal demands for workers with different skills, but recent investigations indicate that the liberalization and deregulation of banking and finance and a shift from real economy to finance and derivatives have played an important role in the increasing inequality in Western countries^{20,34,35}.

Inequality of income and wealth is bad for the whole society because it causes social problems, health problems, violence and crime^{36,37,38}, it is bad for economic development and growth^{27,39,40}, it is bad for political stability and democracy^{33,41,42}, and it is a major contributing factor to economic crises⁴⁰.

The increasing globalization and free trade is leading to increased competition between countries. Countries compete for attracting profitable industries and jobs. They may do this by lowering corporate taxes, lowering minimum wages, decreasing the power of unions, lowering standards of worker protection, lowering standards of environment protection and pollution, etc. This is the so-called *race to the bottom*. However, countries may also compete for attracting highly skilled workers by improving working conditions and welfare^{43,44,45}. More research is needed to unravel the positive and negative effects of globalization and interstate competition.

Unreliable mass media

Mainstream news media such as newspapers, radio and television affect people's opinions and voting decisions in a number of ways, which are studied in the disciplines of political psychology⁴⁶, media effects theory⁴⁷, and public choice theory⁴⁸.

Commercial news media are involved in two markets simultaneously: a competition for audience (readers, listeners and viewers), and a competition for advertising money⁴⁹. Many news media get most or all of their income from advertisers and sponsors. Hence, they are mainly controlled by the market forces of the advertising market. In the view of

many economists, the news media are not selling news; they are selling eyeballs to their advertisers⁵⁰. The consequence of this commercialization of the mass media is popularization, trivialization, sensationalism, superficiality, and avoidance of controversy⁵¹. Political news is mostly about personalities and scandals rather than about important social issues. Many observers are concerned that the poor quality of the news media is bad for the democratic process^{52,53,54,55}.

People are losing trust in the mainstream news media. Some turn to the Internet for alternative sources of news, and especially to social media, such as Facebook, Twitter and YouTube⁵⁶. Commercial market forces have little influence on the contents of the social media. Instead, the contents are controlled to a high degree by the laws of *memetics*⁵⁷. Some messages are shared widely through networks of friends and friends of friends, while other messages are quickly forgotten. The messages that are shared and circulated most are the ones that have the highest memetic fitness, i.e. a strong emotional appeal and an incentive to pass on the message. Whether a message is true or false makes no difference to its memetic fitness as long as no proof or disproof is immediately available⁵⁸. The obvious consequence is that people are losing trust in the social media too. Other alternative news sources are TV channels sponsored by non-western states, such as *Al Jazeera*, *Russia Today* and *Press TV*, and partisan media with a small budget such as *Democracy Now*.

The democratic process requires reliable information channels that provide analysis and investigation of important issues, allow controversial debates, cover a diverse range of opinions, and are truly independent of commercial, political and religious interests. We have a severe want of such information channels^{59,60,61}. New high-quality news media could have a profound influence on the political process if they will somehow emerge in the future. New social media that are more attuned to political debate could also have a strong impact.

Resource crisis

The global community has severe difficulties in reaching agreements on economizing the use of the earth's resources. Non-renewable resources are consumed with little regard for future generations. This includes fossil fuel, metals and other minerals. The mining of metals and minerals is being extended to less and less accessible and lower grade ores as it becomes increasingly difficult to meet the demands of the industry, and the prices of many metals and minerals are increasing^{62,63}. At the same time, there are protests in many countries against a mining industry that pollutes and destroys nature⁶⁴.

The same applies to fossil fuels. As the price of oil keeps growing, the search for fossil fuel is extended to offshore drilling, tar sand and shale gas. The consumption of fossil fuel is still increasing worldwide⁶⁵ despite growing concern for the effects on the climate⁶⁶. The European carbon trade system, which is intended to limit the emission of CO₂ and other greenhouse gases, has been highly criticized for being unable to achieve its goals⁶⁷. The UN climate summits have made very little progress according to NGOs⁶⁸; and the last climate summit (COP19 in Warsaw) was even sponsored by polluting industries⁶⁹. Nuclear energy also relies on a number of non-renewable resources, it produces waste, security hazards and hazards to the environment⁷⁰.

The extraction of renewable resources is critical too, when the consumption exceeds the capacity of the earth and the biosphere to regenerate them. This applies to food, water, biofuel, fertilizers and nutrients such as nitrogen and phosphorous⁷¹.

Mathematical models show that a total ecological collapse is difficult to avoid when consumption is controlled by economic market mechanisms².

Food prices are fluctuating due to overconsumption, waste, soil depletion, climate conditions, financial factors, trade policy, and fuel use^{72,73,74}. Freshwater is a scarce resource leading to conflicts in various parts of the world^{75,76}. Intensive agriculture is leading to eutrophication of lakes and rivers and oxygen depletion in seawater⁷⁷.

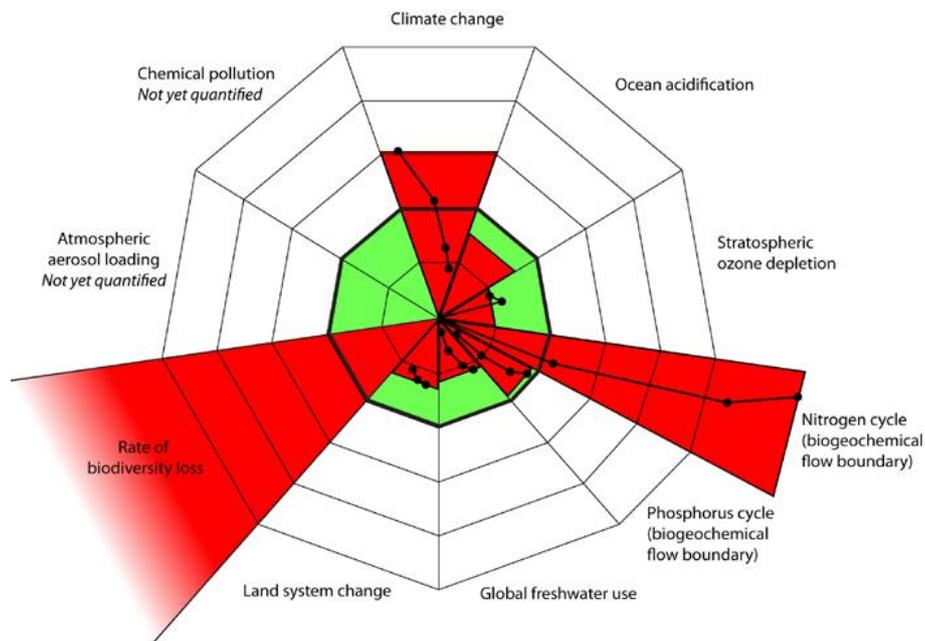


Fig. 2. Planetary boundaries of critical variables. The green area is the safe operating space⁷¹.

Species are going extinct at a rate more than 1000 times faster than the natural extinction rate due to over-exploitation, monoculture, deforestation, damage, pollution and climate change. Intensive agriculture and loss of biodiversity is reducing the capacity of the biosphere to adapt to disturbances such as invasive species, genetically modified organisms, pollution and climate change^{78,79,80}.

Much effort has been devoted to reduce pollution, and the most dangerous substances have been banned. Yet, there are still many hazardous substances in the air that we breathe and the food that we eat. New polluting substances keep appearing as the industry makes new inventions, and the regulatory bodies have problems keeping up with the new problems^{81,82}. Some pollutants, such as radioactive material, heavy metals and organic halogen compounds, are not biodegradable. These pollutants may stay in the environment indefinitely or accumulate in food chains^{83,84,85}.

