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Refuting the OECD-World Bank development narrative: was East Asia’s ‘Economic Miracle’ primarily driven by education quality and cognitive skills?*

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ABSTRACT
Founded on several influential quantitative studies, the past decade has witnessed the OECD and World Bank increasingly converge on the view that cognitive levels of students and education quality, as proxied by international large-scale assessments (ILSAs), are the primary determinant of national economic growth worldwide. More recent OECD and World Bank pronouncements have further suggested these dynamics are clearly illustrated in East Asia’s education and ‘Economic Miracle’, in particular the cases of South Korea and Singapore. Herein we utilise the OECD’s own data to examine this new development narrative, finding little evidence in support of these claims.

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Introduction: East Asia as exemplars of the new OECD-World Bank approach to development?

Recent years have witnessed a growing belief that educational performance is not just one but the determinant of national economic growth worldwide. Leading international organisations, most vocally the OECD and World Bank, have not only championed this belief but are now actively – even aggressively – promoting the expansion of international large-scale learning assessments as a means of tracking and ensuring future economic gains through education, most visibly the Programme for International Student Achievement (PISA) and now PISA for Development (PISA-D) (Addey and Sellar 2018; Auld, Rappleye, and Morris 2018). As we review below, much of the statistical basis for this belief has been refuted by recent research. Nevertheless, the claims continue to be advanced, albeit in a somewhat new form that is our focus herein: by reference to specific countries that purportedly illustrate the educational quality-as-development driver narrative. Foremost among the cases that illustrate the purported causal sequence are South Korea and Singapore. Indeed, the growth rates of these two countries since 1965 has been impressive as shown in Figure 1, catapulting them into the status of ‘developed’ within just over two generations.

Take, for example, the portrayal of Korea in the World Bank’s 2018 World Development Report. The Report opens:

After the Korean War, the population was largely illiterate and deeply impoverished …. Korea understood that education was the best way to pull itself out of economic misery, so if focused on overhauling schools and committed itself to educating every child – and educating them well. Coupled with smart, innovative government policies and a vibrant private sector, the focus on education paid off. Today, not only has Korea achieved universal literacy, but its students also perform at the highest levels of international learning assessments. It’s a high-income country and a model of successful economic development (World Bank 2018a, xi.)

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This portrayal echoes a narrative already developed in previous World Bank blogs (e.g., Patrinos 2016) and reports (e.g., World Bank 2002, 5–7). Similar portrayals are also prominent in recent OECD pronouncements: ‘Education played a key role in Korea’s transformation from one of the poorest countries in the world to a leading industrial nation by promoting the development of human resources and technological change … Korea has consistently ranked near the top in the OECD in the Programme for International Student Achievement (PISA)’ (OECD 2011, 5; OECD 2016c). Explicitly highlighting the ‘Korean Miracle’, the OECD’s education and skills chief Andreas Schleicher explained to European leaders: ‘In the 1960s, Korea had the same gross domestic product as Afghanistan’ but had since powered to the top of the OECD through its high performing education system whilst ‘most of Europe’s major economies – including France, Italy, and United Kingdom – only held their ground, or in the case of Germany significantly fell on comparable measures’ (Schleicher 2006, 6).

Singapore is also prominent in this new development narrative. In a chapter from a volume on what lessons one should draw from PISA, the OECD described the city–state as follows:

Singapore is one of Asia’s great success stories, transforming itself from a developing country to a modern industrial economy in one generation. During the last decade, Singapore’s education system has remained consistently at or near the top of most major world education ranking systems. This chapter examines how this “tiny red dot” on the map has achieved and sustained so much, so quickly. From Singapore’s beginning, education has been seen as central to building both the economy and the nation. The objective was to serve as the engine of human capital to drive economic growth (OECD 2011, 159).

