Further ideas and questions

1. Is there an optimal size for a developed/developing economy? In the 19th century, the rule was that medium-sized, territorial nation-states modernized (not city-states or large empires).

2. What is the role of capital accumulation to promote growth? All countries that industrialized increased capital investment during the first stages of their industrialization.

3. Does divergence accompany growth? There appears to be no middle road: if there is no convergence, then there is divergence (Red Queen effect). When some economy starts growing the default response should be replicate that; otherwise, you lag behind (diverge).

4. Example of Red Queen races: all pay auctions. A €50 banknote is sold in an English auction. The highest bid gets the banknote and pays the bid, but the non-winning bids must also be paid. Suppose there are two bidders. One offers €20; knowing this, the second, offers €21. In this case, the first bidder has an incentive to overbid the second offer: by raising the bid to €22, there is a chance of winning and making a profit of €28; by not increasing the bid, the auction is lost and €20 must be paid in exchange for nothing. But when the opponent raises the bid from €20 to €22, the second bidder faces the same situation, and has an incentive to also raise the bid. And the incentive remains even with bids higher than €50…

5. On the development process – early starters took more time to develop (they could afford taking more time); should late-comers achieve the same result in necessarily less time? This makes it more difficult to develop. Late-comers face a new constraint: the 'acceleration of time' (effort must be concentrade – too gradual strategies are now unsuccessful).

6. The development path is not entirely replicable – the most favourable and advantageous positions already taken by the early starters – The early industrialized countries are specialized in higher value-added products while the late-starting industrialized countries are specialized in lower value-added products. This limits the growth and development potential.

7. It seems that not all growth strategies are development-equivalent.

8. Does continued growth imply the need to become bigger (more markets integrated)? Can growth only occur through market integration? Is globalization the result of having to maintain growth, which would otherwise stop?

9. The myth of development. The greater part of humankind continues to exist with low incomes, in poverty, technologically backward and governed by authoritarian regimes or, at best, in low-powered democracies. Recipe for development: modernize exports and limit fertility. Poverty stems from the opposite: exports insufficiently processed, demographic explosion.

10. Two processes appear to generate a power vacuum: emergence of a new and powerful non-state world aristocracy and decline of the old aristocracy of nation-states. Governments cannot on their own solve global problems and transnational enterprises are not interested in taking that responsibility.

11. A contemporary explanation for Spain's economic backwardness in the 17th century: "Those who can, will not; those who will, cannot." (González de Cellorigo)

12. Is political development inseparable from economic development? Nation-state necessary for development? Western experience: the creation of a middle class together with the integration of the national market lead to the emergence of the modern nation-state. The other way round (having first the modern state and then try to generate a middle class and articulate a domestic market) does not seem to have worked (Latin America).

13. "The crude reality is that today nobody knows how to reach El Dorado. The rich are getting richer and the poor poorer, in all countries." Oswaldo de Rivero, *The myth of development*.

14. "The chief cause of problems is solutions." Eric Sevareid (journalist)

15. Jevons paradox: "It is wholly a confusion of ideas to suppose that the economical use of fuel is equivalent to a diminished consumption. The very contrary is the truth."

16. Malthusian instability (Layzer, 1988). Systems that can reproduce themselves (living beings, economies) and operate in favourable conditions tend to surpass the carrying capacity of the environment. This creates the need and incentive for the system to adapt and mutate into something else.

17. There are periods of growth of about 300 years, ended by either external or internal shocks, followed by collapse. The civilizations that lead a growth cycle cannot raise the standard of living permanently, but humanity benefits from a ratchet effect: the next growth cycle starts at a higher level (Graeme Snooks, 1993).

18. Parallel historical phenomena: long waves of economic activity and rivalry for economic leadership (Manfred Neumann, 1997). Growing wealth generates expectations of greater wealth – when the marginal profits of accumulation start to decline, distribution problems become more pressing – when economic policy shifts from wealth creation to wealth distribution the potential for growth creation is undermined and the distribution pressures reinforced.

19. The Buddenbrook syndrome (after Thomas Mann's novel). The grandfather makes successful the firm founded by this father. The grandfather's son consolidates the business. The grandson fails to maintain success. Inherited wealth changes preferences from capital accumulation to present consumption: the present is perceived as more valuous than the future. Those accustomed to the enjoyment of wealth spend more time and effort in consuming (reducing wealth) than in investing (increasing it).

20. The international Buddenbrook syndrome (Manfred Neumann). "The economic rise of a country and the achievement of leadership depend on time preference being comparatively low [= savings comparatively high] and the burden of military expenditures being light because of population size (…) Conversely, the decline of once-leading nations can, in all cases, be attributed to a rising rate of time preference (…) Innovative activity diminishes and the ability to cope with the challenges of foreign competition dwindles."