The human population is growing, albeit at a decreasing rate⁸⁶. More people means more consumption. The consumption in the rich countries is steadily increasing by almost all measures. Furthermore, as people in the developing countries get out of poverty, they have an understandable desire to enjoy the same level of consumption as people in the rich countries. This means that the global consumption of the already scarce resources is rapidly growing, and we can expect it to keep growing for many years to come⁸⁷. While there are many initiatives towards green technology and recycling, these

changes in modes of production seem to be unable to effectively decouple economic growth from consumption of limited resources⁸⁸.

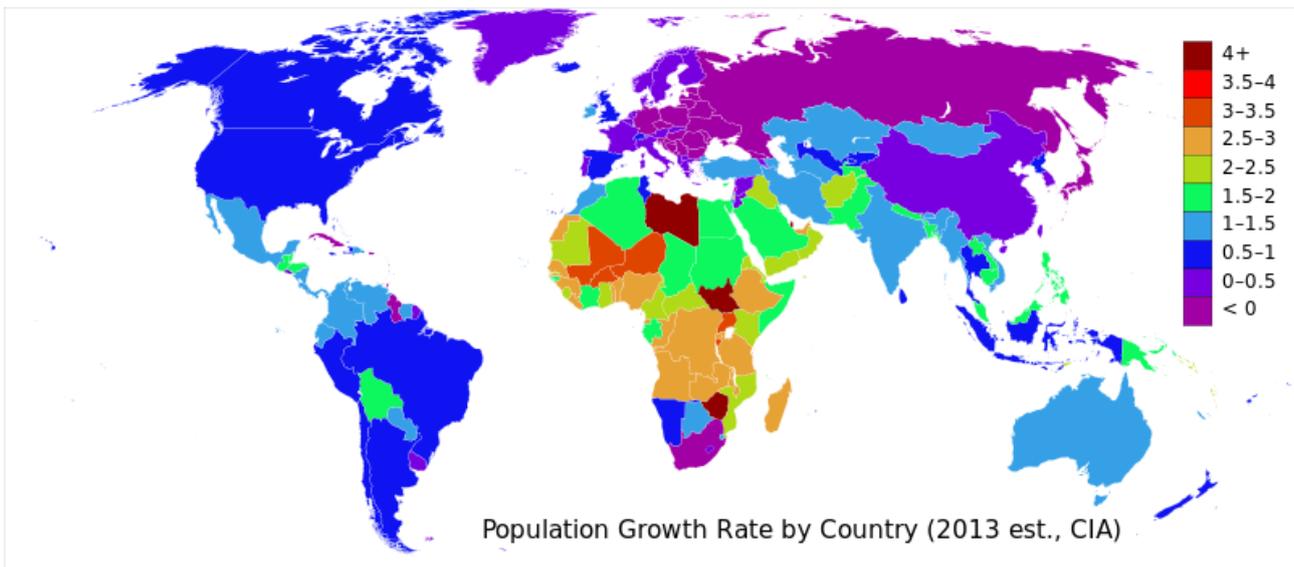


Fig. 3. Population growth rate by country [Source: Wikipedia]

War and conflict

The traditional kind of war, where two states fight against each other over territory, has become rare in recent years. The incidence and death toll of interstate wars culminated during the First and the Second World Wars, and it has now fallen to a low level⁸⁹. But other kinds of conflict have emerged instead. Intrastate conflicts have increased since World War II and peaked in the early 1990s⁸⁹. These conflicts are mostly horizontal, in the sense that different ethnic, religious or other groups within a state fight against each other over unequal status⁹⁰. Sectarian conflicts can be quite violent and cause refugee problems to neighboring countries⁸⁹.

In many cases, one or both parts in an intrastate conflict receive financial and military support from other states. This type of conflict is sometimes called *proxy wars*. Proxy wars were particularly evident during the cold war, where the two opposing powers supported each side of a conflict that took place in a third country, rather than fighting each other directly⁹¹. The external support in an intrastate conflict is often clandestine. Many coup d'états have been secretly supported by foreign states, and especially by superpowers. The deep involvement of the USA in coups around the world during the cold war has recently been documented thanks to the declassification of formerly secret documents⁹². Based on whistleblowers and leaked documents, there are strong suspicions that the USA and other powerful nations are still supporting opposition groups in many countries, trying to overthrow governments that go against their interests^{28,93}.

A different and mostly non-violent kind of conflicts has become more common in the last few years, namely street protests and occupation of public places. Where the abovementioned intrastate conflicts are horizontal in nature, the street protests are vertical. The protest movements are often made up of broad and inhomogeneous groups of people expressing their grievances against a small and powerful elite⁹⁴. The street protests are not organized by hierarchical organizations, but mostly based on informal networks of people who coordinate their protests through electronic communication and

social media. The Arab spring, the Spanish *Indignados*, and the *Occupy Wall Street* movement were all part of the same worldwide trend of relatively unorganized protest groups who communicate through electronic media⁹⁵. The mainstream news media often try to silence or downplay these protests, but a simple investigation of the social media reveals that large street protests are now frequently seen in all parts of the world.

Today, many conflicts are asymmetric in the sense that one part is superior in terms of military power, economic power and sometimes control of the mass media, while the other part has few or no weapons or other means of power. The weak part in asymmetric conflicts rarely uses deadly violence because they know that they cannot win a violent conflict. However, in some cases, the weak part in an asymmetric conflict uses violence in the form of terrorism (or at least their opponent defines it as terrorism). The incidence of terrorism has remained low and almost constant, with small fluctuations, through several decades. However, the media attention to terrorism grew dramatically after the attacks of September 11, 2001, and the media coverage of terrorism has remained high since then⁸⁹. While the actual damage caused by terrorism has always been relatively low, compared to other types of conflict, the psychological effects have increased due to the intensive media coverage.

