

Rates of Return, Production Functions, and State Theory: The Eclectic and Powerful Contributions of Martin Carnoy to Education Scholarship

Authors: Rebecca Tarlau and Maria Luiza Rocha Bueno

Part 1: The Historical Context that shaped Martin Carnoy's scholarship

It is impossible to be part of the Comparative and International Education scholarly community and not know about Martin Carnoy. He is one of the most cited scholars in the field, with over six decades of research broadly related to the political economy of education. Carnoy is a constant presence at the annual Comparative and International Education Society (CIES) conferences, both delivering keynote addresses and chairing student panels. He is infamous for asking hard questions—sometimes part way through your presentation—refusing to succumb to ideological dogma and instead taking very seriously the empirical reality around him. But Carnoy is also not a positivist, assuming that one can only understand the world through a narrow focus on observation and measurement; to the contrary, Carnoy always embeds his research in sophisticated theories about power and politics, forcing students and colleagues alike to look beyond appearances and determine the essence of education policy making and the reasons for varied and highly inequitable educational outcomes.

Officially trained as a labor economist, Martin Carnoy has been on the faculty of the Stanford University Graduate School of Education (GSE) since 1969 and currently holds the Lemann Foundation Professorship in Education, a chair established through a gift by the Lemann Foundation to support scholarship on Brazilian and South American education. Carnoy previously held the Vida Jacks Professorship of Education. In addition to his research, teaching, and other scholarly engagements, Carnoy has served as a consultant to major international organizations, including the World Bank, Inter-American Development Bank, Asian Development Bank, United Nations Educational, Scientific and Cultural Organization (UNESCO), Organisation for Economic Co-operation and Development (OECD), United Nations Children's Fund (UNICEF), the International Labour Office, and the International Association for the Evaluation of Educational Achievement. He also served as President of the Comparative and International Education Society (2005) and has held committee and board roles within both CIES and the American Educational Research Association. His professional contributions have been recognized through his election to the National Academy of Education and the International Academy of Education. In total, over his more than six-decade-long career, Martin Carnoy has authored or edited approximately 50 books and more than 200 articles, in addition to countless reports published by international agencies, and has advised 105 doctoral students and over a thousand Masters' students. Martin Carnoy's personal history forms a central part of who he is as a scholar and educator. He was born in Warsaw in 1938 into a Polish Jewish family. His parents were able to make a dramatic escape in 1940 out of Poland, which had been occupied by Nazi Germany in 1939, through a precarious route across Lithuania, Latvia, Sweden, and Finland before reaching New York City. Most of the family members he left behind would later be murdered during the Holocaust. Martin lived in Queens until he was nine years old and then his family moved to Larchmont in Westchester County, New York, growing up in the postwar decades amid rapid economic expansion and persistent racial and class inequality nationally.



Left: In Sweden, having fled Nazi persecution. Right: In the United States, 1941.¹

Academically, Carnoy was first trained at the California Institute of Technology (Caltech), where he earned his bachelor's degree in electrical engineering. He later earned his Master's (1961) and doctorate (1964) in economics at the University of Chicago. His doctoral advisor was Theodore Schultz, an economist who theorized and popularized the concept of "human capital" (Schultz, 1959) and encouraged Carnoy to write a dissertation on the costs and returns to education in Mexico and to compare those results with similar research in the United States. Carnoy spent extended periods conducting fieldwork in Mexico, including personally surveying around 4,000 workers about their socioeconomic background, schooling, and income. In his dissertation, his findings showed that the payoffs of education in the Mexican context (a lower income country that was experiencing industrial development) were higher than in the United States. Carnoy was the first scholar to try to assess rates of returns to education outside of the United States. In 1961, shortly after his Master's program, Carnoy also married his first wife, Judy Milgrom, and they had two children, David and Jonathan.

In 1964, as Carnoy's dissertation was going through the final typeset, he had to decide between four job offers. These jobs included directing a University of Chicago Master's program in Mendoza, Argentina, which would take him out of the United States for two years; a poorly paid job in the economics department at the City College of New York (CCNY, what would later become the City University of New York, CUNY); a job with the new Department of Education under President Lyndon Johnson; and a job at the Brookings Institute to study the potential for a Latin American common market. Carnoy was not yet a political activist, but he had a feeling that the next few years were going to be important ones to be in the United States, so he opted for the job with the Brookings Institute in Washington D.C., which would allow him to travel to Latin America but maintain a U.S. base. Carnoy spent four years at the Brookings Institute, which put him in contact with many young Latin American economists who would

¹ The photographs reproduced throughout the text are courtesy of Martin Carnoy. Additional pictures provided in the Appendix.

Rebecca Tarlau and Maria Luiza Rocha Bueno, Rates of Return, Production Functions, and State Theory: The Eclectic and Powerful Contributions of Martin Carnoy to Education Scholarship, *Global Comparative Education: Journal of the WCCES* (ISSN: 2522-7491), Vol.10 Nos. 1&2, September 2026

Rebecca Tarlau and Maria Luiza Rocha Bueno, Stanford University, USA

[Global Comparative Education](#) is an open-access journal published by WCCES and licensed under [CC BY-NC-SA 4.0](#)

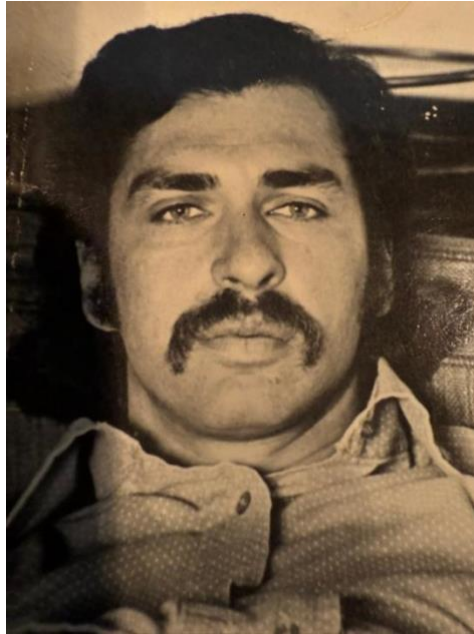
go on to shape the future direction of their countries. He also had the chance in 1968 to travel to Kenya where he would conduct similar research on rates of return to education as he had in Mexico, but get very different results, as described in more detail below in Section 1. These questions of why education did not always contribute greatly to national development and, as important, did not necessarily contribute to social mobility, were taken up more explicitly in a book chapter “The political economy of education in the Third World” (Carnoy 1972), and in a book, *Education as Cultural Imperialism* (David McKay Company, 1974), where Carnoy advanced a political economy critique of schooling and linked education systems to broader structures of imperialism, state power, and class relations, described in more detail in Section 3.