21. Is decline/collapse the final outcome of success?

22. Institutional life cycle (Avner Greif). Institutions created to sustain cooperation in the end generate the conditions leading to their own demise. Example: Genoa was a thriving commercial center in the 11th century thanks to the cooperation between the ruling commercial clans; with success, the reward from controlling the city overwhelmed the gains from continued cooperation. With the disappearance of the foreign common military threat (the German emperor), the clans battled for the control of the city and abandoned productive cooperation.

23. Is there a threshold of social/cultural differences below which globalization leads to peaceful cultural integration and above which globalization reinforces the differences and creates (cultural, ideologocial, social, religious, political) polarization?

24. The rise of the intangible (knowledge-based) economy. Does intangible-rich economy behave differently from a tangible-rich one? Since intangible investments tend to generate spillovers (in the right combinations, intangible investments are more valuable together), it makes more likely for large and profitable firms to emerge, which increases the gap between leaders and laggards. At a global scale, intangible-rich economies have more potential to diverge from tangible-rich economies.

25. Not only goods are globalized, but also bads: environmental degradation, biodiversity loss and mass extinction are also globalized.

26. The limits of technological progress do not appear foreseeable. But has humanity reached the limits of moral progress? How stable is a society experiencing technological progress without in parallel progressing morally?

27. How intense will the interaction between climate change and global conflict be? Are applicable the lessons from the 17th century general crisis (which coincided with the Little Ace Age)?

28. The principle of social proof. People make decisions and adopt beliefs on the basis on what others do and believe. The individuals' perception of correct/acceptable behaviour/beliefs depends on the extent to which other follow/hold the behaviour/beliefs. To decide what is appropriate people tend to rely on what others do. The presumption is that one makes fewer mistakes by respecting social evidence (the majority cannot be wrong). Social proof appears most influential under uncertainty and similarity.

29. The Halo effect. It is the cognitive bias in which the overall impression of a person influences the belief regarding the person's character (attractive-looking people tend to be perceived as kind, intelligent, successful). [Special case: the Dr. Fox effect. Students tend to rate higher a teacher who presents the material in an engaging, expressive, enthusiastic manner, regardless of the value, interest, usefulness, meaning, plausibility of the content. Talk nonsense under conditions of high expressiveness gets higher ratings than providing informative and useful contents in a dull manner.] [To which extent can social proof be manipulated by the Halo effect?]

30. Dunning-Kruger effect. It is the cognitive bias according to which people tend to overestimate their own competence (one's is not fully aware of his or her own ignorance).

31. Self-serving bias. It is the cognitive bias in which people tend to attribute success to themselves and failure to external factors. It is an expression of overconfidence: people seem to overestimate their skill, knowledge, competence, efficiency, moral virtues…

32. Self-confirming bias. It is the cognitive bias in which people tend to take into account or emphasize information/evidence that reinforces their views/beliefs, and neglect information/evidence contradicting their views/beliefs.

33. Apparently, people can argue anything, with or without adequate/insufficient evidence. If pressed, probably anyone can provide an explanation for some phenomenon and next for the opposite: are owners of small businesses more successful by taking risks or by being cautious?

34. Why has religion failed to die away, despite the confident prediction of many intellectuals since around 1950 that religious belief would soon die away? In an unexpected way, religion has boomed.

35. Why do superstitions persist, when modern science casts big doubts on the causality relationships that the superstitious beliefs or practices presuppose? What sustains the belief that certain numbers are lucky and others unlucky? d-

36. The Five Factor Model (big five personality traits). Openness to experience (to be curious and creative vs to be cautious or even dogmatic); conscientiousness (organized vs easy-going); extraversion (outgoing vs reserved); agreeableness (friendly and cooperative vs detached and suspicious); neuroticism (tendency to experience unpleasant emotions easily –anger, anxiety, depression– and the degree of emotional stability).

37. The Hubris Syndrome. Personality change acquired by some persons occupying positions of social, political, economic, ideological leadership. The change is characterized by lack of realism (the loss of touch with reality) and excessive self-regard. Both traits lead to incorrect decision-making. The Hubris Syndrome and power go together: power is necessary for the syndrome occur; leaders suffering from the syndrome that have lost power never regain it.

38. The inverse law of sanity. "Normal persons have mild positive illusion, which, in the context of power, predisposes them to developing hubristic behavior. In contrast, depressed persons are more realistic and empathic than normal persons, and thus, in the context of power, less prone to the Hubris Syndrome." Peter Garrard et al. (2016), *The intoxication of power*.

