

Do 'AJR' have a model of development?

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by

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- “In spite of the vogue of ‘Quantitative Economic History’, economic historians are under less temptation to see their subject as purely quantitative.”

John Hicks (1969), From the preface to ‘A Theory of Economic History’

Outline of my talk

- I. The AJR hypothesis
- II. The methodology
- III. How to view the AJR claim
- IV. Understanding colonialism: the view from India
- V. Institutions and 20th century world history
- VI. Conclusion

Outline of the talk

- The original paper by Acemoglu, Johnson and Robinson (AJR) is “The colonial origins of comparative economic development”, ‘American Economic Review’, 2001.
- Here I shall focus a little more on their monograph length article “Institutions as a fundamental cause of growth” in ‘The Handbook of Economic Growth’ (2005) as it a reflective statement on their hypothesis.

I. The AJR hypothesis

- AJR state their objective is to answer to the question why some countries grow faster than others.
- While conventional growth theory focuses on the proximate determinants of growth – think Solow – they themselves wish to go back a step and address the question ‘what causes growth?’

- They think of earlier contributions as concerned with the “mechanics of growth”, while they themselves are unravelling something deeper.
- To convey more clearly what they attempt, they refer to North’s observation that capital formation, economies of scale, etc., are “already growth”.
- Methodologically, they adopt a model-free investigation, attempting a *parsimonious* explanation of growth globally i.e., across all countries.

- Whether or not an economy grows depends upon how it is organised, i.e., on its economic institutions.
- Institutions are the rules governing interaction in society. As the argument proceeds, we find that AJR have in mind not only interaction among citizens but also between the state and citizens.
- So, institutions are “the rules of the game”, as in Douglas and North and

- Their main contention is that “There is convincing empirical support for the hypothesis that differences in economic institutions, rather than geography or culture *cause* differences in incomes per capita. (p. 402, AJR 2005, italics as in the original)
- “We think of good economic institutions as those that provide security of property rights ...”

II. The methodology

- How do you test for the role of institutions in growth when all you have is observational data i.e., you cannot run an experiment, say an RCT?
- You look for a ‘natural experiment’, i.e., a historical phase which allows you to observe outcomes in a population that has been divided into two groups differing only in terms of a single factor.
- For AJT this factor is the ‘quality of institutions’.

- In their empirical investigation, AJT measure the quality of institutions in terms of the 'protection from the risk of expropriation'.

A preliminary demonstration: The case of the 2 Koreas

- Korea was partitioned during the Cold War. The north and the south of the peninsula became two independent countries, organizing their economies in different ways, i.e., adopting completely different sets of institutions.
- The North followed the model of Soviet socialism and the Chinese Revolution in abolishing private property in land and capital. Economic decisions were not mediated by the market, but by the communist state. The South instead maintained a system of private property, and the government, especially after the rise to power of Park Chung Hee in 1961, attempted to use markets and private incentives in order to develop the economy.