Carnoy with his father, 1962, while in graduate school at the University of Chicago.

During the late 1960s, as the U.S. committed more troops to the war in Vietnam, a strong anti-war movement coalesced and Carnoy dedicated himself to anti-war activism. He helped create with several others an organization, Concerned Citizens for Peace, which he describes as “a nonradical, middle class version of the anti-Vietnam War movement” (Carnoy, 2019, p. 92) and whose members went door to door organizing precincts in Washington D.C. to participate in anti-war activities. In March 1968, Bobby Kennedy launched his campaign to gain the Democratic nomination for the presidency, centering on issues that Carnoy cared about like poverty, racial inequity, and a critique of the war. Kennedy’s staff asked Carnoy to lead the organizing side of his primary campaign in Washington D.C. and Carnoy accepted, helping Kennedy win the primary on May 7, 1968. The next month Carnoy went to California to support the Kennedy campaign there. When he arrived in California, he also gave a talk at Stanford University for a position in the economics of education, with an international focus, due to the recommendation of Henry Levin who had worked with him at Brookings and had started a job at Stanford the year before. The Stanford GSE offered Carnoy the position following the talk, but he had no intention of taking it. He told the GSE dean at the time, Thomas James, that he planned to be in the White House the next year, convinced that Kennedy would win the election. On June 5, 1968, Kennedy was killed and Carnoy was thrown into a deep depression, deciding to accept the job at Stanford University and move to Palo Alto.

Carnoy arrived at Stanford in January 1969. He had attended the controversial Democratic National Convention in Chicago in August 1968 to try to convince people to walk out on the convention to protest the war. Like campuses across the country, in 1969 Stanford students were mobilizing against the Vietnam War and Carnoy jumped into these organizing efforts. By 1970, Stanford President Kenneth Pitzer had been forced to step down due his inability to “control” this campus unrest and his successor President Richard Lyman began to take more aggressive actions, firing many non-tenured faculty who were part of the anti-war protests. These events led to an attempt to push Carnoy out of his tenure-track position in the GSE; however, he had more options than other anti-war faculty because his salary was being funded by a Ford Foundation grant. Carnoy was able to keep his position and eventually received tenure and a full professorship in 1977.



Carnoy at Stanford in 1974

During Martin Carnoy’s almost six decades in the Stanford GSE (1969 to the present), he has been dedicated to the development of a nationally renowned program in comparative and international education, serving as the primary thesis advisor to 105 doctoral graduates (as of the 2025-2026 academic year) and approximately one thousand Masters’ students. As Carnoy describes in his 2019 book *Transforming Comparative Education: Fifty Years of Theory Building at Stanford* (Stanford University Press), the 1940s and 1950s was marked by two major strands in the field: the first emphasized cross-national studies of educational systems, grounded in historical and social science analysis, and the second was the effort to promote democracy, modernization, and economic growth in the Global South. The Ford Foundation played a huge role in pushing the field in these directions, funding comparative education initiatives at the University of Chicago and later providing seed money to establish faculty positions and programs at Stanford, including Carnoy’s own position before and after his tenure-line status came under attack. The efforts to influence education systems in Latin America, Asia, and Africa were also led by the U.S. Agency for International Development (USAID) and UNESCO. As Carnoy writes, these efforts were “focused on applying educational and social science methods to shape educational systems into the service of a specific economic and social development model” (p. 11).

It was in this historical context that Paul Hanna founded the Stanford International Development Education Center (SIDECE) in 1964, with similar initiatives led by Adam Curle at Harvard, Freeman Butts at Teachers College, and Philip Coombs at UNESCO. Representative of the paternalism explicit in these

efforts, Butts is quoted in Carnoy's (2019) book as saying, "We used to joke that Paul [Hanna] at Stanford was reeducating the new nations of Pacific East Asia and I at Teachers College was trying to do the same for Africa and South Asia. Between us, the world" (Carnoy, 2019, p. 15). Nonetheless, even though SIEEC was founded by Paul Hanna and influenced by these democratizing and modernization efforts, by the time Carnoy arrived in 1969 the program had transformed significantly. Hans Weiler, a political scientist influenced by the Frankfurt School in Germany, directed the program and Carnoy had the freedom to pursue his own research interests. During the late 1960s and 1970s, Carnoy was also directly influenced by a wave of critical scholarship, including Albert Memmi's *The Colonizer and the Colonized* (1965) and Marcus Raskin's *Being and Doing* (1971). He was also influenced by education scholars who were foregrounding economic and political power in analyses of education, from Paulo Freire (1970) and Ivan Illich (1971) to Pierre Bourdieu and Jean-Claude Passeron (1970) and Samuel Bowles and Herbert Gintis (1976). In 1972, Carnoy published the popular-at-the time but now relatively little-known *Schooling in a Corporate Society: The Political Economy of Education in America* (1972), summarizing many of these educational ideas.

During the 1978-1979 academic year, now divorced and raising his two sons on his own, he took a sabbatical year in Paris and studied with neo-Marxist scholar Nico Poulantzas, an experience that would become the basis of his book *The State and Political Theory*, described in more detail in Section 3. While in Europe, Carnoy also had the opportunity to meet Paulo Freire in Geneva, leading to Freire agreeing to participate in a two-week student seminar in Stanford in June 1983, facilitated by Carnoy, his graduate student at the time, Carlos Torries, and UC Santa Cruz professor Arturo Pacheco.² In 1987, Carnoy married his second wife, Jean MacDonell, and together they raised their daughter, Juliet, born in 1991.



Left: Martin Carnoy with Bill Clinton, his wife Jean, and daughter Juliet, Stanford, 2001. Right: Carnoy with his three children, 2018.

During the 1980s, 1990s, and 2000s, Carnoy's scholarship was directly influenced by the broader political and economic forces around him as well as the educational trends of those decades. Carnoy continued to write about the rapidly transforming global political economy and the impact of the new information and communication technologies on labor markets, collaborating with sociologist and globalization scholar Manuel Castells. Carnoy also worked closely with the University of Pennsylvania Consortium for Policy Research and Education (CPRE), assessing the impact of domestic education policies like vouchers and charter schools. With his students, he continued to evaluate education policy trends in Latin America, publishing several important papers on the Chilean education system with Patrick McEwan, in addition to many other studies on education reform in Latin America. In the early 2000s, inspired by Cuba's impressive results in the UNESCO International Science and Evidence-based Education (ISEE), he carried out a research project in Cuba, leading to the publication of *Cuba's Academic Advantage: Why*

² For more information on this seminar, see Carnoy and Tarlau (2019).