39. The paradox of power (Jack Hirshleifer). In power struggles, it is natural to expect that the strong will grow stronger (and the weak, weaker). The paradox of power is that poorer or smaller groups often end up improving their positions in relation to richer or larger ones. One explanation is that the group starting at a disavantage has an incentive to make more effort (fight harder, invest more, take more risks, try new strategies) than the group enjoying an advantage. It is only when the conflict is sufficiently decisive that the richer or larger group gains relative to the poorer or smaller. The paradox explains the adoption of policies that redistribute income from the rich to the poor.

40. Systems self-organized critically. The property of self-organized criticality means that individual behaviour tends to cause a system both to self-organize and converge to critical/tipping points where small events may have big global effects. An example: sand falling on a fixed point in a table. The sand accumulates forming a pile until a state of repose is reached (at a certain angle of the pile). After that state, further grains create avalanches (a potentially catastrophic global event) and part of the sand falls off of the table.

41. Is there an arrow of social time? Do societies necessarily, with time, increase their complexity? If societies are self-organized critically systems, what feature(s) define then the critical points?

42. Global energy dilemma. A stable economic development depends on enough energy resources being available. The dilemma is that the energy contest between renewables and non-renewables (fossil fuels) is weighted in favour of the infrastructures, strategies and interests of the oil majors. The transition probably requires new players but the existing players have an almost complete power to block entrance. The transition is relatively straightforward, as the new technologies exist and the annual cost of implementing it is moderate (less than 2% of GDP). The obstacles preventing the transition are political: particular interests dominate at the national level, and national interests at the global level (Gwynne Dyer, 2008, *Climate wars*).

43. The PAT formula: I = PAT. The environmental impact I of a society equals the product of population P (demographic causes/factors), affluence A (capital accumulation) and technology T (A and T summarize the socioeconomic cause). The component A can be expressed as $\frac{K}{L} \cdot \frac{Y}{K}$, where K represents the capital stock, L population and Y aggregate production (GDP). The ratio $\frac{K}{L}$ is a mesure of the intensification of the economy (how much capital per person is available to produce) and the ratio $\frac{Y}{K}$ is the average productivity of the capital stock (how much production each unit of capital generates). The component T can be decomposed as $\frac{E}{Y} \cdot \frac{impact}{E}$, where E stands for "energy" (so E/Y is the amount of energy per unit of product) and $\frac{impact}{E}$ measures the environmental impact per unit of energy used in production.

44. Has humanity being changing the climate since the onset of agriculture? (Even before civilization started the war with nature?) An anomalous rise in the methane trend coincided with the beginning of irrigatation for rice in Southeast Asia. Natural processes fail to explain why new ice sheets have not reappared in northeast Canada when the cycles of Earth's orbit predict that they should have. Thus, had humans not begun agriculture, there would now be a gigantic, continental ice sheet covering regions of Canada (W. F. Ruddiman, 2010, *Plows, plagues and petroleum: How humans took control of climate*).

45. Alter-globalization. It is a social, cultural and political movement born (around 2001) in response to the impact and apparent triumph of capitalist globalization, asserting a concept of human rights, freedom and justice within globalization. The movement denies the blind belief in markets, supports the reintroduction in economic thought of the role of the state and defends a vision of human beings in which they are not reduced to the *Homo economicus* caricature. The movement aims at strengthening the citizens' abiity to act globally (Geoffrey Pleyers, 2010, *Alter-globalization: Becoming actors in a global age*).

46. How much can be learned from the rise and fall of the Roman empire? Kyle Harper, 2017, *The fate of Rome: Climate, disease, and the end of an empire*. (1) The Romans were unabashed borrowers. The Roman republic was another citizenship-based political experiment with particular ingredients: religious piety, civic sacrifice, militarism, and legal and cultural mechanisms to incorporate former enemies as allies and citizens. The Romans handled success (the acquisition of massive amounts of wealth from the conquests) successfully. The grand strategy consisted in integration: The Romans ruled through cities and their elites. Local elites across three continents collected taxes to maintain the empire and, in exchange, were allowed to enter the Roman governing class. The durability of the empire depended on that agreement. The stability of the pact made the empire stable, which enabled demographic and economic expansion, which reinforced the empire's power. (2) In the period AD 150-450, one of the most dramatic sequences of climate change appears to have pressed to the limit the empire's resilience. The fall of the Roman empire is the single greatest regression in all of human history (Ian Morris). The Rise of the West is arguably a side-effect of the extraordinarily successful and long-lasting experiment that was the Roman empire.

47. "Those who suffer from historical amnesia, the belief that we are unique in history and have nothing to learn from the past, remain children. They live in an illusion." Chris Hedges, 2010, *Empire of illusion: The end of literacy and the triumph of spectacle*.