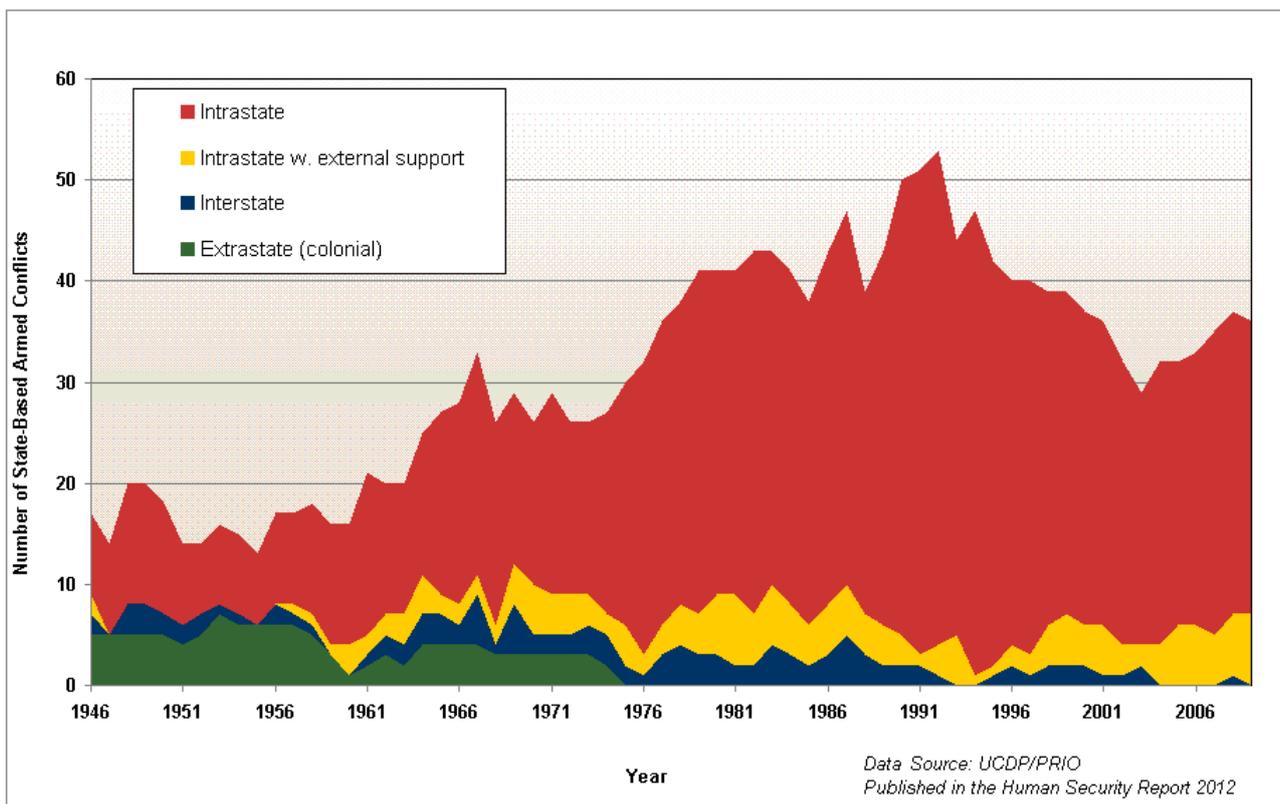


Fig. 4. Trends in state-based conflicts by type, 1946-2009 ⁹¹.

We are seeing that some kinds of conflict have become rare while other types of conflict are becoming more frequent. If we want to predict whether the pattern of conflicts will continue to change in the same direction, or the trend will reverse or cycle, we have to understand the underlying mechanisms and causal factors.

Interstate wars have decreased, probably because of democracy, deterrence, superpower stabilization, international intervention, and economic interdependence

between countries⁹⁶. Intrastate conflicts of the violent, horizontal type depend on two factors: strong grievances⁹⁰ and economic financing⁹⁷. Undemocratic coups may be driven by elite interests, economic interests of foreign investors, and the desire of foreign countries to secure their access to valuable resources in the country²⁸. Vertical conflicts of the non-violent type such as street protests are driven by grievances against a powerful elite, and they are facilitated by the easy access to electronic communication⁹⁵.

Important theories

A number of theories that appear particularly promising for predicting social, cultural, political and economic change have been selected for the present analysis. The least known of these theories are summarized here for the convenience of the reader.

Cycles of empires

History repeats itself, goes a common dictum, even if historians are unable to explain why. Fortunately, a number of theories have emerged in recent decades that seem to explain important mechanisms behind certain historical regularities or recurrent phenomena. Some historical phenomena recur every few years, while other phenomena recur with more or less irregular periods of decades, centuries, or even millennia.

The historical dynamics theory of Peter Turchin is particularly interesting⁹⁸. Turchin has studied the growth and decline of empires through history. The development of a new empire starts with the formation of a nucleus in a zone where there is a high level of conflict. This is usually a frontier between two very different cultures, such as the edge of a steppe where nomadic pastoralists meet sedentary farmers. The frequent conflicts and wars in such a zone lead to the development of a culture with a strong cohesion, or *asabiya* - a term that Turchin has borrowed from fourteenth century Arab historian Ibn Khaldun⁹⁹. The strong *asabiya* makes the group into a state that grows bigger and bigger. A strong government, strong religious beliefs, and a strong military allow the group to conquer new territory. The newly acquired land can be cultivated to produce more food. Increasing trade makes the group prosperous. The population grows due to high fertility as well as due to the assimilation of conquered neighbor groups. The growing population and wealth make it possible to further strengthen the military and conquer still more land. This positive feedback cycle continues for half a century or more where the state keeps growing and eventually becomes a big empire.

Eventually, the empire stops growing and goes into a phase of crisis. The territory gets overpopulated, which leads to a shortage of land and a shortage of food. The prices of food and land increase while the price of labor decreases. This makes farm workers poor while the small land-owning elite becomes rich. The rich elite gets used to a luxurious lifestyle and grows in numbers. The elite eventually grows too numerous, and there is a fierce - and sometimes violent - competition for elite positions. The elite, not wanting to cut down on their luxurious lifestyle despite growing food prices, goes into debt. They try to raise taxes or force farmers to work harder, and the peasants become so impoverished that food riots begin. The famine and extreme economic inequality is fertile ground for conflict and rebellion. Internal conflicts in the empire forces the government to spend an increasing amount of money on bureaucracy, police and military to suppress the uprisings. Unable to pay back its increasing debt, the state finally goes bankrupt, and lawlessness is

spreading. It becomes increasingly difficult to protect farmland against raids, so that landowners have to abandon land in remote areas that cannot be protected. This exacerbates the shortage of food.

The conflicts between elite and commoners, as well as within the elite, cause the solidarity or *asabiya* of the population to decrease. This makes the empire vulnerable to attacks from outside. This downward spiral has often ended in disasters such as famine, disease epidemics and war. After the population has been reduced through such disasters, there is no longer a shortage of food and land, and a new cycle of growth and prosperity can begin. Other factors that may possibly contribute to ending the downward spiral are reduced fertility, improved food production technologies, or acquisition of new land.

The whole cycle may last for one, two or three centuries¹⁰⁰.

An empire can wax and wane through several such cycles of prosperity and decay until it has lost so much of its *asabiya* that it disintegrates into smaller states or tribes. Some of these may be assimilated by another empire that has started to grow from some other center. The total lifetime of an empire may be a thousand years or more¹.

Turchin's theory of historical dynamics (or *cliodynamics*) is a strong tool for explaining historical phenomena. The theory is based on historical studies of agrarian cultures, and it is uncertain whether it can be applied to modern industrial societies as well¹. A weakness of the theory is that the concept of *asabiya* is poorly defined, and it is not quite clear how it is generated. Fortunately, the theory of *regality*, explained below on page 13, gives a more theoretically well-founded explanation of this phenomenon.

While the cycles of imperial prosperity and decay are so slow that we cannot yet observe whether they also occur in industrialized societies, there is another kind of cyclic phenomena that have been observed specifically in industrialized countries. This is the technological-economic cycles.

Technological-economic cycles

Economists have proposed many different explanations of long economic cycles (or Kondratiev cycles). A particularly useful explanation is Carlota Perez' theory of technological revolutions. According to this theory, there is a close coupling between the dynamics of technology, finance and social institutions¹⁰¹. Perez has identified five waves of technological revolutions:

1. The industrial revolution, starting in 1771.
2. The age of steam and railways, starting in 1829.
3. The age of steel, electricity and heavy engineering, starting in 1875.
4. The age of oil, automobiles and mass production, starting in 1908.
5. The age of information and telecommunication, starting in 1971.

Each technological wave goes through four phases, which Perez has given the names *Irruption*, *frenzy*, *synergy*, and *maturity*. The *irruption phase* starts when there is idle venture capital to support innovators and entrepreneurs. The new technology opens up new possibilities, and there is intense funding of new industries.

The growth of the new industry generates a stock market boom, which indicates the *frenzy phase*. Investors get accustomed to high growth rates. This leads to not only technological innovations, but also financial innovations. The financial market is filled with new complicated products representing a kind of paper wealth, which becomes more and more decoupled from any real material wealth. The existing regulatory frameworks are unable to control the new technological and financial systems, to which they have not yet

adapted. The financial successes give people faith in the financial system, and any attempts to regulate it are seen only as impediments to growth. The financial capital has virtually overruled the operation of the political system, so that speculation, corruption and unashamed hoarding of wealth dominate. Economic inequality is increasing, which leads to political unrest, migration from poor to rich regions, and general instability.

A great turning point comes with the collapse of one or more asset bubbles that had been inflated during the frenzy phase. This is the beginning of the *synergy phase*. The economic recession makes it necessary to restore the political regulation of the wayward financial market²¹. The connection between financial capital and production capital, which was almost completely lost during the frenzy phase, is restored.