Rebecca Tarlau and Maria Luiza Rocha Bueno, Rates of Return, Production Functions, and State Theory: The Eclectic and Powerful Contributions of Martin Carnoy to Education Scholarship, *Global Comparative Education: Journal of the WCCES* (ISSN: 2522-7491), Vol.10 Nos. 1&2, September 2026

Rebecca Tarlau and Maria Luiza Rocha Bueno, Stanford University, USA

[Global Comparative Education](#) is an open-access journal published by WCCES and licensed under [CC BY-NC-SA 4.0](#)

Students in Cuba Do Better in School, discussed more in Section 3. A major theme in this research was the limits of market-accountability reforms and the need for more interventionist public sector accountability in education, as described more in Section 2.



Martin Carnoy with Fidel Castro, 2003.

At Stanford, in 2011, Carnoy co-founded the Lemann Center for Educational Entrepreneurship and Innovation at Stanford University, a center dedicated to the training of Brazilian students and professionals who would later return to Brazil to engage in education policy, research, and leadership. The Lemann Center has been funded through multiple donations from philanthropist Jorge Paulo Lemann and his educational foundation, the Lemann Foundation. Since its founding, the Stanford Lemann Center has supported more than 80 MA and PhD students in Education and Masters Business Administration (MBA), in addition to funding dozens of visiting scholars and students to spend several months to a year at the Lemann Center. Although Carnoy's engagement with Brazil dates to the 1960s, the founding of the Lemann Center represented a new phase of Carnoy's career, not methodologically or theoretically distinct, but geographically focused more narrowly than ever before on improving the education policy context of one country, Brazil, as described in more detail in Section 4.

In this profile, Carnoy's work is organized thematically rather than chronologically to highlight his core contributions to the field across time. We structure these contributions around four central themes: (1) labor markets, rates of return to education, and a changing global economy; (2) production functions, testing, and accountability reforms; (3) the role of the State in education; (4) education and development in Brazil. This organization reflects both the breadth of Carnoy's contributions and the enduring questions that have shaped his scholarship.

Part 2: Martin Carnoy's major contributions to Education scholarship

Section 1: Labor markets, Rates of Return to Education, and a changing Global Economy

The first strand of Martin Carnoy's research, throughout his career, has been a focus on labor markets and rates of return to education, within a rapidly changing global economy. Carnoy's work in this area began with his doctoral dissertation, *The Costs and Returns to Education in Mexico* (PhD diss., University of Chicago, 1964), which examined the relationship between schooling, wages, and labor market outcomes through a rates-of-return framework. As part of this research, Carnoy conducted interviews with factory

Rebecca Tarlau and Maria Luiza Rocha Bueno, Rates of Return, Production Functions, and State Theory: The Eclectic and Powerful

Contributions of Martin Carnoy to Education Scholarship, *Global Comparative Education: Journal of the WCCES* (ISSN: 2522-7491), Vol.10 Nos. 1&2, September 2026

workers and observed young and older workers performing similar tasks. Although younger workers typically had more schooling, it was unclear whether they were more productive, since the pace and organization of work was largely determined by machines rather than workers' skills. These observations led Carnoy to question the assumption that education directly increases productivity. He argued that productivity cannot be meaningfully compared within jobs, because workers with higher levels of education are rarely assigned to the same tasks as less-educated workers. At the micro level, therefore, it is extremely difficult to demonstrate a causal link between schooling and productivity. At the macro level, identifying this link is also challenging.

This line of inquiry was extended in his subsequent co-authored study, *Cost-Benefit Analysis in Education: A Case Study of Kenya* (Thias & Carnoy, Johns Hopkins University Press for the World Bank, 1972), where comparative evidence from a different national context produced markedly different results and raised early questions about human capital explanations. During the late 1960s, Kenya had high rates of unemployment and the returns to education were lower than those found in Mexico, particularly at the primary level. As Carnoy recalls in his 2006 CIES Presidential Address the "study made me question many of my assumptions about the inherent value of investing in education and led me to try to understand why primary education in one society might be associated with social mobility and in another society could be largely worthless unless it led to entering and completing secondary schooling" (*Comparative Education Review*, 2006, p. 552). The contrast between his findings in Kenya and Mexico pushed Carnoy to formulate a theory about changing patterns of rates of return to education over time (Carnoy 1972).

Conducting research in a recently post-colonial context also gave him the opportunity to see how schooling operated within societies shaped by decades of colonial rule. Situated within the broader political climate of the late 1960s and 1970s, these experiences contributed to a critical reflection about the role of education in developing societies. As Carnoy (2006) affirms, "I became especially suspicious of the dominant paradigm of the time that Western education was a positive force for the common good even in countries that were colonized and exploited economically by the same countries providing that Western education" (p. 553).

Carnoy's work in both Mexico and Kenya was unique not only because he was the first to measure rates of return to education outside of the United States, but just as importantly, because he collected his own data, personally talking to thousands of workers. By doing the research himself, Carnoy was able to ask questions and identify patterns that might have been more difficult if only analyzing quantitative data from afar. For example, one of his major findings during this period was that there was a downward substitution of higher for lower educated workers, or in other words, that employers that previously hired primary school graduates were now hiring workers with high school degrees for those same jobs. This finding illustrated the decreasing relative economic benefits of obtaining a primary degree in many countries.

Continuing with this theme on labor markets and returns to education, in 1994 Carnoy published *Faded Dreams: The Politics of Economics of Race in America* (Cambridge University Press), which analyzed how educational attainment shaped labor market outcomes for white versus black students in the United States. The book describes the economic and policy changes experienced by white and black students over roughly a half century, spanning from the beginning of World War II and the end of the Great Depression to the Reagan-Bush era. At the end of the book, Carnoy turns to the prospects for black student mobility in the 1990s, arguing that economic inequality in the labor market continued to be shaped by racial inequality and that governments could only address this inequality through race-conscious public policies.