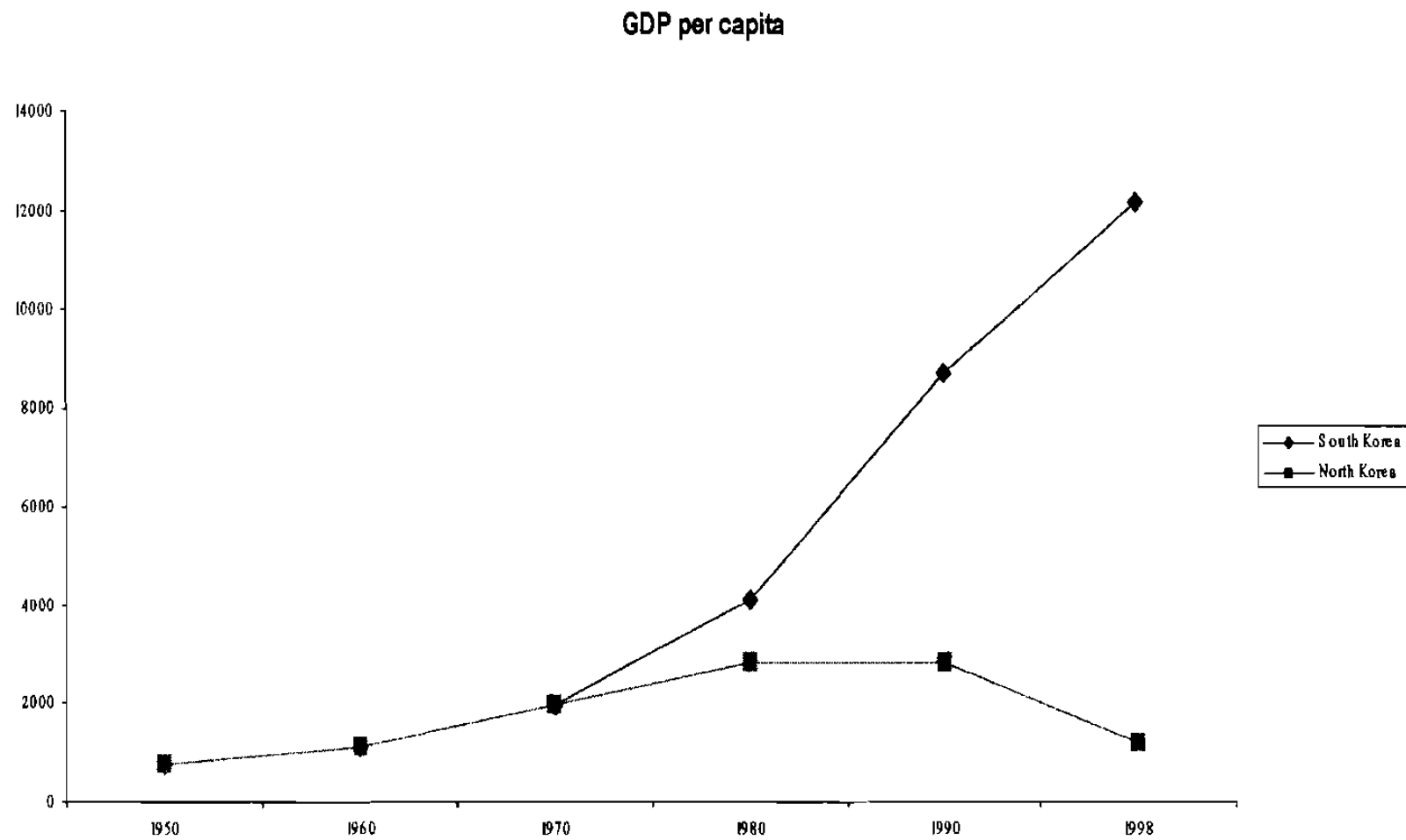


Figure 3. GDP per capita in North and South Korea, 1950–98.

- AJR argue that with the two halves organized in radically different ways, and with geography, culture and many other potential determinants of economic prosperity held fixed, any differences in economic performance can plausibly be attributed to differences in institutions.
- They believe the finding of the superior growth performance of South Korea to be consistent with the hypothesis that it is institutional divergence that accounts for comparative development.

- *There is however one instance in which the AJR hypothesis would fail, which is the one where the North Korean leadership did not pursue growth as a goal. It could have survived anyway, as it was a dictatorship.*
- *This cannot serve as an explanation, however, as so was South Korea under a dictatorship in its early years.*

- While AJR find the 'Korean experiment' convincing, they state "... this is only one case, and in the better-controlled experiments in the natural sciences, a relatively large sample is essential."
- For them, to establish the major role of economic institutions in the prosperity and poverty of nations we need to look at a larger scale "natural experiment" in institutional divergence.

- This takes them to what they term ‘the colonial experiment’.
- Europeans colonized a large part of the world but established radically different type of institutions, with implication for growth.
- In the less densely populated regions – north America north of Mexico, Australia and New Zealand – they adopted institutions that safeguarded property rights while in the densely populated regions of Asia and Africa they adopted ‘extractive institutions’. This has resulted in different long-term growth trajectories between these two sets of colonies.

- The scatter plot of institutional quality and income for 'all countries' of the world is presented in the following slide.
- Note that current income is being compared to current quality of institutions under the assumption that colonial institutions have remained largely unchanged even after independence.
- The data on economic institutions come from Political Risk Services, a private company which assesses the risk that investments will be expropriated in different countries.