The growth of the industry slows down, which indicates the *maturity phase*. A new infrastructure has been built, the new technology has matured, and markets have been saturated. New economic crises are likely in this phase. The new technology is spreading to the periphery. Firms with plenty of capital and few opportunities for growth start to buy up competitors and become huge oligopolies. Some of the excess capital is offered as high-risk loans to unreliable debtors or faraway countries. These loans are the root of future debt crises in the next cycle.

Another part of the excess capital is invested in new inventions, which starts the next wave of technological revolution. In fact, each new technological wave starts before the previous one has finished¹⁰¹. It is remarkable that Carlota Perez predicted the coming crisis in her book, published in 2002, while most other economists failed to see the impending crisis. In fact, her theory fits the current developments surprisingly well.

Self-amplifying forces

Anybody who has tried to play the board games of Risk or Monopoly knows how the games end. Some players are lucky and get rich while others get poor. The richest player gets still richer until one player owns it all. The phenomenon that the rich get richer while the poor get poorer is called the *Matthew effect*, after the Gospel of Matthew in the Christian Bible: "*For to everyone who has, more shall be given, and he will have an abundance; but from the one who does not have, even what he does have shall be taken away.*"¹⁰².

The Matthew effect is a type of positive feedback which is observed in many social systems. Whoever has political power can use their influence to manipulate the system to their own advantage and gain still more power. In economics, big companies tend to grow still bigger due to the competitive advantage known as *economies of scale*. In education, successful students tend to learn still more. In social relations, social honor, prestige and fame are often self-amplifying phenomena. In the sociology of science, prestigious scientists tend to get still more prestige, etc. The general phenomenon that advantage begets further advantage is well known in many areas of life, yet it has received surprisingly little systematic research^{103,104}.

The rules are fixed in board games such as Monopoly, but not so in the monopoly game of real life. The most wealthy and powerful persons or corporations can use their influence to alter the legislation to their own advantage. The self-amplifying effect of power may therefore be bigger in real life than what simple mathematical models would indicate.

Inequality of income and wealth is known throughout the history of human civilization, and it seems to always follow approximately a log-normal distribution in all societies¹⁰⁵. The economic Matthew effect may be reduced when the demand for labor

exceeds the supply¹, when there is a strong redistributive system, or when trickle-down effects are strong¹⁰⁴.

Self-amplifying effects are also useful for explaining why some countries are rich and prosperous while other countries are under-developed. A theory by Acemoglu and Robinson explains the prosperity or poverty of nations by an interaction between political and economic institutions¹⁰⁶. Political and economic institutions are called *extractive* if they allow a small elite to extract wealth and power from the majority of the population. The opposite is *inclusive* institutions, in which many people are included in the governing process. Both types of institutions are likely to perpetuate themselves. The Matthew effect is confirmed where extractive institutions prevail. The elite can use the extractive *political* institutions to design extractive *economic* institutions (taxation, etc.) that enrich themselves. The wealth that they acquire hereby can be used to build armies and security forces to defend the extractive *political* institutions. The positive feedback cycle where political and economic institutions mutually support each other makes the system resistant to change. A similar feedback cycle exists under inclusive institutions. Inclusive political institutions, such as a strong democracy, make it possible to implement inclusive economic institutions, such as redistributive taxes that reduce inequality and thereby reduce the power of any elite that might undermine the political system¹⁰⁶. Both types of system can persist for a long time. A change of system is unlikely unless there is an event of severe turbulence (a *critical juncture* in Acemoglu's terminology or a *bifurcation point* in Turchin's terminology). A change from extractive to inclusive system can happen in the event of economic crisis when there are internal conflicts among the elite, or members of the elite choose to loosen their grip to meet the threat of social conflict or revolution. A change from inclusive to extractive system is usually motivated by the economic interests of an elite. This can happen when an uncontrolled market increasingly favors an elite and gives it sufficient power to undermine the system or stage a coup d'état¹⁰⁷.

A country is most likely to experience growth and prosperity when entrepreneurs and innovators have the optimal conditions. First, they need a centralized state strong enough to maintain law and order to protect their investment against theft and plundering. But they do not need a government that is so strong and extractive that it will confiscate all the profit of their investment. The implementation of new technology or new systems implies the *creative destruction* of old systems. Any group that has vested interests in the old system is likely to resist the change. Therefore, the best condition for entrepreneurs is an inclusive system where no single group has too much power. An extractive system can experience growth for a limited period based on existing technology, but it is unlikely to allow the creative destruction necessary to sustain growth, according to this theory¹⁰⁶.

Regality theory

People seek a strong leader in times of danger. This phenomenon has an evolutionary explanation, according to the so-called regality theory^{58,108}. Imagine a tribal people at war with a neighbor tribe. The tribal group has the best chances of survival if everybody fight bravely for their group. However, fighting is dangerous. The costs of fighting is carried by the individual warrior, while the benefits from his fighting is shared between all members of the tribe. In the fitness calculus of the individual warrior, it does not pay to fight unless he can make sure that everybody else fight with him. He can do this by supporting a strong leader who can reward brave warriors and punish defectors. If enough members of the tribe desire and support a strong leader, then there will be a

strong leader who can command everybody to fight, including the minority that do not support him.

Regality theory predicts that people will become authoritarian and support a strong leader and strict discipline in case of war, imminent war or other collective danger. The situation is quite opposite in the absence of collective threats. People will not accept the tyranny of a strong leader, and the group will develop an egalitarian social structure. Different political directions can thus be explained from different perceptions of collective danger.

When the political structure of a society adapts to the level of external threats, the whole culture adapts as well, including ideology, religion, art, etc.¹⁰⁸. A culture under (perceived) external threat is typically characterized by a hierarchical political organization with a strong leader at the top. Most people support the leader. There is strong bellicosity, nationalism, authoritarian discipline, strict religiosity and xenophobia. Such a culture is called *regal*. The opposite cultural tendency is called *kungic* (or *kalyptic*). Cultures develop in the kungic direction when there is peace, safety and stability. Kungic cultures have a flat political organization, an egalitarian ideology, lax discipline, high tolerance of deviance, and a weak or absent sense of national identity.

Most cultures can be placed at some intermediate point between these two extremes. A culture is likely to become more regal when the perceived level of war or collective danger is increasing. On the other hand, the culture will tend to move in the kungic direction when people feel that collective dangers have disappeared.

Regality theory explains the rise and fall of empires in a way that is very similar to Turchin's historical dynamics. The process begins in an area with a high population density and a conflict between two tribes or groups. The stronger of the two groups conquers some territory from its enemy, which makes it bigger, stronger, and more regal. This enables it to conquer still more territory and become still bigger and more regal, and so on. This self-amplifying process continues for many years where the group grows into a city-state, a state, a kingdom, and finally a big empire. At some point, the empire becomes too big to manage and it is unable to grow further. The long sequence of wars finally ebbs out. People at the center of the empire are no longer motivated to make sacrifices for a war that takes place so far away that it seems irrelevant. The culture now drifts in the kungic direction. Support for the tyrannical emperor dwindles, and the empire disintegrates⁵⁸. The explanation of the rise and fall of empires in regality theory is almost identical to Turchin's account if we equate *asabiya* with *regality*. The somewhat hazy concept of *asabiya* in Turchin's theory may, though, be broader than regality and include social and cultural knowledge, alliances, institutions, etc.

Regality theory is also related to the theory of extractive and inclusive institutions. The hierarchical and possibly despotic government in a regal culture is typically very extractive, while kungic cultures have more inclusive political institutions. We can predict that people will be more willing to make sacrifices for the sake of their nation and accept extractive institutions in a regal culture, while the people will prefer inclusive and egalitarian institutions in a kungic culture.