The World Bank’s 2018 World Development Report corroborates this view of Singapore, first showing quantitative data that international test scores as measured by PISA and TIMSS are directly correlated to educational growth rates (46–47), then turning to illustrate with the ‘case’ of Singapore by explicitly comparing it favourably against developing countries such as Jordan: ‘whereas young Singaporeans have only 30 percent more schooling than young Jordanians by the standard measure, the learning-adjusted measure shows Singapore outpaces Jordan by 109 percent in effective schooling.
years.' (48, see Box B1.3.). In Schleicher’s recent book *How to Build a 21st-century School System*, the narrative continues:

One of the most remarkable features of Singapore’s achievement is that success was built from an extremely low starting point. Singapore, which gained independence in 1965, was an impoverished country with few natural resources and a population with poor proficiency in literacy. There were few schools and colleges, and the country had an underdeveloped and low-skilled economy … But in five decades, Singapore went from nowhere to the top of international rankings, overtaking the major economies in Europe and North America and high achieving rivals in East Asia. It has made the leap from “third world” to “first” in little more than one lifetime. So what are the ingredients for this success? … it was a deliberate decision to use education as the foundation for building an advanced economy (Schleicher 2018, 127; see also Kong, Lingard, and Schleicher 2017)

Here Singapore, alongside Korea, is being held up as exemplars of successful development, a course that both countries purportedly achieved by refashioning education to become the ‘engine of human capital to drive economic growth.’

In this piece, we seek to challenge this recent OECD and World Bank homily, both the suggestion that Korea and Singapore are prime exemplars of human capital theory and the underlying causal sequence of the overall narrative (i.e., that education is the cause of economic growth). Herein we focus on South Korea and Singapore although our title carries the wider term ‘East Asia’: there is ample evidence that while these two nations have become the specific focus, the overall OECD-World Bank view is that all of East Asia followed a similar development trajectory, as evidenced in World Bank (2018b), the nascent narrative around Vietnam (see conclusion), and discussions surrounding the World Bank’s new Human Capital Index (World Bank 2018c).1 This piece compliments and extends our previous work that has tried to call attention to the flawed assumptions and questionable methodical choices underpinning the empirical claims of the new global policy regime (Komatsu and Rappleye 2017a, 2017b, 2018; Rappleye and Komatsu 2019). Herein we continue our critique, utilising data from the OECD’s own PISA and Programme for the International Assessment of Adult Competencies (PIAAC) surveys to show that economic development preceded the improvement of education quality. Our goal is not to refute the idea of linkages between education and economic growth *tut court*, but only to challenge the more extremist versions of human capital theory currently being promoted, in both theory and practices, by the OECD and World Bank (i.e., those assuming that cognitive skills and education quality assessed by international tests is *the* cause for economic growth and seek to align education policies and development strategies to this purported ‘truth’).

The wider import of our work is that, by joining other scholars in challenging the extremist human capital narratives of economic growth and development (e.g., Edwards 2018), we can keep open a wider view of the relations between education and society and ensure space for other theoretical projects and practices (e.g., Roberson and Dale 2015; Verger, Lubienski, and Steiner-Khamsi 2016; Takayama, Sriprakash, and Connell 2017; Silova, Millei, and Piattoeva 2017). We also seek to underscore how the end of the Cold War and the triumph of neo-liberalism in Anglo-American countries has given way to the increasing dominance of the OECD and World Bank in global education policy, pursued in ways that render invisible the previously rich literature on other models of education, public policy, and socio-economic development found in, but of course not limited to, East Asia (e.g., Amsden 1994; Wade 1996; Suehiro 2000).

**Foundations of the OECD-World Bank narrative: how strong empirically?**

The basis for the new OECD-World Bank development narrative has been prepared by a series of empirical studies conducted over the past two decades by US-based economist Eric Hanushek and various colleagues (e.g., Hanushek and Kimko 2000; Hanushek and Woessmann 2012, 2015a). Hanushek and colleagues assume that education quality assessed by ILSAs such as PISA is *the* determinant of national economic growth. This assumption is clearly expressed in the title of, as but one example, a recent single-authored piece by Hanushek: 'For long-term economic
development, only skills matter’ (Hanushek 2017, italics added). This extremist claim is based on the fact that Hanushek and colleagues identified a very strong relationship between international test scores and economic growth for various countries. In the most recent iteration of this research, Hanushek and colleagues found, by comparing international test scores during 1964–2003 and Gross Domestic Product (GDP) per capita growth during 1960–2000, that as much as 73% of the between-country variation in GDP per capita growth was explained by the between-country variation in test scores (Hanushek and Woessmann 2015a). So strong were these results that the relationship was deemed ‘causal’ and thus robust enough to become the foundation of policy. That is, even though correlation does not prove causation the explicit claim was that it was causal (see Komatsu and Rappleye 2017a).

