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Summary of Review

This review examines the recently released Thomas P. Fordham Institute report, *Education Olympics: The Games in Review*. Published just after the completion of the 2008 Beijing Summer Olympics, Education Olympics strategically parallels the international competition by awarding gold, silver and bronze medals to top performing countries based on indicators including scores from international assessments in reading, mathematics, and science. The report contrasts American students' unimpressive performance on international assessments with the United States' success in the Olympics. However, the report fails to substantiate its primary claim: that American students' relatively low rankings on these tests will weaken the U.S. economy and jeopardize its future global standing. It also fails to substantiate secondary claims, set forth throughout in various sidebars. The report recognizes its numerous methodological weaknesses, but it nonetheless bases its conclusions primarily on findings produced by this flawed process. In addition, the research meant to bolster the report's position is very limited. Ultimately, its conclusions lack a basis of argument or evidence, and its attempt to link test scores to the nation's economic standing fails.

Review

I. INTRODUCTION

The current economic crisis provides a poignant frame for considering the claims contained in the Thomas P. Fordham Institute's *Education Olympics: The Games in Review*.¹ This report, like many earlier ones, warns that the United States' economy will suffer unless there are improvements in America's mediocre showings on international assessments of student achievement.

It is true that a statistically positive correlation can emerge in a comparison of different countries' average test scores and their macroeconomic indicators.² Indeed, the link between educational outcomes and the nation's economic future has become conventional wisdom in popular political and policymaking discourse. Yet, as will be discussed later, the connection is far from settled, and the real-world relationship between a nation's economy and its students' scores is extremely attenuated.³ By way of illustration, blame for the Dow-Jones Index's precipitous decline, the tanking of several major financial institutions, and the concomitant world economic crisis⁴ cannot be laid at the feet of U.S. students' often-middling performance on international assessments. If such troubling performances in education and the economy do share a common thread, that thread is the lack of carefully crafted and administered policies for governing many of our national systems, including those for economic and human development—not poor test scores.

The *Education Olympics* was published just after the completion of the 2008 Beijing Summer Olympics, and it mirrors that international competition with the award of gold, silver and bronze medals to top performers

in various academic "events." These competitions highlight the United States' unimpressive performance on international assessments of students' reading, mathematics, and science. The report found the United States similarly wanting in international comparisons of upper secondary school graduation rates (i.e., high school in the United States) and the percentage of bachelor's degrees earned among college attendees. The only area in which U.S. students exceeded those of all other nations was in civic education. The report encourages readers to use a sensible approach when interpreting the results, as it recognizes the methodological flaws of the report (i.e., simplistic ranking of nations, inconsistency with nation participation, and lack of statistical rigor in collapsing the results of the different international assessments).

Calls for education reform, including those aimed at boosting students' international standings, have always been situated in political contexts. The launching of Sputnik led to an increased amount of attention in teaching U.S. students mathematics and science. The troubled economy of the early 1980s inspired the writing of *A Nation at Risk* and its focus on higher standards and greater accountability.⁵ During the 1990s, concerns about inconsistent or indifferent efforts by U.S. students and educators again became politicized and resulted in the increasing use of high-stakes testing in public schools across the country.

The *Education Olympics* report fits well into this tradition. The authors state that "The purpose of the Education Olympics is to contrast America's tepid academic performance with its athletic dominance" (page 2). However, the true purpose appears rather

different. The report strives to endorse a political vision that has dominated education reform for more than a decade: that market-driven solutions, including school choice, vouchers, and increased private-sector participation in education, will improve schools and lift student performance. For instance, the report's sidebars, discussed below, raise doubts about the use of educational resources in the U.S., while praising other countries' school choice policies and Canada's lack of a federal role for education. The assertions made in the sidebars are wholly unconnected to the text's presentation of rankings and are not supported by them.

II. THE REPORT'S FINDINGS AND CONCLUSIONS

The Education Olympics is based on previously reported results of international assessments, and the findings reiterate those previous results that place U.S. students as middling performers in math, science, and reading. However the report seeks to convey these findings in a new way. To illustrate, in the overall mathematics literacy "event" (reported in Table 6), Chinese Taipei won the gold, Finland took silver, and Hong Kong and South Korea tied for bronze on the 2006 Programme for International Student Assessment (PISA). In contrast, the Education Olympics puts the US in 35th place among a field of 57 competing nations.