By the 1990s, the labor market was rapidly transforming, due in part to transformations in information and communication technologies. During this decade Carnoy began to analyze the impact of globalization on labor markets and education, working closely with UC Berkeley sociologist Manuel Castells, who Carnoy had met in the 1970s through his relationship with the neo-Marxist theorist Nico Poulantzas, described more in Section 3. One of the major publications that came out of this collaboration was a book published in 1993, *The New Global Economy in the Information Age: Reflections on our Changing World* (Penn State Press), co-authored by Carnoy, Castells, Stephen S. Cohen, a U.C. Berkeley economist, and Fernando Henrique Cardoso, a sociologist and the future president of Brazil (1995-2002). The book is divided into four chapters, written by each co-author, discussing: how information technologies were transforming the world economy (Castells); how multinational corporations were influencing nation-state's economic strategies (Carnoy); how the U.S. economic strategy had shifted in the post-Cold war era (Cohen); and the impact of the new economic and political global order on North-South relations of dependency (Cardoso). An overarching argument of the book is that the nation state would continue to have a major role even in the rapid transformation of the world economy, but that this role would be mediated by "politics," namely the need for democratic nation states to balance the creation of a "suitable environment for capital accumulation" with pressures to invest in democratic institutions. This argument was directly influenced by Carnoy's previous work on State theory, discussed in Section 3. The book became an unofficial prequel to Manuel Castells' famous trilogy on the rise of a global "network society" and its impact on the economy, politics, and social movements (published in 1996, 1997, and 1998). In 2001, Carnoy also published an article with Castells called "Globalization, the knowledge society, and the Network State: Poulantzas at the millennium" in the journal *Global Networks*, revisiting the relevance of Poulantzas' neo-Marxist theory (discussed more in Section 3) for our understanding of the new global economy, or what Castells referred to as the global "network society."

Although Carnoy worked closely with Castells during this period of his career when he was analyzing the impact of globalization on the labor market, we argue that Carnoy's theorizing of the global political economy was quite distinct to Castells, emphasizing much less the notion of a network society and more the continued role of the nation state in shaping economics and education. Carnoy developed many of these latter arguments in his sole-authored book *Sustaining the New Economy: Work, Family, and Community in the Information Age* (Harvard University Press, 2000). The book offers a comparative political-economy analysis of labor-market restructuring under conditions of globalization and rapid technological change. Carnoy argues that the reorganization of labor markets around flexibility and global competition had fundamentally altered the mechanisms through which societies achieve economic stability and social cohesion. He writes that as industrial-era institutions such as stable employment, labor unions, and welfare-state protections lose their integrative capacity, education and other knowledge-producing institutions take on a new, central role in mediating individuals' relationship to work. Rather than retreating, the State remains a key actor in this process, although its role shifts from guaranteeing employment and income toward supporting learning, skill formation, and institutional coordination. From a comparative perspective, *Sustaining the New Economy* contends that societies differ in their ability to make this transition, and that those countries unable to develop coherent public responses to labor-market flexibility face both heightened inequality and weaker long-term economic performance.

Carnoy had a number of other publications in the early 2000s analyzing the impact of globalization on education. Some of the most cited of these publications include *Globalization and educational reform: what planners need to know* (UNESCO, 1999); "What Does Globalization Mean for Educational Change? A Comparative Approach (2002) with Diana Rhoten, which was the introductory article for a Special Issue in *Comparative Education Review*; and the book chapter "Globalization and educational reform" in the volume *Globalization and Education: Integration and Contestation Across Cultures*, edited by Karen

Monkman and Nelly Stromquist (Bloomsbury Press, 2000 and 2014). An overarching theme in all of these publications is that globalization was indeed having a profound effect on education systems around the world, most significantly by forcing nation states to focus on becoming competitive in the new global political economy through investments in skills and knowledge, while also pressuring nation states to reduce public expenditures in education through decentralization, privatization, and requiring a lower tax base to attract foreign capital. Another theme was the impact of the increased competition between nation states, which was pushing governments to focus more on math and science curriculum as well as national standards and testing.

Over the next decade, Carnoy's also began to place greater attention on the role of universities within the global political economy, culminating in the publication of *University Expansion in a Changing Global Economy: Triumph of the BRICs?* (Stanford University Press, 2013), co-authored with his Stanford colleague Prashant Loyalka and six others. The book analyzes the relationship between higher education expansion and labor markets under conditions of globalization, focusing on the cases of Brazil, Russia, India, and China. It frames higher education expansion in BRIC countries as a State-led response to rising labor-market returns under globalization. Carnoy and his coauthors argue that nation states play a central role in shaping how universities expand, differentiate, and define quality, translating global economic pressures into nationally specific institutional arrangements. These pressures include the economic payoffs to higher education, popular demand for higher education expansion, ideologies about the need for "world-class" universities, and pressures from higher education institutional actors. Rather than converging toward a single model, Carnoy and colleagues argue that higher education systems diverge according to their political histories, state capacity, and legitimacy concerns. Mass expansion is therefore accompanied by increasing institutional stratification, with implications for labor-market outcomes, inequality, and social mobility.

Overall, Carnoy's research on labor markets, rates of return to education, and the impact of a changing global political economy has attempted to document the real impacts of educational attainment on workers in different political and economic contexts across time. This research shows that the relationship between more education and more prosperous economic outcomes is not a straight line, for individuals nor for countries, but rather is shaped by post-colonial contexts, racial inequalities, and economic stratification in a rapidly transforming global economy.

Section 2: Production Functions, Testing, and Accountability Reforms

A second strand of Martin Carnoy's research over the years has been what economists refer to as "production functions"—economic models that try to assess the impact of "inputs" into education such as economic resources, teacher quality, and family background, on student achievement outcomes, assessed primarily through testing. As with his research on rates of return to education, Carnoy was the first person to estimate production functions outside of the United States. To do this work, Carnoy relied heavily on international testing to assess student achievement outcomes across national contexts. Thus, Carnoy has been part of what he refers to in *Transforming Comparative Education* (2019) as a major research strand in the field Comparative and International education: international assessments of student achievement. This type of comparative research was made possible by the founding in 1958 of the International Association for the Evaluation of Educational Achievement (IEA), which conducts large-scale comparative, cross national studies of education achievement such as the Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS), as well as the founding in 1961 of the OECD, which created the Programme for International Student Assessment (PISA), a global benchmarking tool in education. Carnoy has drawn extensively on these international assessments throughout his career and in particular in his research on production functions.

Rebecca Tarlau and Maria Luiza Rocha Bueno, Rates of Return, Production Functions, and State Theory: The Eclectic and Powerful Contributions of Martin Carnoy to Education Scholarship, *Global Comparative Education: Journal of the WCCES* (ISSN: 2522-7491), Vol.10 Nos. 1&2, September 2026

Rebecca Tarlau and Maria Luiza Rocha Bueno, Stanford University, USA

[Global Comparative Education](#) is an open-access journal published by WCCES and licensed under [CC BY-NC-SA 4.0](#)

An early example of Carnoy's work in this area was in 1969, when he was sponsored by the World Bank to estimate the relationship between school inputs and student outcomes in Tunisian secondary schools. Once again, he collected all of his own data in sixteen Tunisian secondary schools. This research, however, was never published by the Bank, but was summarized in an article published a few years later (Carnoy et al, 1976). Carnoy then did a similar study in Puerto Rico from 1970 to 1972, this time sponsored by the Social Science Research Council. In an article published on this research, "The Rate of Return to Schooling and the Increase in Human Resources in Puerto Rico" (*Comparative Education Review*, 1972), Carnoy estimates private rates of return to schooling and relates them to how much education workers in different occupations had accumulated over the twenty-year period from 1940 to 1960. Drawing on 1959 census data, Carnoy finds that workers in occupations with higher economic payoffs to schooling tended to have greater increases in their average education levels, though the relationship was modest. Carnoy also argues that falling employment rates among young Puerto Ricans had paradoxically encouraged more schooling, since young people who could not find work had little to lose financially by staying in school—and that this dynamic was especially strong among women, whose educational attainment grew faster than men's even as their job opportunities declined. Thus, once again, Carnoy questioned the assumed relationship between an individual's increased human capital and their economic returns.