Based on such findings, Hanushek and Woessmann (2007a, 2010, 2015b) were invited by the OECD and World Bank to write a series of key reports for these organisations. The claims advanced by Hanushek and Woessmann were apparently important for these organisations, particularly after the imagined macro-economic implications of human capital theory had previously proven to be so difficult to prove empirically (e.g., Wolf 2004; see especially Pritchett 2001). But the interest was not merely academic: the findings would allow the OECD to assert the legitimacy of large-scale learning assessments such as PISA as a ‘thermostat’ for future economic growth and to thus ‘sell’ PISA to all countries worldwide, including those not already in the high-income OECD club. For example, the new PISA for Development exercise that was officially launched in 2013 and results announced in December 2018 aims to move PISA into low-income contexts, following closely on the heels of other new assessments whose ultimate ambition is also global coverage (e.g., PIAAC, IELS; see Auld and Morris 2019). That is, the Hanushek and Woessmann findings have been central to extending the OECD and PISA into the sphere of ‘development’, as is clearly evident from, as but one example, the PISA-D National Report for Cambodia recently published by the Cambodian Ministry of Education, Youth, and Sports: ‘The projection study by the OECD 2015 shows that increasing average achievement in [sic] the current students by 25 PISA score-points has a uniform effect on all countries’ GDP by 30% over the next 80 years if there is a [sic] 100% enrolment (Hanushek & Woessmann, 2015) … previous evidence consistently shows that increasing the quality of school has a large impact on economic gains’ (Cambodia MoEYS 2018, 140).

In a similar way, the findings of Hanushek and Woessmann, combined with the new OECD policy instruments, would allow the World Bank to reduce the complexity of the in situ realities of defining and assessing ‘quality’ in client countries: raising PISA scores could become a simplified way to measure and track educational quality (see Auld, Rappleye, and Morris 2018 for full discussion). Following the causal sequence, as mapped out in the key World Bank sponsored report Education and Economic Growth (2007) written by Hanushek and Woessmann, the World Bank could focus on improving PISA scores as a means of ‘developing’ economies in low-income countries worldwide.

The claims advanced by Hanushek and Woessmann (2012, 2015a), however, have not gone unchallenged (Ramirez et al. 2006; Kamens 2015; Klees 2016; Stromquist 2016; Komatsu and Rappleye 2017a). Particularly important in the context of the current piece is the most recent critique by Komatsu and Rappleye (2017a). The study revealed that the strong correlation between test scores and GDP per capita growth reported by Hanushek and Woessmann (2015a) was primarily due to flawed statistical analyses (i.e., time mismatch). Komatsu and Rappleye (2017a) showed that Hanushek and Woessmann compared students’ test scores for a given period (1964–2003) with GDP per capita growth for approximately the same period (1960–2000). However, since it takes at least several decades for students to occupy a major portion of the workforce, one could compare test scores for a given period (1964–2003) with GDP per capita growth for a subsequent period to test the validity of the claims. In doing so, we found virtually no relationship: merely 11% of the between-country variation in GDP per capita growth for 1995–2014 was explained by the between-country variation in test scores for 1964–2003. This challenge looks conclusive, because we used the exact same datasets and methodology used by Hanushek and Woessmann (2015a), and there has been
no response to date (after approximately two and half years, see Komatsu and Rappleye 2018, 187 (Footnote 2)). Furthermore, we (Rappleye and Komatsu 2019) have followed this up with analyses of the relationship between the between-country variation in PIAAC scores and that in GDP per capita growth and obtained results corroborating with the findings of Komatsu and Rappleye (2017a).