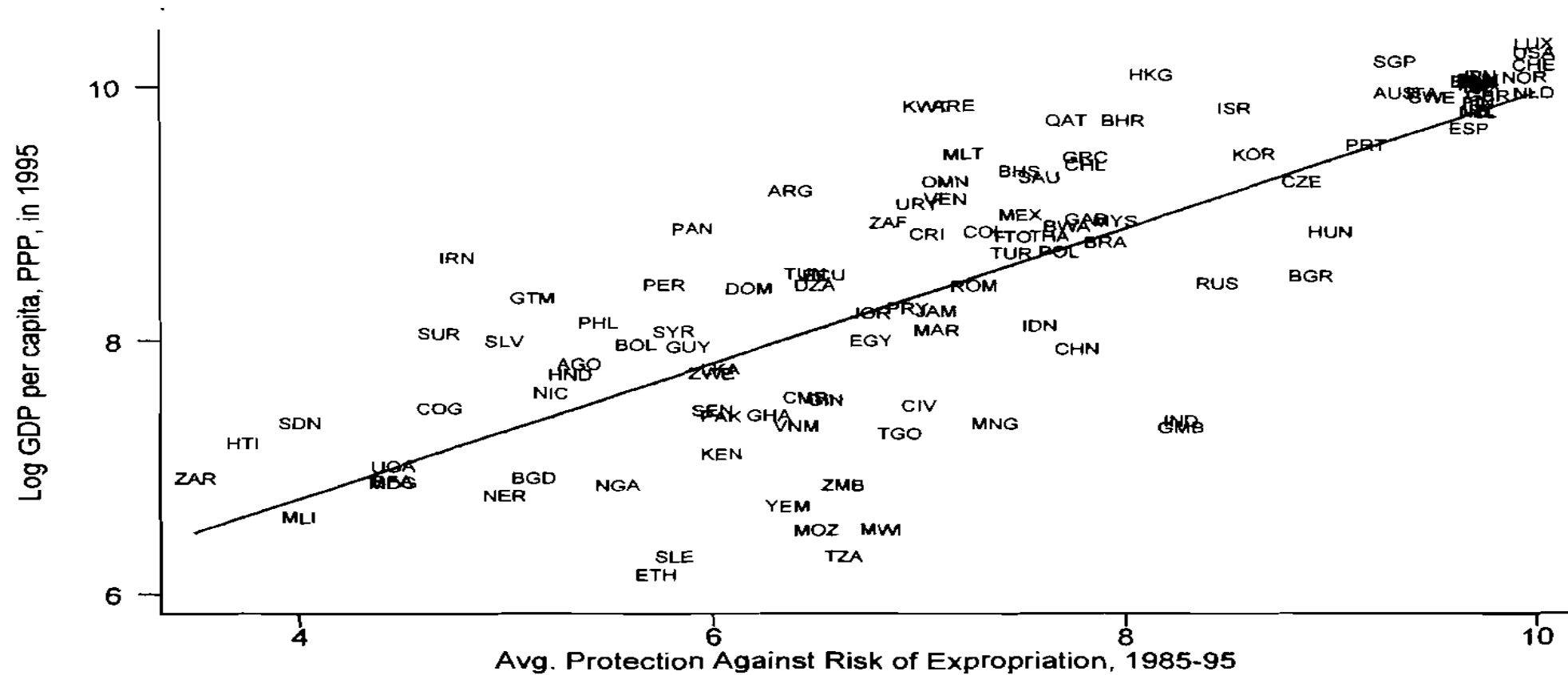


Figure 1. Average protection against risk of expropriation 1985–95 and log GDP per capita 1995.

- The line of best fit is quite strongly upward-sloping as claimed by AJR.
- However, there are anomalies as far as India is concerned.
- 1. India's income is well below what it ought to be in relation to its institutional quality.
- 2. Only 18 countries have better institutional quality than India but 73 have higher income.
- 3. China has poorer institutional quality but much higher income than India.
- Prima facie, the applicability of the AJR hypothesis to India appears limited.

- AJR's core methodology is econometric, namely, regression analysis.
- An incipient problem in regression analysis is reverse causality. In the present case, AJR want to disallow any impact of income levels across countries on their institutional quality in their estimation.
- To eliminate the possibility of reverse causality, they adopt an instrumental variables (IV) estimation strategy, adopting historical settler mortality as the instrument for institutional quality.
- In the next two slides I explain.

- Assume that the relationship we are investigating is of the form
$$Y = bX + u,$$
where 'X' the *variable of interest*.
- We can get an estimate of 'b' through the statistical procedure termed *regression*. However, if there is *reverse causality* from 'Y' to 'X', then the standard estimation procedure (OLS) will give us an unreliable estimate of 'b'; technically speaking a 'biased' one.
- There is a method of addressing this issue, however, and it is to use a variable, say 'Z', that is a substitute for 'X'. Such a variable acts as an instrument for 'X'; hence the term instrumental variables (IV) estimation.
- There is condition to be satisfied, though. For 'Z' to be a good instrument it should be correlated with 'X' and not correlated with 'u'.

- In the AJR study, 'Y' would stand for 'per capita income', 'X' would be their index of institutions and the instrument 'Z', is the settler mortality rate at the time of European colonisation.

AJR adopt the 2-stage least squares regression method represented by the following 2 equations:

$$(1) \quad \log y_i = \mu + \alpha R_i + \mathbf{X}_i' \gamma + \varepsilon_i,$$

$$(5) \quad R_i = \zeta + \beta \log M_i + \mathbf{X}_i' \delta + v_i,$$

- There is no guide map for finding a suitable instrument. It is for this reason that the AJR choice of settler mortality is viewed as ingenious. It is clearly exogenous in the regression. After all, today's income could not have affected settler mortality of centuries ago!
- AJR found settler mortality to be statistically significant in a cross section regression of income on institutional quality.
- The rest, as they say, is history, as a significant section of the profession views the study as exemplary from the point of econometric implementation.