The psychological reaction that we call regal is seen not only as a response to war, but also to other collective dangers, including economic crises. The regal response to a crisis is particularly strong if the crisis is perceived as a danger to society and is blamed on foreigners. The Second World War was a particularly clear example of a regal response to economic crisis. We can predict that the reaction will be less regal if the crisis is blamed on the nation's own government or on in-group elites⁵⁸.

Analysis of the current world situation

An empire?

We want to know whether the theories of the cycles of empires apply to the modern industrialized world. First, we have to discuss whether current world superpowers are so similar to the big empires of the past that we can expect them to follow similar trajectories. Past empires had pretty well defined borders and only limited influence beyond their borders. Today, the big and powerful nations have a much stronger influence outside their borders. The strongest superpower, USA, has more than a thousand military bases and installations around the world¹⁰⁹. The USA spends enormous sums of money on supporting or stabilizing regimes around the world that support its strategic interests¹¹⁰ and on destabilizing regimes that go against US interests^{28,93}. The US dollar is the primary currency for international trade, and many countries use it as a reserve currency. US companies have advantageous economic relations abroad that allow the country to consume more natural resources than it produces. Some theorists have characterized the whole world as a system with a core comprised of USA and other rich countries controlling a periphery of poorer countries that deliver labor-intensive production and raw materials to the core. This is the so-called world-systems theory⁴.

An important difference from past empires is that the USA has no powerful monarch at the top. The power of the US president is limited, not only by the workings of democracy, but also by the economic power of big financial institutions and multinational companies, especially in times of crisis^{41,42,101}. Unlike what many conspiracy theorists believe, there is not a small group of people controlling the world economy. A study of economic networks of ownership has found that the world economy is headed by a group of US and European banks that mutually own the majority of shares in each other¹¹¹. If a group of banks on top of the economic pyramid mutually own each other, then who is in control? Perhaps nobody. A large proportion of financial assets are owned by investment banks and institutional investors who are supposed to, or even required to, maximize profit for their shareholders regardless of any positive or negative externalities that affect society at large. Preprogrammed computers are able to make investments without involving any human decision making. The real physical assets are so far removed from any personal owners through complicated financial derivatives and chains of ownership that the individual persons have little or no idea about how their investments affect other people in distant parts of the world. Large parts of the world economy are controlled by anonymous market forces, and we may question whether any humans are in control at all. Political philosophers have aptly described this as an empire without a center and without geographic boundaries¹¹². For the same reason, we can hardly determine whether USA and the European Union are two separate empires or both parts of the same delocalized empire.

Other superpowers such as China and Russia are also exerting strong political and economic influences in many parts of the world. But they are not (yet) as influential in global finance and politics as US and European based banks and corporations are.

Which phase of the empire cycle are we in?

In Peter Turchin's theory of the cycles of empires, as explained above, the crisis phase is characterized by overpopulation, high economic inequality, inter-elite competition,

rebellion, high military spending, and state bankruptcy. All these symptoms are indeed observed today. We do not have severe overpopulation in the western world now, but there is overpopulation in many of the poorer countries that the superpowers extract for wealth. Economic inequality in the world has been growing fast in recent decades to a point where the richest 85 people in the world own as much as the bottom half of the world's population^{32,113}. We have seen large street protests in many countries around the world, although these protests are not always covered well by the mainstream news media. Many countries have a high level of national debt, and some countries are on the verge of bankruptcy or de facto bankrupt, but bailed out by international loans²⁴.

An empire can only be overturned if three conditions are met, according to Turchin's theory¹:

1. Rebellion by an impoverished population.
2. Severe government debt or state bankruptcy.
3. The elite is divided by fierce competition and internal conflicts. Part of the elite supports the rebellion.

We will now discuss whether these conditions are likely to be met in a near future.

(1) People in many western countries have indeed been impoverished by the Matthew effect, by the housing bubble and by the politics of austerity that followed the financial crisis. Food prices have fluctuated a lot in recent decades⁷³, and high food prices are known to cause riots¹¹⁴. The protest movements in different countries are somewhat diffuse and they do not always share the same grievances. Coordinated protests in multiple countries simultaneously is already a known phenomenon, and if the economic situation gets worse, we may indeed see larger protests with international coordination.

(2) Many factors have contributed to the high level of debt in a number of countries, including the debt-based money system, deregulation of finance, organized tax evasion, and tax competition between countries^{21,23,43,115}. There have been many attempts to improve regulation and combat tax evasion to remedy the current crisis, but these attempts have often been insufficient or undermined by lobbying^{115,116,117}. Much of the debt has been bailed out with new debt rather than canceled. We can therefore expect the next financial crisis to come soon.

(3) There is indeed a fierce competition for attractive elite positions in politics, business, finance and science. Some intellectuals are criticizing the current economic world order and supporting various protest movements, while others are defending the status quo. The elite is certainly not united. It is quite likely that we will see more conflicts between rivaling elite factions. It is also possible that frustrated investors who have lost their fortune in the casino-like economy will support some protest movements. Finally, it is very likely that the most successful protest movements will receive support from other nations that compete for superpower status.

Observations of recent periods of political instability in the USA are in accordance with the theory. If the cyclic pattern is going to continue, then we can expect a new wave of political instability to appear soon³⁸. On the other hand, the system appears to be quite strong. The US-centered power structure is consolidated by strong trade relations, political alliances, military installations, ideology, scientific institutions and mass media. The system appears to be sufficiently resilient to survive the current threats to its existence. Turchin has observed that an empire can go through several cycles of prosperity and crisis before it finally collapses. The current empire is certainly at the end of such a cycle, but possibly not its last cycle. A new wave of prosperity requires that the debt be reduced and that the

amount of resources per capita be increased by reducing the population, increasing the territory or increasing the efficiency of production¹.

Which phase of the technological cycle are we in?

The fifth technological-economic cycle is identified as the age of information and telecommunication in Perez' theory. This cycle had its turning point with the burst of the dot-com bubble around year 2000¹⁰¹. The information technology is still undergoing fast development and innovation. This indicates that we are in the late synergy phase now. We have not yet entered the maturity phase, because the market for new information technology is not yet saturated. We can expect a sixth wave of technological revolutions to begin a few decades from now, if the cyclic pattern is going to continue.

Some commentators believe that the period of fast technological growth is a historical anomaly and that the technology-driven growth will be slowing down or producing diminishing returns^{118,119}, while others predict future technological progress in areas such as biotechnology, nanotechnology and robotics¹²⁰.

There is almost certainly a limit to technological growth, but we are still far from reaching this limit. A sixth wave is indeed possible. However, future technological innovations may be subject to diminishing returns, and a new wave of fast technological growth may be strained by the current energy crisis and by the depletion of mineral resources. A new wave of growth will need a more efficient use of existing resources as well as new abundant sources of energy. Possible new sources of energy include ocean waves (renewable) and thorium (non-renewable).

A new wave of technological growth requires new technologies with truly revolutionary potential. Incremental improvement of existing technologies is not enough. The common characteristic of past technological revolutions is that they were started by inventions that generated a profusion of possibilities for further dependent innovations, which in the end altered the conditions of life profoundly¹²¹. It is still doubtful whether nanotechnology is sufficiently successful for having such potential. It seems that biotechnology is a more promising candidate as the main driver of a new technology wave, although it also has significant hazards. Especially microbiological food production has the potential to radically improve the efficiency and economy of food production. Driverless transport is another technology with the potential to improve technological efficiency and alter life conditions.

In a more distant future, we may see artificial intelligence surpassing human intelligence in important areas of decision making. Perhaps, this could form the basis of a seventh wave of technology.