In the 1990s and 2000s, Carnoy's work in this area of production functions was directly influenced by the education policy reforms of those decades, most significantly, the wave of market-accountability reforms, such as vouchers and charter schools. The voucher reform movement was directly inspired by University of Chicago economics professor Milton Friedman's writings (1959, 1962) on the ideal role of education within societies that prioritized market freedom and minimal state interventions (what later became known as neo-liberalism). Education vouchers given to parents for their children to attend private schools was a proposal to disrupt what Friedman considered to be a "government monopoly" over educational provision. In Chile, the authoritarian government of Augusto Pinochet (1973-1990), directly advised by many of Friedman's students (known as the Chicago boys), implemented Friedman's economic policy recommendations. The government also adopted Friedman's education policy proposals, radically decentralizing the public school system to the municipal level and implementing a national voucher program. In the 1990s and 2000s, many U.S. states followed these educational policy trends, with Milwaukee implementing the first voucher system in 1990 and Minnesota passing the first charter law a year later, in 1991, partially as a less extreme form of school choice.

Carnoy's research in the 2000s was incredibly critical of these policy trends. For example, in the book *School Vouchers: Examining the Evidence* (Economic Policy Institute, 2001), he assesses whether voucher policies in the U.S. raise student achievement—analyzing policy cases such as Milwaukee and Cleveland and Florida A+ accountability system that promoted school choice—and whether they improve failing public schools. For the first cases, he shows that the evidence on student achievement is highly inconsistent and methodologically contested. For the Florida case (1999-2000), he concludes that there is not enough evidence to claim that the larger rise in student performance in low-performing schools was caused by the threat of vouchers. In this way, Carnoy argues that the evidence supporting school vouchers is weak, inconsistent, and often overstated, especially in policy debates. Similarly, in the article "School Choice? Or Is It Privatization?" (*Educational Researcher*, 2000), Carnoy critiques school choice as a form of privatization that does not reliably improve equity or student achievement. Engaging with arguments from choice proponents and drawing on evidence from U.S. and international cases of charter schools and voucher programs, Carnoy shows that there is little evidence of systemic improvement in educational quality. Carnoy counters Friedman's claim that private schools could deliver education of equal quality at half the cost, drawing on international cases such as Chile to show that, after 15 years of

intense competition, improvements in achievement in public schools were very limited. He argues that the politics of choice effectively mean privatization, and that privatization will eventually entail the use of public subsidies for religious education.

Finally, in the book *The Charter School Dust-Up* (Economic Policy Institute, 2005), Carnoy and three co-authors engage with four core arguments in favor of charter schools: (1) that charter schools liberate educators from bureaucratic regulations and union contracts that stifle creative educational improvements; (2) that charter schools are more accountable than regular public schools for their outcomes; (3) that charter schools foster experimentation by allowing novel educational approaches to emerge; and (4) that competition from charter schools improves outcomes in regular public schools by pressuring them to become more effective (Carnoy et al. 2005). Drawing on empirical evidence, Carnoy and colleagues show that charter school outcomes are highly variable and, on average, not superior to those of traditional public schools. In addition to publishing on this research, Carnoy used his findings to directly participate in public debates on education policy, appearing on two panels with Milton Friedman in the 1990s. The first was at the Hoover Institute, in a discussion about the Edison Schools, a for-profit education management organization, with former U.S. Assistant Secretary of Education Chester Finn. This panel coincided with the first voucher initiative in California, which was also discussed. The second event was in the late 1990s and was a debate between Friedman and Carnoy at the old Stanford art auditorium. This debate was about public subsidies for private schooling with a focus on the Chilean and Milwaukee cases.

Carnoy's domestic research, however, was not limited to the school choice debate. For example, one of Carnoy's most cited articles assessing domestic policy outcomes, published in 2002, was written with Stanford professor Susanna Loeb "Does external accountability affect student outcomes? A cross-state analysis" (*Educational Evaluation and Policy Analysis*). This paper, written in the context of a rise in standards-based reforms, examines whether stronger state accountability systems are associated with improvements in student outcomes. Using a cross-state analysis of National Assessment of Educational Progress (NAEP) data and creating a model "in which strength of accountability is itself a function of variables that may affect student performance" (Carnoy & Loeb 2002, 308), they find that states with stronger accountability do see greater test-score gains but not positive attainment effects. One possible explanation for that relates to student progression: increased pressure may raise retention in earlier grades, which is often linked to higher school dropout, offsetting potential gains in completion. Carnoy and Loeb also suggest that effects on attainment may take longer to appear. Another explanation concerns measurement, discussing whether increases in test scores capture "real learning" that translates into student progression in high school.

Across his other domestic-focused works, Carnoy consistently challenges dominant policy narratives in U.S. education. In the executive summary of "What Do International Tests Really Show About U.S. Student Performance?" (Economic Policy Institute, 2013), Carnoy and his co-author Richard Rothstein critique how international test reports are often portrayed in the media. They argue that because social class inequality is greater in the United States than in comparable countries, the relative performance of U.S. adolescents is better than it appears when only national average scores are compared. They also contend that, because countries' social class composition changes over time, comparisons of test score trends by social class are more useful for policymakers than comparisons of overall average scores. Even as Carnoy turned towards analyzing the domestic educational policy context in the 1990s and 2000s, he maintained his international engagements, especially his research in Latin America, in collaboration with his students. In 1998, Carnoy published "National Voucher Plans in Chile and Sweden: Did Privatization Reforms Make for Better Education?" (*Comparative Education Review*), examining large-scale voucher reforms in both countries and questioning whether privatization improves educational quality and efficiency. He outlines Friedman's ideas that underlie these reforms –that vouchers would

