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Was Weber Really Wrong?

A Comment on Some Recent Empirical Studies on Economic Growth

Tong Zhang

Abstract

In the last two decades, there have been two influential papers in empirical economic growth, Becker and Woessmann (2009) and Acemoglu, Johnson, and Robinson (2001), which explicitly or implicitly claim that Weber's thesis has been refuted by empirical evidence. This paper argues that their alleged refutation of Weber is achieved by serious distortions and reductions of Weber's thesis combined with a sequence of unsubstantiated extrapolations.

Keywords: Weber falsified, institutional determinism, theodicy, ideal types of religions, statistical validity

1. Introduction

'Weber was wrong!' is the confident response one should expect when talking about *The Protestant Ethic and the Capitalistic Spirit* with (mainstream) growth and development economists. Their confidence comes from two recent empirical papers that are claimed to have falsified the Weber thesis: Becker and Woessmann's (BW) 2009 paper *Was Weber Wrong? A Human Capital Theory of Protestant Economic History* and Acemoglu, Johnson, and Robinson's (AJR) 2001 paper *The Colonial Origins of Comparative Development: An Empirical Investigation*. While both of these papers are empirical studies 'using solid statistical techniques' (Lazear 2000), the former rejects the Weber thesis directly by claiming that human capital, rather than the Protestant ethic, is the reason for the prosperity in Protestant countries, and the latter

rejects the Weber thesis indirectly by showing that institution is the fundamental determinant of economic growth.

A genuine scientist is always happy to witness the falsification of well-established theories because it leads to breakthrough and progress. The caveat, however, is that the alleged falsification is not conducted in a scientifically rigorous manner, and its validity is acknowledged by the scientific community out of self-interests rather than reason. In the case of mainstream economics, there is every reason to suspect the latter: mainstream economists are eager to claim that mathematical and quantitative economics is the ‘premier social science’ (Lazear 2000: 1), so they are more than happy to see Weber’s thesis falsified so their intellectual authority will not be challenged by those unquantifiable cultural factors anymore. Therefore, before jumping on the bandwagon of discrediting Weber, we must perform the due diligence and ask: are BW and AJR as scientifically valid as mainstream economists claim?

This paper does not question the soundness of the statistical techniques in BW and AJR. Instead, it shows that even if all the results are statistically valid in BW and AJR, they do not constitute any challenge to the Weber thesis. In particular, the alleged empirical refutation of Weber by BW is achieved by serious distortion and misleading reduction of *The Protestant Ethic*; AJR is nothing more than a statistical regression that shows the correlation between settler mortality rates and economic outcome, and its alleged support to institutional determinism is established through a sequence of unsubstantiated extrapolations. In the rest of the paper, Section 2 and Section 3 discuss the shaky scientific status of BW and AJR, respectively, and Section 4 concludes.

2. *The Errors of Becker and Woessmann (2009)*

In their abstract, BW write that

Max Weber attributed the higher economic prosperity of Protestant regions to a Protestant work ethic. We provide an alternative theory: Protestant economies prospered because instruction in reading the Bible generated the human capital crucial to economic prosperity. We test the theory using county-level data from late-nineteenth-century Prussia, exploiting the initial concentric dispersion of the Reformation to use distance to Wittenberg as an instrument for Protestantism. We find that Protestantism indeed led to higher economic prosperity, but also to better education. Our results are consistent with Protestants' higher literacy accounting for most of the gap in economic prosperity.

A reader familiar with *The Protestant Ethic* and other Weber's works will immediately notice two issues in this statement. First, Weber did claim Protestantism led to more economic prosperity than Catholicism, but never claimed that it applies to arbitrarily small population units, such as counties. BW's test of the Weber thesis using county-level data from Prussia seriously distorted *The Protestant Ethic*. Second, BW completely ignored Weber's discussion of inner-worldly asceticism, the bulk of *The Protestant Ethic* (Weber 1905: 45-110), and the role of religions, or world views in general, in the rationalization of social order. Their estimate of the return to literacy or human capital is based on the assumption that human capital accumulation is autonomous in human societies and free from the influence of world views. These two errors render BW a clueless statistical exercise that has no bearing on the Weber thesis.

2.1. *The Problem of Theodicy and the Scope of Application of the Weber Thesis*

BW claim that 'we take Weber's own perspective to test our theory empirically, using variation across the 452 counties of his native Prussia, the dominant state of the German Empire' (Becker and Woessmann 2009 : 532). The unit of study in BW, therefore, is terribly small compared with Weber's own works in sociology of religion, which focus on civilization studies (Weber 1915; 1916; 1917). The authors are apparently ignorant of the consequence of such discrepancy and instead, surmise the validity of their unit of study by bragging about the irrelevant fact that their data are from the home country of Weber during his lifetime.