The Education Olympics constructed 58 events and awarded a total of 190 medals. The top medal winners were Finland, with 35, Hong Kong, with 33, and Singapore with 16. The U.S. was credited with a single medal, a gold for achievement on the CIVED exam.

The Education Olympics maintains that U.S.

students' academic achievement, in comparison with those of rival nations, places the country at risk for losing its status as an educational leader and jeopardizes America's economic advantage. However, this conclusion is based on a report that goes to great lengths to point out that its methodology is not "a full-fledged scholarly analysis of international data" (page 7).

III. THE REPORT'S RATIONALE FOR ITS FINDINGS AND CONCLUSIONS

The rationale for the report's findings and its conclusion appears to rest on the presentation of 28 tables of countries' rankings on various student achievement measures. These tables were constructed from scores generated by various administrations of four international assessments of student achievement: the Trends in International Mathematics and Science Study (TIMSS, 1999, 2003), the Progress in International Reading Literacy Study (PIRLS 2006), the Programme for International Student Assessment (PISA 2003, 2006), and the Civic Education Study (CIVED 1999). Two additional indicators included in determining medal winners were upper-secondary school (high school in the U.S.) completion rates and percentages of bachelor's degrees awarded.

The first table rank orders the countries by total number of medals. The next 15 tables note the gold, silver, and bronze medalist countries in various academic competitions. These tables present America's overall ranking in the category along with the three medal-winning countries.

The remaining twelve tables rank all participating nations from highest to lowest in various competitions. These twelve tables indicate that U.S. students typically place in the middle of the international rankings of

achievement and attainment. This is the evidence the report provides for its initial assertion that in international competitions in education, the United States fares much worse than in international competitions in sports.

However, the report never makes an explicit argument as to how its data support its central conclusion. That is, there is no clear link between these tables and the report's conclusion that U.S. students' performances reflect a threat to U.S. economic dominance. The report alludes to research in this area by Hanushek, Jamison, Jamison, and Woessmann.⁶ Its conclusion is essentially offered as self-evident.

IV. THE REPORT'S USE OF RESEARCH LITERATURE

To support their claim that American students' middling performance will undermine the nation's economic well being the *Education Olympics* report references one piece of research: by Hanushek, et al., which was published in *Education Next*.⁷ That article, which is briefly discussed in the report's preface, seeks to equate national performance on international math and science tests to a national level of cognitive skills available to enter the workforce. As discussed below, this equating is problematic.

Following the presentation of Hanushek, et al.'s research, the Fordham report addresses the contradiction that American students' typically ordinary performance on international measures coexists with the higher-than-average U.S. Gross Domestic Product growth rate. Drawing on Hanushek, et al., this discrepancy is explained by the expansion of U.S. secondary and higher education throughout much of the last century and by economic advantages, including weaker trade unions, lower tax rates, and fewer regulatory restrictions. The report then underscores an assertion made by Hanushek, et al.

that, "we're living on borrowed time." It claims that while the United States has stood still, other countries have surpassed U.S. educational participation and attainment and have gained on our economic edge.

Other research literature is not discussed, although the report's preface mentions that researchers Gerald Bracey and Iris Rotberg have critiqued international comparisons of student achievement. One brief paragraph of the report's preface takes issue with *Washington Post* reporter Jay Mathews because, in a *Wilson Quarterly* article not cited in the *Education Olympics*, Mathews "seems to insinuate that ... test scores have no relationship to economies."⁸

There are, in fact, extensive bodies of research that respectively couple or decouple educational achievement and economic outcomes. By way of illustration, in the former, there is work not only by Hanushek and his colleagues, but by Richard Murnane and Frank Levy,⁹ John Bishop,¹⁰ Robert Costrell,¹¹ and Ludger Wößmann and his colleagues.¹² In the latter, in addition to Bracey and Rotberg, there is work by Henry Levin, Lawrence Mishel and Richard Rothstein,¹³ as well as Francisco Ramirez and his colleagues.¹⁴

Alongside research produced by such economists and sociologists, cognitive psychologists and psychometricians have long debated the relationship between test scores and economic success. Helmuth Nyborg and Arthur Jensen,¹⁵ in addition to Charles Murray and Richard Herrnstein,¹⁶ have underscored the relationship between tests scores and worker income. In contrast, Stephen Ceci¹⁷ in a reanalysis of data from high-IQ youngsters originally assembled by Lewis Terman,¹⁸ found that the economic lives of those with high IQs were greatly influenced by whether they came of age during or after the Great Depression. Susan Barnett and