expand school choice, competition between providers would increase efficiency and quality, and schooling could be effectively privatized without increasing costs. He examines how these ideas were taken up in Chile and Sweden and concludes that national voucher programs fail to deliver the outcomes promised by their proponents, showing that while choice may increase gains for some students, these gains are limited and competition does not consistently improve public schools. This 1998 article was based on a longer-term research project in collaboration with Carnoy's student Patrick McEwan. In 2000, Carnoy and McEwan published an influential article "The Effectiveness and Efficiency of Private Schools in Chile's Voucher System" (*Educational Evaluation and Policy Analysis*), which examined the effectiveness and efficiency of private schools within Chile's national voucher system. Using national data, they find that non-religious private voucher schools are, at best, similarly effective and often marginally less effective than public schools in producing academic achievement, once student background is taken into account. Catholic schools show somewhat higher effectiveness, but these differences are not sufficient to support broad claims about private sector superiority. While some private schools appear more efficient due to lower labor costs, the authors conclude that the overall case for shifting public resources toward private schooling remains mixed and inconclusive. Together, this body of work shows how Carnoy consistently challenged market-based education reforms, in both the domestic and international contexts, demonstrating that their core assumptions on effectiveness, efficiency, and competition are not supported by robust empirical evidence.

A final example of Carnoy's work on production functions is his co-written book published in 2012 with Linda Chisholm and Linda Chilisa Bagele—*The Low Achievement Trap: Comparing Schooling in Botswana and South Africa* (HSRC Press). The premise of the research was a "natural experiment" of two school systems developed under different political conditions teaching children of the same ethnic group on either side of a national border. It examines the relationship between school inputs—based on films of teachers teaching and tests of teacher math knowledge—and student sixth grade learning outcomes (gains in math test scores) in the two contexts. Rather than relying on simple input-output models or proxy measures of teaching quality, the study combines longitudinal data with detailed classroom-level evidence to examine the teaching-learning process itself and includes an underlying theory of the learning process.

After publishing this book, Carnoy continued to engage in a series of studies drawing on state-level data and international tests to assess how inputs, policies and interventions affect schooling outcomes across different contexts. Examples of these studies include analyses of teacher effectiveness and classroom resources in Sub-Saharan Africa (Zakharov, Tsheko, and Carnoy 2016), critiques of how international test scores are used to inform education policy, drawing on the case of Australia's PISA results (Morsy, Khavenson, and Carnoy 2018), and studies examining the effects of school-day length on student achievement in Brazil (Rosa, Bettinger, Carnoy, and Dantas 2021).

The through line in all of this research, from the World Bank study in Tunisia in 1969 to the assessment of vouchers and charter schools in the United States, were the questions that Carnoy was asking: How does the educational production process work? What are the factors and relationships that make for good education systems? Is there a trade-off between "efficiency" and equity in the production of academic outcomes? Fundamentally, these were questions that appealed to economists, yet Carnoy leveraged these inquiries to push against traditional neo-classical economic dogma: the unwavering appeal of a free market. Carnoy documented the limits of market-inspired education reforms and instead promoted the public sector accountability reforms that he believed would have a more lasting and positive impact on schools, from increasing economic resources for education to more support and oversight for teachers.

Section 3: The role of State in education

If Martin Carnoy had only contributed to two strands of research—rates of return to education and education production functions—his legacy might have been that of an accomplished economist, who critiqued market-accountability but still relied on fairly standard economic analysis in his research. One of Carnoy’s most important legacies, however, is not these first two strands of his research, but rather, a third strand: his theorizing of the role of the State in education. Throughout his career, Carnoy has insisted in both his research and teaching that education systems cannot be understood apart from the State structures within which they are produced, regulated, and contested.

As described in Part I, Carnoy was influenced in the late 1960s and early 1970s by the wave of neo-Marxist scholarship inside and outside of the field of education. His first attempt to synthesize some of that scholarship first appeared in 1972 in *Schooling in a Corporate Society* (David McKay Company), an edited volume that included writings from many critical scholars. In the introduction to this book, Carnoy argues that education scholars need to rethink the purpose of education, which he argues is not to maximize everyone’s potential but rather to maximize the potential of a small elite of the population. In line with other neo-Marxist education scholars of this era, Carnoy argues that the “failures” of the education system to achieve social mobility for working-class and marginalized communities were in fact examples of the efficiency of the system in achieving its intended purpose.

Carnoy expands this analysis to the international level in one of his most cited publications, *Education as Cultural Imperialism* (David McKay Company, 1974). In part, *Education as Cultural Imperialism* was inspired by Carnoy’s work in Africa in the 1960s, when he realized how little education was contributing to economic growth in post-colonial contexts. It was also a product of Carnoy’s engagement with critical educational scholarship; indeed, one version of the book has a blurb from the radical anarchist-leaning education theorist, Ivan Illich, which says “An important book. To the best of my knowledge, it is the first book which describes the central place which school has had in the development of the world-wide crisis of industrial society which we now face.”

Education as Cultural Imperialism was based on a historical analysis of secondary documents and offers a sweeping overview of the role of schooling in countries and regions as different as India, West Africa, Latin America, and the United States. The argument is essentially that in all of these contexts, education served as a key institution protecting the interests of colonial powers and capitalist elites. Although the schooling system sometimes had the unintended impact of educating a handful of colonized or oppressed people who went on to lead resistance movements, these examples were few and far between. As Carnoy (1974) writes, “We argue that, until now, formal schooling has helped a few to control more effectively the lives of many rather than the many to understand and control the nature of progress and changes in their own lives” (p. 25). This book represents Carnoy’s most “structuralist” analysis of schooling, positing that even as school systems disrupt some “traditional” hierarchies their primary function is to bring economically oppressed communities into a new capitalist hierarchy. *Education as Cultural Imperialism* was translated into Spanish and in many countries in Latin America, in particular in Mexico, continues to be Carnoy’s most famous book.