Mass media and democracy

The majority of voters are expected to prefer inclusive economic institutions that redistribute wealth and reduce economic inequality, according to Acemoglu and Robinson's theory of inclusive and extractive institutions as explained above. It is therefore surprising that inequality is increasing in apparently well-functioning democracies. The two most probable reasons for this discrepancy are that politicians are not in control, and that voters are poorly informed.

Democratic countries are ruled by politicians. Politicians are elected by voters. And voters choose whom to vote for based on the political information they receive from mass media and other information sources. Therefore, it is important to look at the media market if we want to understand the current political situation and if we want to predict future

political changes. We can distinguish between several different kinds of media funding and their likely consequences:

1. Media funded or controlled by the government. We can expect these media to influence voters in the direction of supporting and consolidating the incumbent government.
2. Media owned by oligopolistic corporations or trusts. We can expect these media to influence voters in the direction of supporting business-friendly politicians. The power of media owners is best exemplified by the case of Silvio Berlusconi, owner of Italy's largest media company, who was elected prime minister of Italy on several terms.
3. Commercial media in a highly competitive advertising market. Commercial TV stations are competing to attract a maximum number of viewers to watch a maximum number of commercials at minimum production costs. They prefer an audience that is attractive to advertisers, such as rich consumers and business decision makers. The strong competition leads to trivialization of the media, i.e. entertainment, gossip, scandals, sex, violence, personalization, simplification of issues and avoidance of controversy. They often focus on fear and danger, but with simplified explanations that lead to simplified and possibly inefficient solutions. They tend to blame people rather than systems for any problems. This may lead to frequent replacement of people in power rather than reforms of social and political structures⁵¹.
4. Subscription based media. Such media are likely to have higher standards of analysis and less trivialization if the amount of advertising is low. Subscription based media are likely to appeal to a rich and well-educated elite, while the rest of the population will prefer cheaper alternatives.
5. Pay-per-view media. These are likely to have a high degree of trivialization and use attention-catching headlines such as sex, violence, scandals and fear in order to attract viewers.
6. Independent media funded by non-government organizations or by donations. Such media are rare today. They are likely to provide more in-depth analysis of social problems than we find in commercial media. They may have a partisan bias or they may strive towards neutrality, depending on their fundraising policy.
7. Peer-to-peer social media. These media contain messages of extremely varying quality. They allow the formation of special interests groups that can develop a high degree of expertise within a particular field, but also groupthink bias.

The current situation is dominated by a highly competitive media market with a trend towards more oligopoly. Young people tend to rely less on traditional news media and more on social media and other internet news sources.

Stakeholders

A stakeholder analysis is a useful tool in futures studies for mapping the interests of different countries, organizations and individuals, and how much power each stakeholder has to influence developments in the direction they desire¹²².

First, we will look at the most important countries and groups of countries. The USA is currently the biggest superpower, and some would say the only superpower, in the world. The USA is exerting political, economic and military influence around the world, as discussed above (p. 15). The world situation is stabilized by the fact that there is one dominating superpower capable of suppressing conflicts around the world⁹⁶. However,

this situation may change as the US economy is deteriorating and its current strategy is extremely expensive. The interest of the USA is to preserve its current position as the number one superpower.

Europe and especially the EU countries are closely connected with the USA and may be considered part of the same empire. While the economic power is geographically distributed, the military power is dominated by the USA. Each European country has its own military, but Europe does not have an efficient common military decision-making and command structure. Therefore, Europe often depends on USA for defense. While the Western European countries have an interest in maintaining a strong alliance with the USA, they also have an interest in building or maintaining friendly relations with the countries in Eastern Europe, Asia and Africa for the sake of maintaining peace and stability in their neighborhood. If the power of USA is weakened in the future, then it is likely that Europe will become more oriented towards its neighbors in the East and South.

China has experienced a very strong economic growth in recent years, and many observers are predicting that China will become the next superpower¹²³. However, the Chinese economy is too extractive and centralized to stimulate the kind of innovations and creative destruction necessary for continued growth, according to Acemoglu and Robinson's theory¹⁰⁶. China will surely play an important role on the international scene in the future, but it will not be strong enough to become a leading superpower alone. If China forms an alliance with Russia, India and other Asian countries, then such an alliance could possibly become very influential.

Russia has also experienced a period of strong economic growth, and it seems that president Putin has imperialist ambitions. But again, the political and economic institutions in Russia are too extractive and rigorous to generate continued growth and prosperity.

Another emerging economy is India. India has not attained the same very visible role in international politics as Russia and China have, despite strong economic growth. India is weakened by the conflicts with Pakistan and Afghanistan. Furthermore, the profit from economic liberalization has gone more to foreign investors than to the main population¹²⁴. It may be in the interest of the Indian population to cut some of the economic ties with the West and enter an alliance with China and Russia. Brazil is also a large country with an emerging economy. Brazil, Russia, India and China form the so-called BRIC countries that many economists look upon with optimism. Like most of Latin America, Brazil is in opposition to the political interests of the USA. There are strong anti-US sentiments all over Latin America due to the long history of US imperialist meddling in the region. As the economic influence of the USA in Latin America declines, it is likely that the Latin American countries will strengthen their political and economic alliances to counterweight the US dominance in the Americas. It is possible that they will form strategic alliances with various countries in Asia and elsewhere.

The Arab countries have based their wealth mainly on oil. They are likely to lose power and influence as the rest of the world is trying to become less dependent on this oil. Many of the Arab and Middle Eastern countries are quite regal (see p. 13 above) due the history of wars in the region. However, this regality is declining due to international peacekeeping efforts and, in some countries, a high level of education. The Arab spring was a clear sign of declining regality. The Palestine conflict is still an important regalizing factor in the region. If this conflict can somehow be resolved or contained, then the whole region is likely to undergo very radical cultural changes and modernization.

Most of the countries in Sub-Saharan Africa are still very poor. Not because they lack natural resources, but because a large part of the profit from these resources are

going to tax-evading foreign companies^{28,115}. The population of Africa has a very strong interest in breaking the international Matthew effect that makes one continent poor and other continents rich. However, they lack the economic and political resources to break the economic structures that exploit them.

Among the most influential stakeholders in the world is the economic elite. Studies have found that the richest part of the population have much more influence than the general electorate¹²⁵. A lot of power lies in the big multinational corporations. These corporations have grown extremely big because of the Matthew effect. They benefit from the advantages known as economies of scale including market dominance, vertical integration, competition between countries, and tax avoidance. These advantages allow multinational corporations to outcompete the smaller single-country firms. Some of these corporations have more wealth than the countries they operate in. This gives them a lot of power and influence. The economic elite and especially multinational corporations can exert political influence in a number of ways, including:

- Campaign contributions and other support to politicians and political parties.
- Lobbying
- Contributing experts to advisory groups and committees
- Revolving door strategy
- Rich people have easier access to political positions than others. Therefore, there are many shareholders in political positions
- Informal meetings and clubs¹²⁶
- Control through debt-dependence
- Political advertising
- Control of mass media through selective release of information and through advertising or ownership
- Influencing universities and experts through sponsorship, joint projects, paying for consultancy, giving professors well paid side-jobs in their boards of directors, etc.
- Supporting and sponsoring think tanks and other policy research organizations
- Threaten governments that do not follow their wishes to move jobs and production facilities to other countries.

The amount of money that big corporations spend on buying political influence exceeds by far what any political party, government or non-governmental organization can afford. For example, the financial industry is spending 30 times as much on influencing EU policy as all NGOs, trade unions and consumer organizations combined¹¹⁷.

The multinational corporations are mainly trying to influence politics in the direction of liberalization of trade, deregulation, and low taxes. However, their strategy is a double-edged sword. By trying to remove all political and regulatory obstacles to their own growth, they are also contributing to the growing economic inequality in the world. Their wealth can very well be undermined when inequality grows so much that the majority of people cannot afford to buy their products. They are probably quite aware of this risk, but they are still compelled to accumulate wealth in order to maintain their market dominance and keep their competitors at bay.