These findings, together with previous critiques, cast strong doubt on the assumption advanced by Hanushek and Woessmann, and – by extension – the raison d’être of ILSAs, most prominently PISA (as discussed in conclusion). Nevertheless, the claims continue to be used widely to legitimate the faith in the link between international test scores and economic growth. For example, the World Development Report recently published by the World Bank (2018a) not only reproduces the strong relationship between test scores and GDP per capita growth reported by Hanushek and Woessmann (2015a), but uses the relationship to predict future GDP per capita growth for various countries (World Bank 2018a, 46–47; see Komatsu and Rappleye 2018 for analysis). Similarly, numerous recent reports published by the OECD continue using the link between test scores and economic growth as a core assumption (e.g., OECD 2017a, 2017b, 2018). In his 2018 book, Andreas Schleicher again reproduces the statistics and touts projected growth figures for countries that embrace PISA (Schleicher 2018, 138–144). Even United Nations Educational, Scientific and Cultural Organization (UNESCO), while it apparently does not fully embrace the simplistic assertion by Hanushek and Woessmann (2015a), still uncritically introduces the results of Hanushek and Woessmann’s (2007b, 2010) study on its website (UNESCO 2018), and in major publications affiliated with it such as the 2016 Global Monitoring Report (UNESCO 2016). The Director of UNESCO Institute of Statistics even explicitly asserts, citing Hanushek and Woessmann, the need for using international tests to secure economic growth (Montoya 2016; see also Komatsu and Rappleye 2017b).

We surmise that one major reason for this unabiding faith in the causal link between test scores and economic growth would be that there are historical cases that seemingly demonstrate it: the ‘East Asian Miracle’ in which high educational outcomes apparently coupled with high economic growth. As if writing in, on cue, to support the OECD-World Bank narrative, Hanushek and Woessmann (2016) recently published an article in Science which explicitly attributes the economic miracle of the Asian Tigers to their high cognitive skills measured by international tests including PISA, as compared with Latin America. As reproduced in Figure 2, the implications for development planners look definitive: raise educational quality in the form of test scores and economic development will automatically follow.

Despite the visually striking claims, this analysis too suffers from the deep methodological problem of time-mismatch cited above. Nonetheless, due to the reputation of the journal these findings are sure to be spread globally, and continue reinforcing the new OECD-World Bank development narrative (see also OECD 2011; World Bank 2011). It is crucial to keep in mind that these issues are not merely ‘academic’, but are now driving policy: in January 2018 the World Bank announced the launch of the Global Dataset on Educational Quality (1965–2015) that would directly help to address the ‘Learning Crisis’ announced in the 2018 World Development Report (World Bank 2018d). The Global Dataset was an exact replica of the Hanushek analytical model, and the key figure from Science shown in Figure 2 was transposed on the World Bank website (Patrinos 2018). Moreover, the Hanushek-turned-GLOBAL Dataset model is now one possible model the United Nations is pursuing for the monitoring of Sustainable Development Goal 4 (see Altinok, Angrist, and Patrinos 2017; Montoya and Tay-Lim 2018).

To counter this and encourage the OECD, World Bank, and the many affected by it to rethink this new narrative, our piece lays out empirical findings that cognitive skills measurable by international tests and economic growth were not causally linked, focusing on the cases of South Korea and Singapore. Our approach accepts the OECD’s frequent mantra that ‘without data you are just another person with an opinion’ and thus takes up the challenging by utilising the OECD’s own PISA and PIAAC data to conduct the analysis (as described below). We do this to minimise potential objections on methodological grounds, and allow us to instead proceed to the more urgent discussion of...
why and how these OECD-World Bank claims – what one reviewer of this piece called ‘fraudulent’ – and the related policy reforms continue to be advanced and what might still be done about it when these organisations, which continually tout the importance of data and 'knowledge', have proven wholly unwilling to engage.