In 1984, Carnoy published another foundational text, *The State and Political Theory* (Princeton University Press, 1984). This book was largely based on a seminar that he took with Nico Poulantzas during the 1978-1979 academic year. As Carnoy describes, with the rise of neo-Marxist educational theories in the 1970s, he realized that he would never be able to do good economics without understanding political theory (personal communication, March 2026). He moved to Paris with his two sons and cold-called Poulantzas, who after some hesitation allowed him to take a seminar with him at the

Institute of Higher Studies. Carnoy wrote *The State and Political Theory* because he found the seminar and Poulantzas' writings to be difficult to understand for most students, and he wanted to explain these State theories to a larger audience. Poulantzas also put Carnoy in touch with the scholar Manuel Castells, the start of what would become a decades-long collaboration, described in Section 1. *The State and Political Theory* is divided into eight chapters, which discuss the most prominent theories shaping debates about the State, capitalism, democracy, and civil society up until that moment. These theories included classical liberal theories (Hobbes, Locke, Rousseau), Marxist theories (Marx, Engels, Lenin, Gramsci), structuralist theories (Althusser and Poulantzas), German theories of the state and legitimacy (Offe, Hirsch), theories of socialism (Lenin, Luxemburg, Bobbio, Ingrao, Poulantzas), theories of dependency (Marx, Lenin, Mao, Frank, Amin, Wallerstein, Cardoso and Faletto), and recent U.S. political theory (Olin Wright, Domhoff, Przeworski, Skocpol, Block, O'Connor, Castells, Bowles and Gintis). In the conclusion of the book, Carnoy puts all of these theories into two broad categories: liberal and corporatist theories of the state and class conflict theories of the state, with the latter including scholars who argue that States have some independent political power. Overall, this foundational text should not be considered an elaboration of Carnoy's own perspective on State theory, but rather, his attempt to synthesize and translate, in his own words, the wide range of State theory that had been influential to his thinking and the ongoing debates of that period.

Carnoy's own perspective on the State was developed more thoroughly in *Schooling and Work in the Democratic State* (Stanford University Press, 1985), written with his Stanford colleague Henry Levin. Carnoy and Levin began to work on this book in 1977 and 1978, before the publication of *The State and Political Theory*, however, they were not satisfied with what they had written and only published the final version of this book seven years later. *Schooling and Work in the Democratic State* was in many ways a revision to the major arguments in *Education as Cultural Imperialism*, which Carnoy eventually saw as flawed because it did not incorporate the more "dialectical" perspective of dependency theorists Fernando Henrique Cardoso and Enzo Faletto, who analyzed how local development trajectories were shaped but not overdetermined by a country's structural location in the world system (Carnoy, 2019, p. 105).

In line with this more dialectical perspective, in *Schooling and Work in the Democratic State* Carnoy and Levin attempt to analyze the contradictory role of schools in society. They identify two enduring and competing educational goals: efficiency in preparing students for participation in the labor market, and the construction of democratic, participatory, and culturally aware citizenry, arguing that these two goals reflect underlying conflicts between capitalist interests and popular democratic demands. Carnoy and Levin explicitly reject pluralist theories that portray education as a neutral mechanism for equality and social mobility, as well as structuralist views that reduce schooling to a simple instrument of reproduction. Instead, they conceptualize schools as sites of social conflict that are, in important respects, more open to democratic struggle than workplaces themselves. From this perspective, the orientation of schooling depends on the relative strength of capitalist classes versus social movements in shaping the State. As they argue, "the degree to which the state does respond to business' reproduction mandate versus consumers' democratic mandate depends on the force of social movements in influencing state behavior" (Carnoy and Levin 1985, 150).

A short summary of many of Carnoy's principal arguments about the State and education appeared in 1992 in a book chapter "Education and the State: From Adam Smith to Perestroika" that Carnoy published in Robert Arnove and colleagues' edited volume *Emergent Issue in Education: Comparative Perspectives* (State University of New York Press). In this informative and pedagogical book chapter, Carnoy argues that theories of the state are absent from most educational research. This absence, he contends, is consequential: State theory shapes how one understands the purpose, goals, and organization of education systems. To address this gap, Carnoy reviews several major theoretical traditions, including

liberal, Marxist, institutionalist, and conflict theories of the state, and examines how each conceptualizes the relationship between education, power, and politics. As in his 1985 book *Schooling and Work the Democratic State*, in this chapter Carnoy indicates his preference for the institutionalist and conflict-centered state theories, where schools are shaped by broader capitalist relations but there is space within those education system to interrupt economic and social hierarchies. Overall, Carnoy's writings on State theory have been extremely important in pushing education scholars from a narrow economic focus to a broader political one, emphasizing state action, institutional arrangements, and social conflict as central to the production of schooling.

In the 1980s, Carnoy began a new collaborative project with several colleagues, including Stanford professor Hans Weiler and education scholar Joel Samoff, who was also teaching in the Stanford International Education Development Center (SIDECE). The discussion that unfolded was around the role of the State in societies attempting to transition away from capitalism towards socialism. These included both countries where there had been revolutions, like China in 1949 and Cuba in 1959, as well as countries where governments won power through revolutionary or postcolonial struggles as with Julius Nyerere's government in 1964 in Tanzania, the Front for the Liberation of Mozambique (FRELIMO) in 1975, and the Sandinista government in 1979 in Nicaragua. After years of debate about the role of education and the State in these countries, Carnoy and Samoff published *Education and Social Transition in the Third World* (Princeton University Press, 1989), naming these countries "transition states" rather than "socialist" because of their mixed economies and often ambiguous relationship to socialist ideals. In the book, Carnoy and Samoff argue that States in transition societies have particular characteristics. Most importantly, the basis of their power is the state bureaucracy itself. In addition, they argue that socialist societies invest more in education than capitalist societies, both because the ideal of socialism is to equalize opportunity and also because socialist states are more effective in capturing the labor value produced by increased productivity.

The publication of *Education and Social Transition in the Third World* was a turning point for Carnoy's career, published in 1989, the same year as the fall of the Berlin Wall and the dissolution of the Soviet Union two years later. As Carnoy himself reflects on a lesson he took from the subsequent decades, "Market capitalism, it turns out, is generally a more effective system for accumulating capital than a command economy, and working with foreign capitalists creates greater opportunities for economic growth than having them work to undermine your economy, and economic growth, for both small and large economies, capitalist and non-capitalist, is a crucial element in furthering state legitimacy" (Carnoy, 2019, p. 159). As the radicalism of the 1960s and 1970s subsided, and the impacts of the Reagan administration were increasingly obvious, Carnoy turned away from his direct engagement with neo-Marxist theories and towards more traditional economic analyses, although he employed those analyses to undermine the major economic assumptions of the time, namely the positive impact of market-accountability.

State theory, however, would continue to appear in many of Carnoy's publications over the next decades. This influence is evident in his 2007 book *Cuba's Academic Advantage: Why Students in Cuba Do Better in School* (Stanford University Press). As stated in Part 1, this book came about because of the surprisingly good results of Cuban fourth grade students on UNESCO's Latin American Laboratory for Assessment of the Quality of Education (LLECE) in 1997 and 1998. Carnoy visited Cuba in 2003 to propose a study on why Cuba had been so successful, but he was not able to make any in-roads with the Cuban government. It was only later that year while he was in Santiago, Chile, and by coincidence the Minister of Education of Cuba was staying in his hotel, that Carnoy was able to set up a meeting and, in his own words, "pass the anti-neoliberal test" and gain the access he needed to begin his study (personal communication, March 2026). Although in many ways *Cuba's Academic Advantage* is part of the second

strand of Carnoy's research on production functions, we place it in this strand because its major contribution is characterizing the Cuban State itself and the impact of the Cuban State on student achievement. Indeed, Carnoy frames the entire book around the choice that societies must make between individual freedom and a decentralized pluralist democracy versus a more centralized and authoritarian society where the State is empowered to ensure equitable outcomes.