There is a reason why Weber never attempted to generalize the positive relationship between inner-worldly asceticism and material prosperity to small-scale societies. This is the so-called

theodicy problem: ‘evil consequences often will ensue from the actions of those who exactly follow the precepts of the moral law’ (Parsons 1963: lvii). Honesty and diligence are the precepts of inner-worldly asceticism, and they are invaluable for a large-scale economy if every participant follows them; however, a single honest and diligent businessman will certainly lose his business if all his competitors and customers are dishonest and ready to exploit him. Although Weber did not specify the exact bound of when the theodicy problem becomes insignificant enough to allow meaningful study of the economic impact of religions, he would probably agree with Toynbee (1987a: 1-11) that the smallest unit of comparative historical studies is civilization (Kalberg 2014). This is why all his works are about Judaism, Hinduism and such as a whole, rather than county-level studies such as Heidelberg versus Frankfurt. Therefore, why do BW focus on Prussian counties at the end of the 19th century and ignore the comparative development of civilizations around the world in the last 500 years,¹ which is much more suitable for the test of Weber’s thesis and which does not show the least discordance with it?

2.2. *Ideal Types of Religions and Inner-Worldly Asceticism*

We can safely dismiss BW for studying irrelevant empirical facts. However, they have another point about the importance of education, which seems to be valid even when extended to a civilization study context:

When we restrict the economic return to literacy to values consistent with existing causal estimates in the literature, the point estimate of the independent effect of Protestantism on economic outcomes adjusted for literacy approaches zero (Becker and Woessmann 2009: 532).

I have no doubt that a statistic analysis of education and economic prosperity will yield significant positive correlation if conducted on civilization studies. The problem is, such

¹ The end of the 19th century marks the beginning of the ‘Secular Revolution’, after which religions in the Protestant West have largely faded from the public sphere (Smith 2003). Weber’s general thesis about the importance of world views still applies, but needs to be complemented with a comprehensive analysis of the newly arisen secular world views and how they interact with the legacy of Protestantism.

empirical observation would invalidate Weber's thesis only if Weber's claim were that only Protestantism, interpreted as a religious denomination, can lead to economic prosperity. This interpretation is blatantly false. The bulk of the *Protestant Ethic* (Weber 1905: 45-110) is not about Protestantism as a religious denomination, but the ideal type to which it belongs, which Weber calls 'inner-worldly asceticism'. For an inner-worldly ascetic, 'the order of the world in which the ascetic is situated becomes for him a vocation which he must fulfill rationally', and 'all personal secular enjoyment of power is forbidden as a deification of the creaturely, though it is held that a rational legal order within society is pleasing to god' (Weber 1920: 167-168). Such ascetic ideal needs not to be exclusive to Protestantism—Weber himself noticed the 'inner similarity' between Puritanism and Judaism (Weber 1920: 259). Another religion that possesses such inner-worldly ascetic trait is Confucianism.² If one examines carefully the doctrines of the religions around the world, it is not difficult to detect a strong connection between inner-worldly asceticism and intellectualism, which is also conjectured by Weber at the end of the *Protestant Ethic*.³

It seems natural for anyone who has ever read through the *Protestant Ethic* that an empirical test of Weber should be conducted through careful anatomy of the religions around the world to examine how much they emphasize asceticism and what their roles are in the rationalization of the local social order, rather than comparing the coefficients from some statistical regressions with no clear sociological interpretation. Do BW face some epistemological barriers that prevent

² This is especially true for neo-Confucianism, which holds the central doctrine of 'Preserve heavenly laws, extinguish humanly desires'. However, Confucianism 'placed a tremendous stress on familial piety' (Weber 1920: 210), so it can be seen as a 'weaker' inner-worldly ascetic religion than Protestantism and Judaism.

³ 'The next task would be rather to show the significance of ascetic rationalism, ... its relations to humanistic rationalism, its ideals of life and cultural influence; further to the development of philosophical and scientific empiricism, to technical development...' (Weber 1905:109).

them from understanding the *Protestant Ethic*, a short book with slightly more than 100 pages? However, if this is the reason for the blatant errors of BW, how do we explain the fact that it is published in one of the top journals in mainstream economics, the *Quarterly Journal of Economics*, has been cited more than 1,000 times, and is widely regarded by the profession as the definitive refutation of the Weber thesis?