Was education the primary driver of economic growth in East Asia? What the data shows

Materials and methods

Before carrying out our main analysis, we started by examining the relationship between PIAAC and PISA scores to assure a key analytical assumption: the cognitive skills (e.g., numeracy and literacy) measured by PIAAC are approximately the same as those measured by PISA. This assumption is made by the OECD, albeit apparently without clear testing (as least as we could turn up), when the organisations assumes that PIAAC scores are, like PISA scores, good predictors of economic growth (see Schleicher 2008; OECD 2016a). To examine our analytical assumption, we used data for PIAAC conducted in 2011–2012 and 2014–2015 (OECD 2017c) and PISA conducted in 2006 (OECD 2007). PIAAC provides numeracy and literacy scores for different age cohorts. The youngest age cohort (16–24 year olds) included the generation which took part in PISA 2006. We thus examined correlation between PIAAC numeracy scores for the age cohort and PISA math scores and between PIAAC literacy scores for the age cohort and PISA reading scores. We calculated not only the Pearson correlation coefficient ($r$) but its 95% bootstrapping confidence interval (CI) to
examine the stability of the correlation. The methods used for bootstrapping are described in our previous papers (Komatsu, Shinohara, and Otsuki 2015; Komatsu and Rappleye 2017a). Throughout this study, we did not conduct statistical testing. The primary reason for this was that statistical testing judges whether one variable is related to another variable and whether one variable differs from another variable. In reality, what matters from a practical viewpoint is how strong the relationship is and how different the two variables are. This problem associated with statistical testing has been addressed by numerous statisticians for many years (most recently see Thompson 2002; Lambdin 2012; Nuzzo 2014; see also Komatsu and Rappleye 2017a).

In the main analysis, we first used data for adults’ numeracy and literacy scores for different age cohorts of South Koreans and Singaporeans derived from PIAAC (OECD 2017c). Using these data, we confirmed that numeracy and literacy for younger generations were considerably higher than those for older generations in South Korea and Singapore, suggesting a rapid improvement of cognitive skills in these countries.

We then compared the timing of the high-scoring generations getting into the workforce and the timing of GDP per capita growth. For simplicity, we assumed that students took their place in the workforce at the age of 15 years. We note that, in for example PIAAC, the OECD examines the cognitive skills of 16–65 year-olds to assess the cognitive skills of a given national workforce, based on the same assumption (OECD 2013). We recognise that this assumption is somewhat arbitrary, but lowering the age to 10 years old and raising it to 20 years old did not change our conclusions. We will demonstrate that the high-scoring generations reached the age of 15 years after the extremely high GDP per capita growth was recorded. GDP per capita data used here were real GDP at constant 2011 prices and population obtained from Penn World Table data (version 9.0; Feenstra, Inklaar, and Timmer 2015). This was the exact same dataset as that used by Hanushek and Woessmann (2015a) but an updated version.

Third, we examined whether our results would change when using conditional GDP per capita growth instead of GDP per capita growth. GDP per capita growth could be very high for countries whose GDP per capita is low, because these countries have much room for investments and consequent economic growth (e.g., Mankiw 2007). Hanushek and Woessmann (2015a) thus calculated conditional GDP per capita growth, which was defined as GDP per capita growth after excluding the effect of initial GDP per capita on GDP per capita growth. That is, conditional GDP per capita for a country represents whether the observed GDP per capita growth is high considering the initial GDP per capita level of the country. Following the exact method used by Hanushek and Woessmann (2015a), we calculated GDP per capita growth for South Korea and Singapore. Specifically, we calculated mean annual GDP per capita growth for a 20-year period (e.g., 1960–1980, 1965–1985, 1970–1990, 1975–1995, 1980–2000, 1985–2005, 1990–2010, and 1995–2014) for 50 countries including South Korea and Singapore. Note that these 50 countries were the exact same countries analysed by Hanushek and Woessmann (2015a) and GDP per capita data for the year 2015 were not available from the dataset. We then examined the relationship between initial GDP per capita and mean annual GDP per capita for the 50 countries to determine the regression line for the relationship. The regression line was determined by the least-squares method. The difference between observed mean annual GDP per capita growth for a country and that predicted using the regression line for the country’s initial GDP per capita was assumed to be conditional GDP per capita growth for the country.