III. How to view the AJR claim

- I shall approach this issue from 2 directions.
- First, I assess the AJR claim on in its own terms.
- Then, I ask if their representation of colonialism is appropriate.

- *Two questions on the empirical strategy*
- First, though settler mortality is statistically significant in their regression, it can be asked if AJR's assumption that settler mortality is a strong determinant of institutional quality is justified.
- To see this refer to the following figure.

II. The methodology

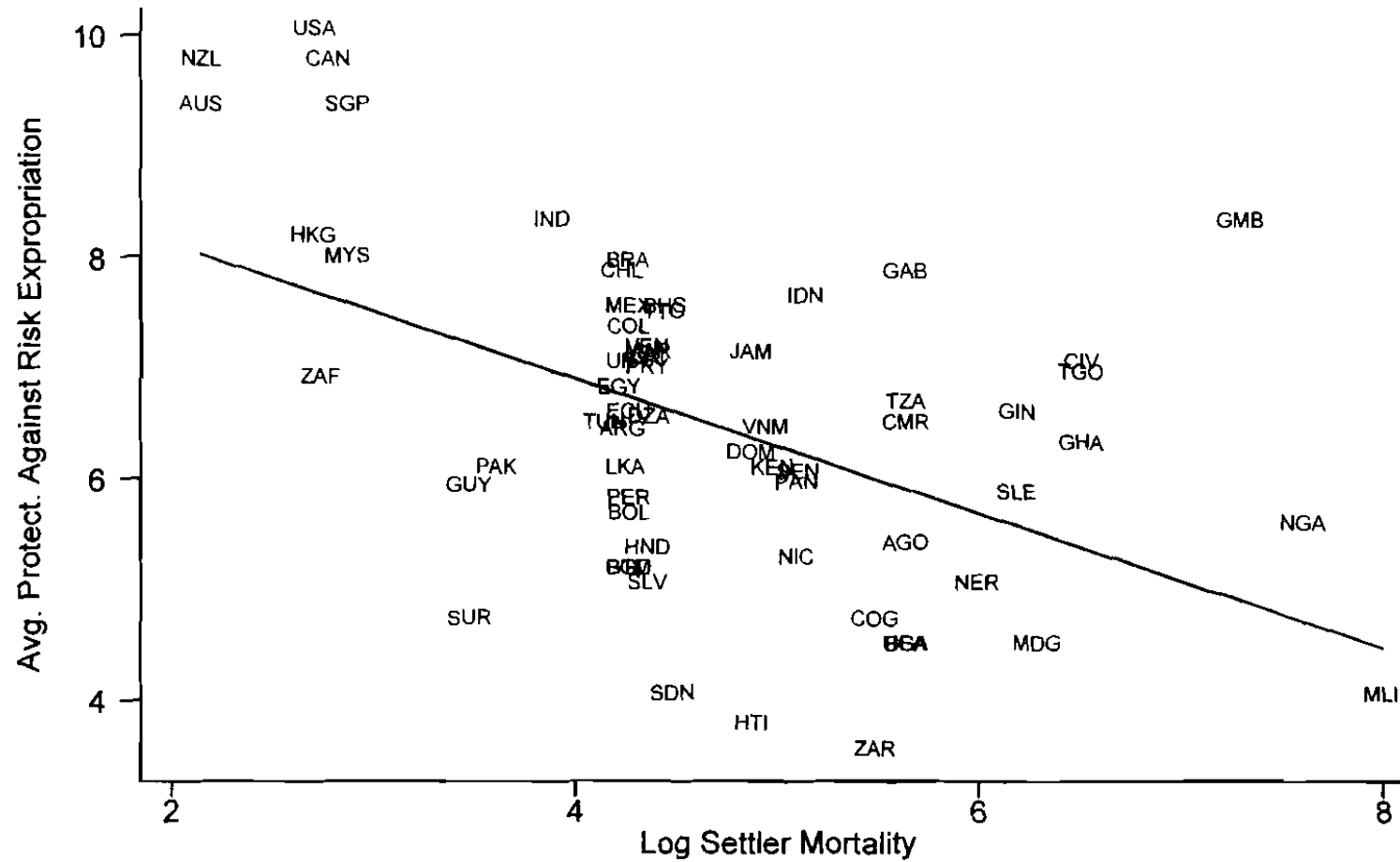


Figure 14. Log mortality of potential European settlers and average protection against risk of expropriation 1985–95.