3. *The Errors of Acemoglu, Johnson, and Robinson (2001)*

Superficially, AJR's 2001 paper is an empirical confirmation of institutional determinism unrelated to the *Protestant Ethic*. It claims that the fundamental determinant of economic prosperity is economic and political institutions. In the abstract, they write that

We exploit differences in European mortality rates to estimate the effect of institutions on economic performance. Europeans adopted very different colonization policies in different colonies, with different associated institutions. In places where Europeans faced high mortality rates, they could not settle and were more likely to set up extractive institutions. These institutions persisted to the present. Exploiting differences in European mortality rates as an instrument for current institutions, we estimate large effects of institutions on income per capita. Once the effect of institutions is controlled for, countries in Africa or those closer to the equator do not have lower incomes.

However, when it comes to conflicting scientific theories, the assertion of one is equivalent to the refutation of the others, and AJR have no intentions to conceal their ambition. In Chapter 2 of Acemoglu and Robinson's 2012 book, *Why Nations Fail* (Acemoglu and Robinson 2012), they explicitly listed Weber's thesis as one of the 'theories that don't work'. Given that AJR has been hugely influential among economists and cited more than 14,000 times, a firm believer of Weber's theory will feel obliged to address their challenge. In this section, I wish to focus on two questions: (1) Did AJR provide the empirical support to institutional determinism as they claim? (2) Did AJR have any basis to declare that Weber's thesis 'does not work'?

3.1. *The Extrapolated Causality between Institution and Growth*

AJR start by identifying their paper as studying 'the fundamental causes of the large differences in income per capita across countries', so there is no doubt that they are interested in causality

and not in correlation. It is well known that statistical techniques, however sophisticated, cannot establish causality but only correlation. The Instrumental Variable (IV) regression utilized by AJR, which is quite fashionable among mainstream economists, is no exception. The basic idea works as follows. Assume that we wish to study the impact of x on y . The regression coefficients, β_0^* and β_1^* , obtained from a naïve regression of

$$y = \beta_0 + \beta_1 x + e,$$

even if significant, only show correlation but not causality. There can be, for example, reverse causality (y causes x) or omitted variables (y and x both caused by e) problems. To alleviate these concerns, one can find another variable z , called the IV, that is only correlated with x but not with e , and run the following regression (first stage)

$$x = \gamma_0 + \gamma_1 z + u.$$

The regressions coefficients, γ_0^* and γ_1^* , are then used to construct the predicted value of x

$$\hat{x} = \gamma_0^* + \gamma_1^* z.$$

The second stage of an IV regression regresses y on \hat{x} instead of x as in the naïve regression:

$$y = \alpha_0 + \alpha_1 \hat{x} + \varepsilon.$$

The obtained coefficient α_1^* will have causal interpretations, as championed by mainstream economists (Angrist and Pischke 2010).⁴ If the correlation of x and z is strong, the IV regression is said to have a strong first stage; if z only affects y through x , the IV regression is said to satisfy the ‘exclusion restriction’. In AJR, they claim that settler mortality rate satisfies the requirements to be an instrumental variable for institutions and run an IV regression of log per

⁴ For a mathematical proof of this result see Angrist and Pischke (2008), page 113-123.

capital income on institutions using settler mortality rate as the instrument. They find that the coefficient is significant, and thus claim that institutions ‘cause’ growth.⁵

As is well known in philosophy of science, the problem of causation is part of the problem of induction, which is a fundamental epistemological problem that has no logical solution yet. IV regression as a statistical technique is logical in nature and must be subject to the same underdetermination as other scientific methods. The problems of casual inference, including reverse causality and omitted variables, are just hidden in the seemingly innocuous statistical jargon of ‘exclusion restriction’. It is impossible through deductive methods to establish that z only affects y through x but not other variables. To claim an IV satisfies the exclusion restriction, therefore, requires strong priors about the relationship between x , y , z , and e that cannot be justified by the IV regression itself.

How can AJR be so certain that settler mortality rates affect growth only through institutions? Their entire argument goes as follows. There are two kinds of institutions European colonists could establish in a colony: good ones that foster growth, and ‘extractive’ ones that aim at as much as possible exploitation. ‘In places where the disease environment was not favorable to European settlement, ..., the formation of the extractive state was more likely. The colonial

⁵ In AJR, Equation (1), $\log y_i = \mu + \alpha R_i + \mathbf{X}'_i \gamma + \varepsilon_i$, is the naïve regression, where y_i is income per capital in country i , R_i is the protection against expropriation measure that is supposed to be a proxy for the quality of institution, \mathbf{X}_i is a vector of other covariates, and ε_i is a random error term. Equation (5), $R_i = \zeta + \beta \log M_i + \mathbf{X}'_i \delta + v_i$, is the first stage, where M_i is settler mortality rate and v_i is another random error term. The IV regression is then conducted by regressing $\log y_i$ on the predicted value of R_i from the first stage. The results of the naïve regression, the first state regression, and the IV regression are listed in Panel C, B, and A of Table 4, respectively.