In this piece, we focused on the cases of South Korea and Singapore, and did not examine other countries of the ‘East Asian Miracle’ (i.e., Taiwan and Hong Kong). We note that the term ‘East Asian Miracle’ is increasingly used today to refer not only to the Asian Tigers but to China and Vietnam. Examining the cases for Taiwan, Hong Kong, China, and Vietnam would be useful for scrutinising the generality of our conclusions, but the lack of PIAAC data for these countries (OECD 2017c) prevented us from undertaking this analysis.
Results of analysis

Figure 3 shows the relationships between PIAAC numeracy and PISA math scores and between PIAAC literacy and PIAAC reading scores. We found strong correlations in both cases (r values were respectively .715 and .856 with their CIs being between .517 and .840 and between .654 and .935). This suggests that the cognitive skills measured by PIAAC were approximately the same as those measured by PISA.

Figure 4 shows PIAAC numeracy and literacy scores for different age cohorts of South Korea and Singapore. PIAAC numeracy scores were consistently higher for younger generations in both South Korea (Figure 4a) and Singapore (Figure 4b). This was also the case for PIAAC literacy scores (Figures 4c and 4d). We note that these results contrast rather strikingly with those for the United States, where numeracy and literacy scores varied little among different age cohorts (dotted lines in Figure 4). PIAAC scores for the age cohort of 55–65 year olds of South Korea and Singapore were lower than those of the United States, while the opposite was the case for the age cohort of 16–24 year olds. This reversal suggests that South Korea and Singapore have indeed been successfully improving the cognitive skills of their population.

We next examined when the age cohorts scoring high in PIAAC tests began to enter the workforce. Figures 5a and 5b shows the relationship between the period when each age cohort reached the age of 15 years and the mean numeracy score for the age cohort for South Korea and Singapore, respectively. For comparison, these figures include data for the United States (dotted lines). Figures 5c and 5d are the same as Figures 5a and 5b, but use the mean literacy score. The age cohorts outscoring the United States reached the age of 15 years in the 1980s and later for both South Korea and Singapore. This suggests that these high-scoring generations started occupying a major portion of the workforce around the year 2000 and thereafter. However, GDP per capita growth was most remarkable during the 1960s–1980s when the high scoring generations had not yet entered the workforce (Figures 5e and 5f). These results suggest that it is unreasonable to assume that the remarkable economic growth for these countries was primarily caused by the high cognitive skills (i.e., those measurable by PIAAC) of the workforce.

The above results did not change even when we used conditional GDP per capita growth (i.e., even when excluding the effect of initial GDP per capita on GDP per capita growth). When excluding this effect of initial GDP per capita on GDP per capita growth, conditional GDP per capita growth
for South Korea and Singapore was calculated as in Figure 5g and 5h, respectively. Conditional GDP per capita growth was again most remarkable in the 1970s–1980s. We thus find it unreasonable to attribute this remarkable growth in conditional GDP per capita primarily to the high cognitive skills of the countries.

Discussion

We found that the remarkable economic growth of South Korea and Singapore had come before the generations having high cognitive skills occupied the majority of the workforce. It is thus more plausible that high cognitive skills (i.e., that proxied by PIAAC scores) were the results – not causes – of the remarkable economic growth of these countries in the 1960s–1980s.

Figure 4. PIAAC numeracy scores for (a) South Korea and (b) Singapore. PIAAC literacy scores for (c) South Korea and (d) Singapore. Figures 4a-d also include data for the United States (dotted lines) for comparison. An error bar denotes the standard error.
It is true that we lack data for cognitive skills for the generations which occupied a majority of the workforce in the 1960s–1980s. If the cognitive skills of these generations were high, we may attribute the remarkable economic growth to the cognitive skills of the workforce. However, we find it implausible that these generations had higher cognitive skills than subsequent generations. South Korea and Singapore started expanding and upgrading their education systems in the 1950s and 1960s. Before this period, expansion and upgrading of education was difficult due to political and social turbulence,
including exploitive colonisation before 1945, the destruction of the Asia-Pacific War (1941–1945; also known as the Second World War) and Korean Wars (1950–1953), unwanted separation of Singapore from Malaysia (1965), social unrest (e.g., the 10.1 Daegu Uprising of 1946), inflation, and unemployment (Boon and Gopinathan 2006; Korostelina 2013; Mun 2015).