- To the naked eye there appears to be considerable dispersion.
- AJR are upbeat, though, asserting “Figure (14) shows the **very strong** relationship between the historical mortality risk faced by Europeans and the current extent to which property rights are enforced. A bivariate regression has an R-squared of .26.”
- *.26 cannot be treated as high even for a cross-section regression.*
- *So, AJR’s first stage regression is not particularly impressive in that it does not convey a strong, leave alone “very strong”, relationship between mortality and the AJR index of institutional quality.*

- Secondly, to conclude from their sample that institutional quality is what determines income difference the 2 sets of colonies must differ only in terms of institutions. For reasons that I provide later on in this presentation, this is an unsustainable assumption.
- Thirdly, the statistical basis of the explanation is problematic. AJR are statistically on safe ground, as they regress one variable in levels – income - on another one – a measure of institutional quality. However, in their implied explanation of long-run growth, income is growing while the institutions themselves are unchanging, being from the colonial era.
- This takes me to the fourth point, which is the main one.

- While an RCT is supposed to establish causality and IV estimation is thought of as mimicking it, for the AJR result to be taken as an explanation a causal mechanism needs to be provided.
- AJR provide no causal link between institutions and growth. One might say that they do not have a model of development.
- Further, economics is about human behavior. There simply is no room for agency in the AJR story.

- To convey better what I mean when I say that they do not have a model of development, I point to Schumpeter's 'Theory of Economic Development'. Published in 1913, it identifies the 'entrepreneur' as the driving force of capitalism.
- For Schumpeter, 'innovation' is the means by which the system moves i.e., is its 'motive force', as it were, and innovation is undertaken by entrepreneurs.
- There are social scientists who have provided an account of the driving force under capitalism based even more squarely on human behaviour, namely, Marx and Weber.

- For Marx, capitalists were driven by a “boundless thirst for surplus value”. Surplus value is the source of profits. Growing profits give rise to growing incomes. Capitalists drive the system.
- For Weber, Protestantism, with its emphasis on work as a sign of moral worth gave rise to capitalism and sustained it.
- The early American settlers were Protestants who were imbued with the ‘Protestant ethic’ even before they migrated to America.
- Their devotion to work is seen in the number of hours per worker recorded in US, which is higher than that in all the European countries, all of which have Christian antecedents.

- The American economist Benjamin Friedman writing today – ‘Religion and the rise of capitalism’ (2021) – identifies the role of religion in the formation of the ‘Anglo-Saxon’ economic model.
- He speaks of Protestant beliefs influencing the American economic model “before the formation of the republic”.
- One might even say that the ethic of hard work, which underlies American prosperity, came on the boat from England.

- Friedman identifies the general aversion to inheritance taxes, or even taxation in general, and the laxness with which giant corporations are regulated to the underlying religious belief lingering on long after much of the population ceased to practice it.
- AJR summarily dismiss this thesis by a thinker so deep as Weber by simply stating that religion is endogenous to both economic outcomes and other determinants of long-run growth without giving any explanation or evidence.

- They also dismiss the finding of a relationship between religion and growth by Barro and McCleary by stating that the authors do not establish cause because they do not adopt the Instrumental Variables estimation strategy.
- It may be repeated that though AJR use an econometric method that deals effectively with the problem of endogeneity, absent a mechanism linking institutions to growth, neither do they have a causal story.
- *Q: What is the practice in the natural sciences, which AJR wish to mimic?*

- Fifth, on the posited unique relationship between ‘property rights’ and the nature of institutions.
- For AJR, secure property rights are exclusively associated with ‘good’ institutions, for ‘extractive institutions’ come with insecure property rights.
- However, slavery in the US and the Caribbean was an extractive institution and came with an assurance of secure property rights for the slave owner.
- When AJR speak of ‘protection from expropriation’ they have in mind the protection of property owners and not the slaves.
- So, historically, there are instances when secure property rights were instituted precisely to enable extraction in Europe’s colonies. This weakens the tight distinction they draw between ‘good’ and ‘extractive’ institutions.

- Finally, AJR's claim regarding the explanatory power of institutions in comparative development relies on the similarity of the European colonies in all respects other institutions. This is untenable. I explain below.
- There was an asymmetry in Britain's relationship with its white and black colonies. Arguably, a sense of kinship mediated British policy towards the former which was absent in the case of the latter. By design, the black colonies were subject to far greater control as they were meant for exploitation in a way that the former were not.

- Thus the demonstration by AJR of the “successful” industrialization of America (also of Canada, Australia and New Zealand) compared to India is naïve. India had to be kept agrarian if Britain was to safeguard its supply of food and raw materials and serve as a vent for surplus of British industry.
- I shall now move on the question whether AJR’s representation of colonialism is correct? From an economic point of view the absence in the AJR account of the defining feature of colonialism – income transfers – is what matters.