Stephen Ceci's views on test scores and economic success have described the importance of the dimensions of "knowledge domain" and "temporal context" to students' futures. They define the knowledge domain as the knowledge base to which the skill or knowledge is to be applied, while the temporal context is the elapsed time between the training and testing phase. They have stressed that "these dimensions have practical relevance to transfer from school classes to future life, as does physical context."¹⁹ That is, they have relevance to the ability to extend what has been learned in one context to new contexts.

Other cognitive psychologists, including Howard Gardner and Robert Sternberg, have argued that standardized tests, whether achievement or IQ, reflect limited samples of both human cognition and of the human behaviors needed for workplace performance.²⁰ To illustrate, these tests provide no opportunity to examine test takers' capacity to prioritize, cooperate, persist in the face of serious challenges, or generate and make use of critical feedback. Hence, there is a complex and attenuated relationship among test results, worker success, and overall macro-economic performance.

V. REVIEW OF THE REPORT'S METHODS

Education Olympics takes existing findings from international assessments of educational achievement and attainment and then orders the reported scores from highest to lowest. In Chapter 1 of the report, "Tally of Medal Winners," scores were listed from highest to lowest, without indication of whether ranked scores reflected any statistically significant differences. Test scores only provide approximations of true knowledge or ability, and careful analyses always take into account whether differences are

significantly different. The new Fordham report does not, however, do this. The scores were ordered simply on the basis of higher or lower numbers. Then, to parallel the Olympic Games, gold, silver or bronze medals were given to the three highest-scoring countries. However, without knowing whether the scores were meaningfully different or instead differed just by chance, it makes little sense to distinguish among countries.

The *Education Olympics* awarded a total of 190 medals based on 58 events that were developed from existing international rankings from the various assessments, as well as upper secondary school graduation rates and bachelors degrees awarded. Each country was given a final ranking based on the number of medals earned. With its one medal, the U.S. was ranked 20th among the 77 participating nations.

However, as the report itself notes, the overall number of medals might in part reflect the varying number of international assessments that a country participated in. This undermines the value of this method of comparing countries because a small number of medals does not necessarily reflect actual student achievement in a country but instead reflects, to varying extents, participation.

In Chapter 2 of *Education Olympics* "International Assessments and Results," the authors note that "Unlike the medal events in Chapter 1, ... we report international data ... consistent with how it's reported by the National Center for Education Statistics (NCES) and the Organisation for Economic Co-operation and Development (OECD)" (page 20). That is, the rankings now take into account whether scores were statistically distinguishable from one another. The participating countries are rank ordered into

banded groups of high, middle, and low, with the United States shown to be in the middle of nearly all the rankings.

However, this approach, too, is problematic. The rankings are presented in simplified and misleading ways. To illustrate, the averaging, selection, and presentation of data and findings in the Education Olympics' obscures, rather than illuminates, the considerable variability within and across U.S. students' performances. For example, in Chapter 1, U.S. 4th grade math scores on the 2003 TIMSS are included in the analysis but, for reasons never explained, those students' science scores were not separately discussed or ranked.²¹ This is noteworthy because the math scores were right in the middle of the international pack overall, and three G8 countries attained statistically higher scores.²² In contrast, U.S. 4th grade science scores on the 2003 TIMSS turn out to be third highest, with only one G8 country scoring better.²³ There is clearly more to these assessment results than the preface's twice-made claim that the U.S. generates "mediocre international results."

VI: REVIEW OF THE VALIDITY OF THE FINDINGS AND CONCLUSIONS

The valid use of test scores for any given purpose rests on the establishment of an integrated set of arguments that are supported by theory and evidence.²⁴ *Education Olympics* attempts to use the scores from international assessments of education to conclude that U.S. students' middling scores threaten the nation's economic well-being and its international economic standing. However, the content of the report provides no basis of argument or evidence to support that claim. It does not consider, and thereby cannot counter, research that suggests only a tenuous relationship between national economic strength and school performance.²⁵

Rather than examining the possible relationship between education and economic outcomes, the report simply takes it as a given that the relationship is straightforward and strong.