Is it really possible that Hanushek, his colleagues, the OECD, and the World Bank failed to consider the problem of reverse causality? In fact, if we dig deep enough, we find Hanushek and Woessmann (2016) had considered the possibility that high test scores might be results (not causes) of economic growth. To address this possibility, Hanushek and Woessmann (2016) cited their previous study (Hanushek and Woessmann 2015a) which included the analysis of the relationship between test scores during 1964–1984 and economic growth during 1985–2007. They reported that they found ‘a stronger relation’ between test scores and economic growth in this analysis (Hanushek and Woessmann 2016, 345). Based on these results, Hanushek and Woessmann (2015a, 2016) rejected the possibility of reverse causality. We argue that their analysis is flawed, as detailed in our previous paper (Komatsu and Rappleye 2017a). Therein we argued that Hanushek and Woessmann (2015a, 2016) have failed to address this issue in their work, one table showing their analytical results (Hanushek and Woessmann 2015a, 67–68). However, the slope of a regression line is meaningful only when the regression line explains the variation in observed data well. Although Hanushek and Woessmann (2015a, 2016) have failed to address this issue in their work, one table showing their analytical results (Hanushek and Woessmann 2015a, 67, Table 3A.1) suggest that the regression line explains much less of the variation in observed data than expected. Test scores explained originally 73% of the variation in economic growth, but the percentage of explanatory power declined to 32% when considering the time lag. Furthermore, Komatsu and Rappleye (2017a) showed that this percentage of explanatory power declined even more (i.e., the percentage was merely 11%) when comparing test scores during 1960–2000 and economic growth in 1995–2014. Asserting the strength of the relation between test scores and economic growth for such a poor fitting regression line is not meaningful, suggesting that Hanushek and Woessmann’s attempt to reject the possibility of reverse causality actually failed. Furthermore, if they had taken the time lag issue seriously, the poor fit of the regression line should have suggested that the between-country variation in test scores were not the major causes for the between-country variation in economic growth. What is most disappointing to us is that rather than work carefully and with integrity with the data, Hanushek and Woessmann appear to be far more interested in advocating to readers that they are, in fact, making ‘a prima facie case that this truly is a causal relationship’ (Hanushek and Woessmann 2016, 345).

While we may not expect all readers to dig deeply into the details of the study of Hanushek and colleagues, we might demand that the OECD and World Bank do so, in light of the fact that the problem of reverse causality is one well-documented in the economics of education literature (e.g. Bils and Klenow 2000). By failing to do so and simply transposing the Hanushek findings into policy and practice, we find further evidence that the OECD and World Bank subscribes to an extremist version of human capital theory, perhaps given the desire to create legitimacy for their preferred policy instruments – an issue we now turn to discuss.

Conclusion: seeing ourselves in East Asia’s success? Or seeing East Asia’s success?

In this piece we have related findings that show the remarkable economic growth of South Korea and Singapore cannot be viewed as ‘successful cases’ that demonstrate the causal link between international test scores and economic growth. Perhaps these results are already self-evident for many readers, as critiques of human capital theory are certainly not new (e.g., Wolf 2004; Klees 2008) and the desire by the OECD and World Bank to turn complexity into simple causal narratives has been duly noted (e.g., Klees and Edwards 2014; Auld and Morris 2016).

However, these findings – if addressed earnestly – have serious implications given that the work of the OECD and World Bank now increasingly roll out programmes based on this ‘truth’. In recent
years, the OECD has exerted much effort in selling PISA and PIAAC to countries worldwide (and even more recently PISA-D and IELS as key tools for securing economic growth and development (Schleicher 2008; Hanushek and Woessmann 2010; OECD 2016b). But would we still need these global comparative tests if the education (i.e., ILSAs test scores)-economic growth assumption is repeatedly proven to be empirically false? Wouldn’t national or local assessments, those much more attuned to local conditions and curricula, be preferable?