The deep economic crisis that began in 2008 has created a severe conflict between populations and their governments. The governments in many countries have been forced

to implement the unpopular politics of austerity that economists tell them is necessary. The politicians lack the courage, power or insight to propose radical changes of the money system, the economic system and the international competition that has caused the spiral of debt and the extreme cyclicality of the economy. The general populations are very discontented. Seeing their welfare being undermined, they are losing trust in their politicians and cannot understand why they have to pay for the excesses and failures of the financial industry. We have already seen riots in many countries around the world and rising political extremism.

As stakeholders, the general populations of most countries have an interest in redistributing wealth and reducing economic inequality. However, they may not have sufficient insight to know what policy would bring them out of their misery. They may turn their anger against politicians, banks, rich tax evaders or big corporations. The dissatisfied population could very well be easy prey to any demagogue who claims to have simple solutions to the complex problems the world is facing.

Politicians and political parties may choose between various strategies to cope with this situation. The first strategy is to rely on campaign support from the industry, continue the old political agenda, and try to make the mass media present them in a favorable light. We are seeing both left wing and right wing parties following this strategy. The second strategy is the populist agenda. Charismatic politicians are providing simplified explanations and simple cures, appealing to people's emotions rather than their intellect, and relying heavily on the mass media. Right wing or xenophobic populist parties are now on the rise, especially in Europe¹²⁷, but it is quite likely that we will also see left-wing populist parties proposing socialism as the cure. A third strategy would be to rely on detailed analysis, focus on the root of the problems and propose tighter regulation and far-reaching changes in the economic system. However, such a strategy would hardly be successful because it would be difficult to communicate the complicated issues through the mass media, and it would be difficult to find sufficient funding anywhere.

Many NGOs, grassroots movements and labor organizations have the ability and will to analyze the problems more deeply. Some of these organizations will play an important role in advocating for regulation and reform of the economic system. Powerful international organizations such as the World Bank and IMF are strongly influenced by industry lobbyists²⁹, yet they are willing to discuss the problems and propose new solutions²³. Policy research organizations are often tied to a particular ideology or economic school and are unlikely to switch to a new paradigm¹²⁸. Scientists and other experts will continue to be divided on such issues, each clinging to their own paradigm.

The mainstream mass media and their commentators will be laggards with respect to changing views of the economic system. Economic competition is forcing the mass media to avoid controversy, change of worldview or cognitive dissonance in their audience⁵¹.

Religious organizations are often conservative in their worldview, yet they may play a role in criticizing the current economic world order. All the major world religions have prohibitions against usury, although only Islamic organizations are still emphasizing this prohibition¹²⁹. Religious bans on usury may be revived as a response to the growing debt in the world. Greed and exploitation of the poor goes against religious ethics, and Pope Francis has recently criticized the economic system and the dictatorship of the market in unusually candid terms¹³⁰.

Possible scenarios

Inertia scenario

This scenario assumes that the most powerful stakeholders will attempt to preserve status quo in order to maintain their privileged position and their wealth.

Some politicians and international organizations will try to regulate the financial market more strictly and thwart tax evasion in order to prevent future crises, but their efforts will be undermined by powerful lobbyists who make sure that the regulations have loopholes. There will be serious attempts to reform the fractional reserve banking system, and a few countries will actually succeed in implementing full reserve banking, while most countries end up with some inadequate compromise. The Matthew effect is still operating and economic inequality keeps growing. Debt is bailed out with new debt, and the economic crisis soon comes back with renewed force. Several states are becoming *de facto* bankrupt, though they try to hide it. Some states will confiscate the fortunes hidden in tax havens because this is the only way they can save the economy. Other states are bailed out by rich multinational companies and banks under conditions of political influence. The dollar is severely weakened and is no longer the all-dominating currency for international trade in oil and other important products. USA can no longer afford its expensive strategic involvement all over the world. The USA will try to uphold its dwindling power by regal psychological instruments such as witch hunts and "war on terror", but to no avail.

The balance of power is changing and other countries with superpower ambitions are challenging the US dominance. Nobody will attack USA or its allies directly, but there will be many proxy wars in the Middle East, Africa, Eastern Europe and other regions, where the USA and its allies support one side of a conflict while Russia, China or perhaps some South American countries support the other side. Large multinational companies will also be covertly involved.

China will be heavily involved in international politics and trade, and this will benefit the economy of the country. However, the economic growth of China will slow down due to resource limitations, economic bubbles, centralization and growing inequality. China will not replace the USA as a new superpower. In fact, China itself is an old empire in a late phase of its history, and it could very well have fallen apart by now, were it not for its recent economic growth and new international opportunities. China will promote an international policy that is focused less on competition and more on cooperation, in accordance with the old religious and ideological traditions of the country. China will build stronger alliances with Russia, India and many other Asian countries, as well as some countries in Africa and South America. These alliances will counterbalance and undermine the US-European world dominance.

No single country or empire will gain world dominance. With no dominating superpower to suppress conflicts, there will be a period of more civil wars and local conflicts all over the world. Old conflicts that have been suppressed will flare up again. Deadlocked conflicts will find new solutions as the balance of power changes. Korea will be reunited. The Palestine conflict will go into a more peaceful track, but it will take many years before this conflict is completely resolved.

International competition is reducing wage differences between countries to some extent, but it is also forcing many countries into a race to the bottom. Unemployment, poverty and declining welfare standards lead to widespread riots and rebellion. The rioting movements can go in very different directions according to regality theory (see p. 13

above). If people blame their misery on immigrant workers or other external factors then they will form regal groups with fascist and xenophobic ideas like the ones that led to the Second World War. On the other hand, if people blame the declining economy on corrupt politicians, greedy bankers and other internal factors, then they will form more kungic groups with a revolutionary ideology, challenging the power of the elite. The situation will probably be too chaotic for the most extremely kungic movements of the *Occupy Wall Street* type to dominate the picture. The chaos and uncertainty will make some people seek comfort in religion and spirituality. The old established religious institutions are too slow to adapt to the new situation and will play only a minor role. Instead, new religious and semi-religious cults will spread. These new movements will be moderately kungic and syncretic. They may possibly combine Buddhist spirituality, Islamic banking, and the worship of nature from tribal religions.

Some socialist countries and Islamic countries will be less affected by the economic crisis because they have a less extractive banking system. These countries will gain more influence on the international scene.

After a period of growing influence, China will see its economy stagnating and the political system of the country will become less authoritarian. This kungic development allows many ethnic minorities in China to form independent or semi-independent states. In the USA, many states will demand more autonomy but mostly remain united. The Arab spring will be revived.

Television, radio and newspapers will become less important. The quality of their news reporting will deteriorate because economic competition is depriving them of resources and they will need subsidies. People are losing confidence in the media and turn to the internet for alternative news sources. Political debate becomes more polarized as different people rely on different news sources with different predilections. There will be fierce ideological conflicts over issues such as globalization, migration, the economic system, international competition, overconsumption, natural resources, climate change, etc.

BRIC countries and other countries in the periphery will be experimenting with new ways of organizing their economic system in order to dampen the economic waves of boom and bust. Some of these experiments will fail while others will show at least some degree of success. A new ideological cold war between old and new economic systems will surface.

The UN and other international organizations will be reformed and strengthened. The World Bank and the IMF will be reformed or replaced by other organizations after pressure from Asian, Arab, African and South American countries. International organizations will attempt to reduce the extraction of wealth from poor to rich countries. These organizations will have problems with internal corruption, but slowly make some progress. The countries in Sub-Saharan Africa will gradually improve their economy.