IV. Understanding colonialism: the view from India

- The title of this section is AJR's. I retain it precisely to convey that there are ways other than theirs to understand colonialism.
- AJR reduce colonialism to a matter of institutions.
- But the institutions were only incidental to the objective of the colonizer. Slavery would be a case in point. From this point of view, institutions come second.
- More importantly, institutions were not the only means by which the colonizers achieved their objective.
- In some important instances, colonialists achieved their objective by directing income flows. Institutions may have little to do with this aspect of colonialism, perhaps its most important one.

- An astute account of the income flows under colonialism is to be found in writings of the master economist:

“.... I trace the beginnings of British foreign investment to the treasure which Drake stole from Spain in 1580. In that year he returned to England bringing with him the prodigious spoils of the Golden Hind. Queen Elizabeth was a considerable shareholder in the syndicate which had financed the expedition. Out of her share she paid off the whole of England’s foreign debt, balanced her Budget, and found herself with about £40,000 in hand. This she invested in the Levant Company, which prospered. Out of the profits of the Levant Company, the East India Company was founded; and the profits of this great enterprise were the foundation of England’s subsequent foreign investment.”

J.M. Keynes ‘The Economic Possibilities of our Grandchildren’

- So, we see that even before the EIC could take its institutions to India there were the income flows to Europe from Spanish America.
- A focus on institutions without taking income flows into account is to misunderstand what AJR refer to as “the colonial experiment”, and leaves one unable to make a quantitative assessment of what was at stake.
- I illustrate the role of income flows under colonialism by looking at the relationship between India and England.
- *I do not see this as limiting. Unlike in AJR, the colonial experience was not uniform, and to reduce it to institutions is procrustean.*

- When heterogeneity is present we are better-off isolating for closer investigation parts that account for much of the whole. I believe that, having been the largest colony, India answers to such a description.
- In the case of India, one of the main instruments by which income flows were directed under colonialism was trade, if 'trade' it can be called.
- Three forms of income flow from India may be noted.

- For the greater part of the colonial era, land revenue was the means of extraction of the surplus and its transfer from India to England.
- The 'tribute' to the colonial power in the form of land revenue, was used to purchase manufactured goods which the East India Company exported. Note that even if the Indian manufacturers may have been paid, they were paid out of taxes on domestic production. In effect, England was receiving imports from India without having to pay for it. It is a pure transfer.
- This was referred to as the 'drain of wealth' from India by Indian nationalists. Dadabhai Naoroji had spotted it at the turn of the 19th century, but the precise mechanism by which it took place has been identified by Irfan Habib and clarified by Utsa & Prabhat Patnaik.

- No new institutions were created by the British to extract tribute. Only military power mattered.
- Habib expresses this perfectly: “(The colonial power) stepped into the shoes of the sovereign power by virtue of acquisition of *diwani* in Bengal and *jagirs* in the Northern Circars and elsewhere. ... The legal forms which concealed these conquests are not material except in so far as they provided rationalization for the main acquisition, the power to levy and collect land revenue and other taxes from the Indian population.”

*Irfan Habib (1977) “The colonialisaton of the Indian economy”,
'Social Scientist'*

- We know from land revenue accounts that the East India Company used its overlordship to step up extraction far beyond India's native princes had done, and impoverishing a country in a way not captured by AJR even as they speak of a 'Reversal of Fortune' after colonialism whereby once rich nations became 'comparatively' poorer than lands colonised by European settlers.
- There is no evidence of any major institutional innovation, termed 'extractive' by AJR, here.
- However, a whole new apparatus for surveillance and control of the Indian population sprang up during the colonial era.

- In a major absence, AJR do not speak of the 'colonial origins' of European growth. Keynes has mentioned Spain, I continue with the India-England relationship.
- It is plausible to argue that the income from India to Britain was contributing to capital formation there.
- Habib's estimate, based on Furber's, is that the tribute amounted to 9% of Indian GNP in the late 1700s, and transfers from India amounted to 30 % of the capital formation in Britain in 1801, a significant share.

- For an idea of the relative importance of the drain to the coloniser consider the estimate by Patnaik and Patnaik: *“The value of the drain from 1765 to 1900, cumulated to 1947, gives us £397.8 billion, nearly thirty-eight times the 1947 GDP of the United Kingdom.”*
- A focus on institutions as the defining feature of colonialism masks the drain.
- AJR’s study is titled “Colonial origins of comparative development” but takes no account of the impact on long-run income in the UK of income transfer from its colonies. The same is true for the other erstwhile colonial powers of Europe, notably France (Piketty).