It is perhaps worth stating explicitly that we are not arguing that education does not affect economic growth whatsoever. We believe that education is one factor affecting economic growth. We are merely advocating a return to a less extremist position: education is not the factor determining economic growth and should not form the foundation for development policy, let alone that ILSAs test score gains should become the lodestar of education policy. Indeed, this less extreme view of the relationship is a commonly shared among mainstream economists including Krugman (1994), Young (1995), Jones (1998), and Mankiw (2007). Even a World Bank report published three decades ago (World Bank 1993) mentioned very little about education within the East Asian economic miracle, instead placing attention on industrial policies, state-market relations, and welfare regimes. In fact, leading World Bank education sector specialists had previously openly admitted that macro-economic analyses do not consistently yield quantitative evidences in support of human capital theory (Psacharopoulos and Patrinos 2004, 118). We find it disappointing then that after several decades of research, a huge amount of new data, and the increasing sophistication of quantitative methodologies and processing tools, the OECD and World Bank seem to be increasingly unsophisticated (i.e., reductive, extremist) in their analyses. Clear evidence for this is that the leading World Bank educational researcher who had previously co-authored the more balanced paper we cited above (Psacharopoulos and Patrinos 2004), recently published a blog on the World Bank webpage embracing Hanushek’s claims and asserts that the World Bank’s new Global Dataset on Education Quality, when coupled with test score gains, will boost national economies (Patrinos 2018). We, like others before us, have elsewhere pointed out how ironic it is for the OECD and World Bank to champion learning, while they remain so impervious to learning from recent research (Komatsu and Rappleye 2018; Weaver 2008; see also related discussion in conclusion of Klees and Edwards 2014).

The wider import of our findings and insights is two-fold. First, we gain greater clarity how the powerful narratives surrounding education generated by the OECD and World Bank often render invisible viable alternatives (Wade 1996; Rappleye 2015). As we have seen, these organisations see their own prescriptions for development vindicated in the cases of South Korea and Singapore, despite the lack of evidence. We note here that we can see a similar narrative already developing around Vietnam (Bodewig 2013; World Bank 2016). To be sure, this move is not new: scholars outside the field of education writing in the 1990s had already pointed out that the World Bank worked hard to take credit for the success of East Asia, with one memorably writing: ‘Like Narcissus, the World Bank sees its own reflection in East Asia’s success’ (Amsden 1994, 627). What is perhaps new is the migration of this same strategy into the realm of education. When this happens, however, the alternatives highlighted by the East Asian experience are rewritten to conform to the preferred narrative. As consequence, a key source of learning – alternative ways of looking at education that has proven to be highly generative in many respects (e.g., equity; different pedagogical approaches and philosophical underpinnings) – is ultimately lost because these experiences recast into the pre-existing theoretical horizon of the OECD and World Bank.

Second, and particularly when placed against this wider backdrop of intense debate in the 1990s over what drove the East Asian Miracle, followed by repeated calls to ‘learn from East Asia’ (Amsden 1994; Easterly 1995; Young 1995; Collins, Bosworth, and Rodrik 1996; Stiglitz 1996; Bloom and Williamson 1998; Pack and Nelson 1999), the new OECD-World Bank discursive shift underscores just how little these organisations learn from the past and from Others. None of this previous research or wider discussion shows up in the recent OECD-World Bank reports. Instead, recent policy recommendations continue to issue from the simplicity and a-historicity of an extremist version of human capital theory. Here it is hard to avoid the conclusion that the position is ultimately
ideological, rather than rooted in empirical realities; that ‘research’ by the OECD-World Bank is now even closer to advocacy than it has been previously. As such, it is unlikely that any sort of evidence could change the worldview of these organisations (see Rappleye and Un 2018; Auld, Rappleye, and Morris 2018). But the consequence is that ‘cutting edge’ development thinking overall has gone, over the last three decades, from development failures of the Washington Consensus (e.g., structural adjustment) to a new consensus around largely flawed (‘fraudulent’) statistical claims, completely bypassing the option of substantively and deeply engaging with the Other that is the East Asian model. Where are we to go from here?

Note

1. It is worth noting here that Taiwan is not listed as a separate country within World Bank data for political reasons. Japan is rarely mentioned these days, perhaps given that it has world-leading levels of ‘human capital’ (e.g., third on the new World Bank Human Development Index) but has been in a prolonged recession and faces a shrinking economy, basically refuting the OECD-World Bank narrative all by itself.

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