state and institutions persisted even after independence’ (Acemoglu, Johnson, and Robinson 2001: 2). However, this argument is entirely extrapolated and is not supported in any sense by their statistical ‘evidence’. It is straightforward to come up with alternative accounts that completely overturn their preferred interpretation of their regressions results. For example:

Only countries with certain ethics can build pro-growth institutions and a prosperous economy. Since people in these countries face better opportunities, they are reluctant to settle in colonies with high mortality rate. The ethics persisted after independence.

This alternative account can be right or wrong--but that is not the point. The point is to show that AJR’s account is no more supported by their statistical regressions than alternative statements as such. Their claim of having found empirical support for ‘large effects of institutions on income per capita’ is entirely groundless.

3.2. *Weber’s Theory Does Work*

Although AJR’s 2001 paper is merely an empty statistics shell, they have never since ceased attacking Weber’s thesis in various occasions. In *Why Nations Fails*, they claim that

The culture hypothesis has a distinguished lineage, going back at least to the great German sociologist Max Weber, who argued that the Protestant Reformation and the Protestant ethic it spurred played a key role in facilitating the rise of modern industrial society in Western Europe. ... (It is) just not important for understanding how we got here and why the inequalities in the world persist. (Acemoglu and Robinson 2012: 56-57)

Unfortunately, the arguments they use to support such audacious claims are replete with ignorance of history and misunderstanding of Weber’s thesis.

Their favorite argument against Weber’s thesis, which also appears in Acemoglu (2008), is the North Korea and South Korea ‘natural experiment’. They claim that the two Koreas ‘had an unprecedented homogeneity in terms of language, ethnicity, and culture’ and the only difference between them is political regime, so culture is ‘not a cause of the differences in prosperity but, rather, a consequence.’ It is unclear how the two authors, both renowned social scientists in top US universities, can be so ignorant of history as to claim that there is no ‘cultural’ difference between a Communist country and a Confucian country. The Communist political regime is just

‘a methodical-rational organization of life’ (Kalberg 2004: 139) legitimized by the Communist world view of human history as a history of class struggle, the derived ethics of which ‘makes all existing religions superfluous and supersedes them’ (Marx and Engels 1848). In this sense, Communism differs from traditional religions only in doctrines but not in nature, and Weber’s analytical framework can be applied to the comparative development of the two Koreas with only minor modifications.

Indeed, an examination of the countries and regions with a Confucian tradition (Huntington 1996) reveals the startling predictive power of world views on economic prosperity: the ‘Four Asian Tigers’, Singapore, Hong Kong, Taiwan, and South Korea, are all Confucian regions untainted by Communism, and the less advanced regions, included Mainland China, North Korea, and Vietnam, all share a Communist history. From a grand-historical perspective, Weber’s thesis provides a perfect answer to the ‘Great Divergence’ between Confucian civilization and Christian-Judeo civilization (Pomeranz 2000; Weber 1915): the lead of Confucian civilization over the West started from the first century BC, coinciding with the full-scale adoption of Confucianism in Western Han Dynasty, and ended on the fifteenth century AD (Needham 1969), coinciding with the Protestant Reformation in Europe. Unlike institutional determinism, which struggles to defend the absurd rescue hypothesis of humans unable to alter established institutions, Weber’s thesis provides a coherent answer to many puzzles in historical studies in a particularly parsimonious manner.

4. Conclusion

Mainstream economics is known to sacrifice reason and reality to statistical and mathematical intricacy, but nowhere has it been so severe as in the field of economic growth. Today, PhD students studying economic growth are not taught Weber, Marx, or Schumpeter, but conspicuous

mathematical tools, such as dynamic programming, optimal control, and functional analysis, and statistical techniques, such as difference in difference, instrumental variable, and panel data. The students are subtly insinuated the belief that scientific rigor is equivalent to statistical and mathematical intricacy, and all the great sociological, economic, and historical classics are discarded as ‘theories that don’t work’ merely because they lack the conspicuous shell of statistics and mathematics. If such a trend continues, economics will quickly become indistinguishable from pseudoscience in a few generations. The objective of this paper is merely to point out the flaws in the arguments against Weber used by mainstream economists, and the cause of the deplorable situation in mainstream economics is a different topic that is worthy of a serious sociological analysis.

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