- Transfers directly increase income of the recipient country and have a multiplier effect on its output.
- In light of the AJR thesis, the existence of transfers implies that Britain's growth cannot be put down to its 'good' institutions, namely 'secure property rights' alone.

- A second form of outflow is only a variant of the first but imaginatively mediated through trade.
- With the rise of British industry, England no longer needed Indian manufactures.
- It needed Chinese tea, though, but China did not need British goods!
- England found a solution in exporting opium to China and buying tea there with the proceeds.
- But this required first the forced cultivation of opium in India and then forcing the Chinese emperor to accept British exports of opium into his country.

- This ingenious solution to the problem of realisation of profits was based on force at every level.
- How colonialism worked cannot be contained within a narrative of 'extractive institutions' even if the compulsory cultivation of poppy, which ruined India's peasantry, can be subsumed under it.
- However, the terror that it unleashed in the countryside, from raids to surveillance, finds echoes in the behaviour of the Indian state even today, a point to which I shall return.

- A third form of outflow from India was via the imposition of debt on India by Britain, inevitably in sterling.
- Of this form the most notable one was the debt incurred by India to pay for the construction of the railways. The project guaranteed a rate of return to private British companies. This led to the construction of unviable lines paid for from taxes levied on Indians.
- Finally, India was made to pay for its own governance by an alien power (the Home Charges) and Britain imperial adventures in the neighbourhood.
- These outflows were unrelated to the nature of property rights in either country.

- *“These costs, always in excess of India’s fast-rising foreign earnings, were shown as a cumulating debt that India owed. There was a quantum jump by nine times in sterling debt between 1856 and 1861 alone, from £4 million to £35 million against the cost of suppressing the Great Rebellion. Sterling debt rose again in the 1870s, doubling to £70 million, and exceeded rupee debt in the mid–1880s, again registering a quantum jump from 1891 as monetary gold was imported by the government for reserve requirements. By 1901, total sterling debt stood at £135 million, over one-fifth of British India’s GDP and eight times its annual export surplus earnings.”*

Patnaik and Patnaik (2021)

- The three forms of forced income flow from India to Britain, mostly but not exclusively, implemented through trade policy, show that the colonial experience of India cannot be understood merely by referring to institutions even if it is granted that they were extractive.
- Finally, the use of India as a market for British manufactures after the Industrial Revolution cannot be understood in terms of institutions at all. Britain forced 'free trade' on India while protecting its own textile industry in its nascent stages.
- *(What it means to impose free trade?)*

V. Institutions and 20th century world history

- A defining feature of 20th century world economic history is the rise of East Asia, starting with Japan.
- Now China is poised to overtake the US economy in GDP in PPP terms.
- India's progress is less striking than China's but its GDP per capita may be expected to rise very substantially if it continues to grow at present rates.
- This development is altering the global distribution of income.