There will be severe problems with overexploitation of the environment and climate change. Nevertheless, we will see a new wave of optimism. There will be fewer international conflicts thanks to improved international cooperation. Population growth slows down in regions where peace and prosperity is spreading. A new technological-economic cycle begins and prosperity returns - at least for a few decades. However, people are forgetting old lessons in the wave of economic optimism. The political power necessary to fundamentally alter the mechanisms that create economic cycles and crises is still not present, and a new crisis will emerge.

World cartel scenario

In this scenario, the largest multinational corporations keep growing, as they are able to outcompete the smaller national companies. The world market is dominated by a handful of megacorporations in fierce competition against each other. These corporations see themselves in a serious strategic dilemma. Each corporation has to squeeze the maximum profit out of the market and use this profit strategically to hold its position against its competitors - the other megacorporations. By doing so, they are impoverishing large parts of the world population. This will undermine their own customer base when people cannot afford to buy their products. They also fear that the poverty will cause political instability, which makes the market unpredictable. The few megacorporations therefore go together and agree not to compete against each other, effectively forming a cartel. They have sufficient political influence to escape antitrust legislation. Together, they are able to effectively control the world market. USA, China and other dominating countries form alliances instead of competing.

The cartel makes heavy social investments in areas such as health care, education and job creation, especially in the neediest regions. The cartel actually becomes quite popular, especially in poor areas, because they are improving people's life conditions. Of course, they will not be criticized by the major mass media, which they own.

In fact, the cartel is controlling the world economy, while they leave it to the national governments to decide on ideological issues. They are able to stabilize the world market and dampen business cycles. This system is quite stable, and it may persist for decades. Eventually, the cartel will collapse because of some dramatic event, possibly as a result of internal rivalry and scandals as well as environmental disasters.

Empire collapse scenario

For this scenario, we are investigating under what conditions the economic empire could possibly collapse to the point where the currently dominating power structures are breaking down completely. The breakdown may be precipitated by a critical juncture (see page 13 above), such as state bankruptcy, collapse of ecosystems, climate disaster, or a combination of such events.

In this scenario, global economic inequality keeps growing and huge fortunes are amassed in tax havens. The debt-based money system leads to the accumulation of unpayable debt everywhere. The debts of individuals, corporations, banks, and states are bailed out with new debt rather than canceled. People lose faith in the stability of the dollar and use other currencies for reserves and for international trade. The petrodollar system breaks down. The USA goes bankrupt and many other states follow. The fortunes of the economic elite is undermined by hyperinflation and bankruptcies. Alternative currencies and barter, which cannot be taxed, arise here and there.

Large conflicts among members of the economic and political elites arise in the midst of this economic chaos. Elite members try to harm each other rather than protect each other as they used to. The power of the elite to keep their secrets is undermined. Whistleblowers reveal old and new secrets, and scandals flourish. Attempts to censor the internet and other media are futile.

Political chaos breaks out in the absence of central power. The US population is armed, and violent rebellion breaks out. Politicians try to consolidate the power of their states by witch hunts, false flag terror attacks, and violent conflicts abroad.

Governments fail to protect the environment because violent conflicts, economic crises and fierce competition between countries are urgent issues that get higher priority than long term considerations for the environment. Intensive agriculture is causing soil erosion, reducing biodiversity and undermining the resilience of the ecosystem. Harmful bacteria have become resistant to antibiotics, and disease epidemics are spreading among humans and farm animals. Pests become resistant to pesticides. Genetically engineered organisms are spreading uncontrollably in the wild, displacing many natural species and breaking the ecological balance. Large areas of land can no longer be farmed, and food prices go up. Mineral resources are depleted and the prices of metals and precious elements are rising. Numerous attempts to reduce the emission of greenhouse gases and other pollutants are undermined by fierce economic competition between countries. Climate change is pushing the already weakened ecosystems to total collapse.

Large areas of land become flooded, uninhabitable or infertile. The inhabitants try desperately to find new places to live. The flow of climate refugees is causing overpopulation and violent ethnic conflicts. The world economy is in chaos. Large fortunes disappear, and frustrated investors turn their anger against the system that brought them riches in the first place. The former elite has fallen. The empire has disintegrated and left large parts of the world in chaos.

Slowly, a new empire starts to grow from some of the areas that are least damaged. A new elite will rise and repeat many of the mistakes of the past.

Controlled transition scenario

History repeats itself. Economists have made the same mistakes over and over again of making too optimistic decisions in good times¹³. For this scenario, we are investigating under what conditions it would be possible to meet the enormous economic challenges and resource challenges the world is facing today in an intelligent way to avoid a serious collapse of the world economy, or at least mitigate its effects, and avoid destruction of the environment.

A new generation of economists will grow up with an intense focus on finding new solutions to the problems of spiraling debt, economic cycles, Matthew effect, unemployment, poverty, international competition, race to the bottom, separation of financial capital from production capital, conflicts of interest in government advisors, undemocratic influence of the wealthy, negative externalities, overexploitation of resources, etc. Old forms of regulation, such as trade barriers and tax walls, will be revived, and new forms will be invented.

It will take a lot of theoretical work as well as practical experimentation to develop new, more stable systems and better mathematical models. Policy research organizations are often tied to a particular school of thought and they have hardly changed their way of thinking after the 2008 crisis¹²⁸. We can predict that radical change in economic thinking is unlikely to emanate from existing policy research organizations. A more likely path to change is the formation of new organizations with new ideas. We can expect many of the old economists to reject the new ideas, according to Kuhn's theories of scientific revolutions¹³¹. The biggest problem may be that the economic elite will try to prevent all changes that challenge their privileges. Many economists, political organizations, international organizations and grass roots movements are already working on some of these issues today, but much more work needs to be done.

We are facing a kind ideological vacuum here. None of the dominating political ideologies we know today seems to have a solution to all these problems. State socialism, at least in the forms we have seen yet, leads to inefficiency, corruption, low incentives to work, and obstacles to innovation. Free market capitalism as we know it leads to unstable cycling of the economy, accumulation and concentration of wealth and power in the hands of fewer and fewer people, corruption, poverty, unemployment, conflicts of power between workers and employers and between consumers and producers, where one part or the other suffers depending on the balance of power, overconsumption, and overexploitation of natural resources.

This ideological vacuum will lead to many new ideas. Political philosophers and utopists will come up with many new ideologies, or old ideologies in new guises. Many of these ideologies will look promising as long as they have not been tried in practice yet. There will be many ideological battles and it will take a lot of experimentation in different countries before any radical improvements can be made. This process will take so long time that it will be too late to avoid all economic and environmental disasters.

Discussion and conclusion

The four scenarios in this article are based on scientific theories, not ideology or wishful thinking. The construction of the most desired scenario is a political exercise which is left for the entertainment of the reader.

The present economic world order is unstable and our environment is threatened. It looks like we are heading for some very turbulent years. The "empire" is unlikely to collapse completely in the present situation, because the vast network of social, political, economic, academic, ideological and military structures gives the system a high amount of resilience. However, the system will be weakened more and more for each crisis and gradually disintegrate. This downturn has already begun.

The inertia scenario can be regarded as the most likely of the four scenarios presented here, but we should expect also to see elements from the other three scenarios happening in the future.

Finally, a note on the state of social science. There is disagreement over whether the social sciences are able to make predictions at all. It is very difficult to test causal theories of social phenomena, and many sociologists refrain from making testable theories at all. On the other hand, we have seen a number of interesting theories coming up in recent decades, and some of the theories that look most promising have been picked out for the present study. A good way of testing theories is to make predictions based on these theories and then wait and see how well the developments match the predictions. This is indeed what inspired me to make the present study.

Theories are certainly needed if we want to understand the society we are living in and if we want to make informed political decisions. We need to take a more systematic approach to world problems and include several different disciplines. We need more proper scientific methodology, more testable theories, less ideology and less stylistic ostentation in the study of social phenomena.

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