Most notably, the report fails to establish a connection between *any* economic indicators and the 26 tables of ranked test results it presents as findings. In essence, arguments, theory, and evidence are entirely absent from the section of *Education Olympics* attempting to link the rankings to economic issues. Without any such support, the report's conclusions that student achievement influences national economic well-being cannot and should not be considered valid.

Instead of developing careful, well-reasoned, and clearly supported arguments and conclusions, the authors have relied on ten sidebars to make a number of claims about education and economic performance. These sidebar assertions tend to overlap with Fordham Institute policy initiatives for U.S. schooling, including the following: setting classroom size standards for optimizing instruction, increasing opportunities for school choice, and setting optimal per-pupil expenditures. For instance, a sidebar entitled "Healthy Choice" describes how students in top-performing countries were able to enroll in schools based on school performance.

Top performing nations, overall, offer at least some degree of school choice. For instance, according to PISA 2006 data, roughly 90% of students in Hong Kong and Australia are enrolled in schools where principals report that two or more schools are competing for students in the same area. ... Compare that to the roughly 60% of Americans experiencing the same. ... All our other top medal winners are either equal to or over the OECD average of 60% (page 10).

Although the report does not explicitly state that school choice is correlated with higher performance on international assessments, the implication from the report is clear: school choice should be supported if the United States is to compete with countries that have high levels of performance on the PISA in science. Yet the sidebar's content is driven by ideology rather than reasoned argument -- which is evident from the fact that Finland, which comes out highest in the report's rankings, is also noted in the same sidebar to have the lowest rate of school choice.

VII. USEFULNESS OF THE REPORT FOR GUIDANCE OF POLICY AND PRACTICE

The *Education Olympics* provides a limited view of U.S. educational performance based on international assessments. Although international assessments of education can provide useful information for policymakers and curriculum developers, they are often used without adequate consideration of the varied contexts in which these results are obtained. The U.S. education system differs considerably from that of many other nations. It has no central ministry of education, no national curriculum, and an extremely heterogeneous school population. Within its 50 states and 13,500 school districts, there are vast differences in educational resources and challenges. Throughout much of the United States, there are increasing percentages of non-English speaking students²⁶ and students of color,²⁷ even as the teaching force remains predominately white and female.²⁸ Schools are markedly segregated both by race and class, with high-minority and high-poverty schools commonly having the least experienced and least well-trained teachers.²⁹ Buried beneath the nation's average scores are school and district perform-

ances that are all over the map. In this case, it makes little sense to attempt to build policy based upon the score averages, rankings—or anything else—provided in this report.

In fact, the main body of *Education Olympics* does not attempt to provide clear guidance for policy or practice on the basis of its findings and conclusions. Instead, the report makes brief allusions to policy issues in sidebars, where the report uses anecdotes instead of real analysis to draw conclusions about what drives student performance. In addition to the school choice sidebar noted above, there are sidebars on per-pupil spending (U.S. spending is noted as second highest, suggesting that spending is not important), class size (many higher scoring nations have bigger classes), and the role of the federal government (highlighting “Canadian independence” from a federal role). The sidebars entail no research-based analyses of the needs of students, teachers, parents, communities, or other key stakeholders in public education. These indirect policy statements are also not built on any analysis of how prior reforms succeeded or failed to meet such needs. For example, school choice, which the report and the Fordham Institute clearly embrace, has already been incorporated into national policy, via the No Child Left Behind Act (NCLB) and other policies. NCLB allows students in underperforming schools to transfer to schools that have made adequate yearly progress. Yet, only a small percentage of eligible students have actually chosen to attend a different school. Making this and other forms of school choice available in the United States has also not changed the trajectories on the National Assessment of Educational Progress (NAEP) or any other national school indicator.

Genuinely improving educational performance—that is, improving students' ability to think, solve problems, and to transfer

knowledge and skills to new problems—is intrinsically worth pursuing, even if it cannot be linked to national economic health. However, such improvements are unlikely to happen without well-formed policies. Such policies must be based on thoughtful and thorough analyses of real-world needs,

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events, and contexts, not on ideology. The *Education Olympics* report, driven by predetermined positions and lacking any rigorous demonstration of argument, theory, evidence or methods, provides no basis for generating constructive policy for improving our nation’s educational performance.

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