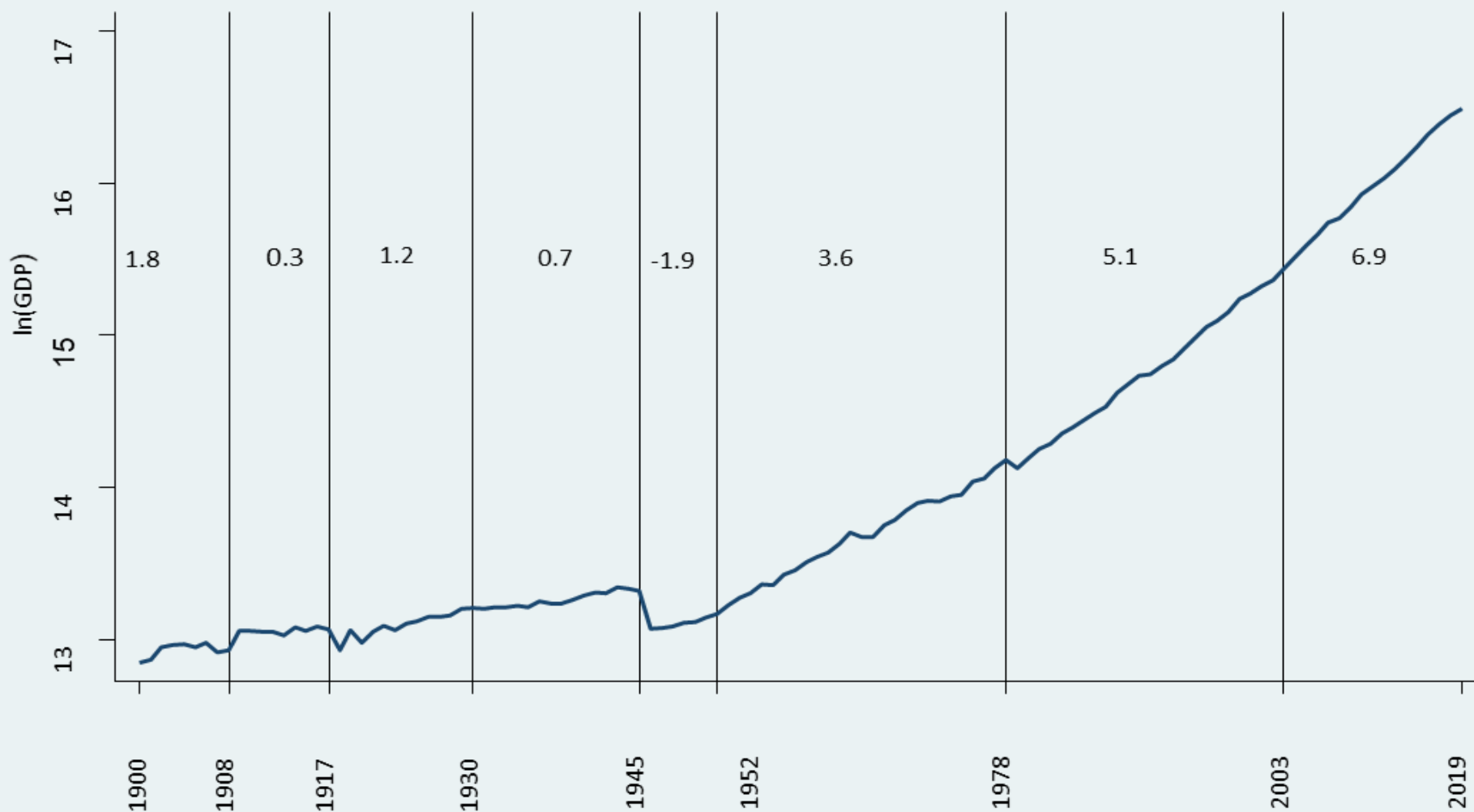
- A question that follows from the AJR thesis is of the role of institutions in the rise of China and India.
- Based on my limited knowledge, I shall speak only in passing of the case of China but propose an explanation in the case of India.

- There is no clear answer to the question of the nature of property rights in China. I quote below from a China scholar: *“In many cases land leases are issued by the administrative village, while the land belonged to the natural village in the past. It is like the ownership rights to land have been silently stolen from the natural village and vested in a level higher. [...] Yet, to date there are not many conflicts, because farmers are not well imbued with the idea of “property.” But problems are sure to arise in the future ...Sheng Li, oral communication, 1999. Sheng Li is a senior official within the Bureau of Law and Policy System Reform of the Ministry of Agriculture.”*

Peter Ho (2001), “Who Owns China's Land? Policies, Property Rights and Deliberate Institutional Ambiguity”, *The China Quarterly*, Volume 166, pp. 394 – 421.

- By 2001, the date of this statement, China had had very high agricultural growth following the Deng Xiao Ping reforms. But the land is owned by the Chinese state.
- On the question of ownership, Chinese scholars have pointed out that the public sector continues to have a large presence in the Chinese economy, both in manufacturing and banking.

Growth in post-colonial India



- Institutions have changed very little over the twentieth century in India.
- However, the growth experience altered dramatically from the nineteen fifties.
- Both the spectacular growth after 1947 and the continuous acceleration of growth since requires an explanation.
- Clearly, it cannot be in terms of institutions, whether good or bad.

- Balakrishnan, Das and Parameswaran (2016) write down a model of accelerating growth and test its implications for India.
- Their explanation of India leaving behind its colonial past, lies in the Nehru-Mahalanobis Strategy shocking the stagnant colonial economy to a higher level of output, which triggered continuous and rising growth through increasing returns.
- Though not part of the BDP investigation, the role of the state is crucial at the early stages of a growth process of this type, and there is ample evidence of this for India.

Supply of public goods

- The rise of East Asia has been associated with the growth of human capital. In subsequent writing AJR (2005) suggest that this can be subsumed under their hypothesis: “Recall that the institutions hypothesis links incentives to invest in physical and human capital and in technology to economic institutions, and argues that economic prosperity results from these investments.”
- Historically, infrastructure and human capital have been developed by the state in economies with very different economic institutions, such as the former Soviet Union and Japan. Again, they are notably high in contemporary China, where, as we have seen property rights are not strong.
- And, both have fared poorly in India, a country with a relatively high index of institutions a/c to the AJR index.

Conclusion: “Economics is not data science”

- The AJR account of development is the result of economics having moved away from its moorings, where history, sociology and politics all have a role in generating economic outcomes.
- A drive for parsimony in explanation, viewed as virtue, can only lead economics into a *cul de sac*.