Although the book's major contributions are about Cuba, the book itself is comparative, focusing as well on Brazil and Chile, and analyzing three levels of "educational inputs": social context, school-level organization, and classrooms. The first two levels were analyzed through dozens of interviews with teachers, administrators, parents, and government officials. The latter "micro" level was based on videos of dozens of third grade mathematics classrooms in all three countries. Again, in many ways this book extends Carnoy's work on production functions, as he employs a "standard production function analysis to estimate input-output relations within each country" (p. 13). However, theoretically he draws on James Coleman's (1988, 1990) controversial notion of how social capital, defined by Coleman as family and community cohesiveness and high expectations, impacts student learning, to develop the idea of "state-generated social capital." As Carnoy (2007) writes, "There are national social capital or 'neighborhood' effects that include state interventions in children's welfare and a national focus on education that can raise educational expectations for all children, particularly the educationally disadvantaged" (p. 15-16). Carnoy argues that the Cuban State, by providing universal access to food and healthcare and reducing inequality between students, provided a critical "input" for student achievement that did not exist in Chile and Brazil. Carnoy also links Cuban student success to the close connection between teacher preparation and national curriculum and the utilization of student assessments to improve teacher instruction rather than create competition between schools. Thus, a critical lesson from Cuba's academic success is that strong instructional leadership and supervision are key to improving schools. A short summary of the major lessons that emerged from this research are also summarized in Adamson and colleagues' edited volume *Global Education Reform* (Taylor & Francis, 2016).

In summary, from the early 1970s through the 2000s a major focus of Carnoy's research has been on the role of the State in education, from States in post-colonial and post-revolutionary contexts, to States under industrial capitalism. A key implication of these analyses is that change within schools is inseparable from the political struggles outside of them. Education transformation does not emerge solely from pedagogical innovation or internal reform, but from broader democratic struggles that pressure the State to reorganize educational priorities and institutions. As Carnoy and Levin emphasize, "undoubtedly the most important message implied in our analysis is that democratic struggles are important for achieving the types of schools and economy that serve the broadest needs of our society and citizenry" (Carnoy and Levin 1985, 266). In this sense, schooling is not only shaped by the State, but also by the social forces contesting State power itself. Although Carnoy was not as directly focused on neo-Marxist debates in the 1990s and 2000s, this strand of his scholarship informed his research and teaching and his insistence to everyone around him that educational policy and practice is always political.

Section 4: Education and Development in Brazil

Martin Carnoy's relationship with Brazil began early in his career. His first visit to Brazil was in 1964, shortly after he completed his PhD and started working for the Brookings Institution. At that time, Brookings was coordinating a large Ford Foundation-funded project that brought together economic research centers across Latin America to study international trade and industrial development. The project involved nearly twenty centers and convened regular meetings across the region. Carnoy's initial trip to Brazil took place two months after the 1964 military coup, when he stopped in the country on his return from the project's first meeting in Montevideo. Over the next four years, he traveled to Brazil twice a

year. The Brookings-Ford collaboration held formal meetings in São Paulo in 1966 and in Rio de Janeiro in 1968. These meetings included economists from the University of São Paulo, as well as representatives from the Brazilian Central Bank, reflecting the project's close connection to state institutions and policy debates.

After joining the Stanford faculty in 1969, Carnoy continued his engagement with Latin America. With funding also from the Ford Foundation, he helped establish a fellowship for Master's students from the Latin American and Caribbean region at the Stanford GSE. Although initially dominated by Caribbean students, the program soon recruited students from other parts of Latin America including Brazil. During the 1970s, approximately 120 Latin American students completed Master's degrees through this initiative, including roughly 10 Brazilians. Most of these Latin American students went on to earn PhDs and later held academic or policy positions in their home countries.

Carnoy's engagement with Brazil re-emerged in the late 2000s, following the publication of *Cuba's Academic Advantage* in 2007. By this time, the Lemann Foundation, an educational foundation created by the Brazilian-Swiss billionaire and philanthropist Jorge Paulo Lemann, was becoming a player in education debates in Brazil. The Lemann Foundation was interested in learning from the Cuban case. One of Carnoy's former students was consulting for the Foundation and mentioned his book on Cuba, which led to an invitation for Carnoy to present on the book to the Foundation staff. These interactions led to Carnoy's introduction to Jorge Paulo Lemann himself. In their early conversations, Carnoy raised concerns about Stanford's difficulty in recruiting Brazilian students due to competition from Harvard, which could offer better financial support, in part because Harvard already had funding from the Lemann Foundation. As the story goes, in this meeting in São Paulo, Carnoy made the argument to Jorge Paulo Lemann that Stanford's education program was stronger than the Harvard program and he proposed providing targeted scholarships to attract Brazilian students to the Stanford program (personal communication March 2026). This discussion became the basis for a decades-long collaboration.

In 2011, Carnoy worked with his Stanford colleagues David Plank, Paulo Blikstein, and Eric Bettinger to establish the Lemann Center for Educational Entrepreneurship and Innovation in Brazil at the Stanford GSE. The Lemann Center combined graduate student funding with a visiting scholars program and research and policy engagement focused on Brazil. Projects linked to the Center have included evaluations of Ceará's Learning at the Right Age Program (PAIC), studies of full-day schooling, contributions to the construction of Brazil's national common core (BNCC), and research on teacher training initiatives inspired by the Stanford Teacher Education Program (STEP). This latter initiative led to the founding of Brazil's Programa de Especialização Docente (PED) (Teacher Specialization Program), a post-graduate in-service teacher preparation program in mathematics or natural sciences teaching aimed at K–12 teachers and offered through partnerships between education departments and universities across Brazil.

The establishment of the Lemann Center has also shaped the Stanford Graduate School of Education itself by increasing the presence of Brazilian students and scholars and expanding faculty interest in comparative and international education. Carnoy characterizes the Lemann Center as an independent research partner to the Lemann Foundation, affirming that while the Foundation seeks the Center's input and expertise, it does not always adopt its recommendations (personal communication, March 2026). Nonetheless, the Lemann Center has had a direct and continual impact on educational debates in Brazil, indirectly through research and more directly through Lemann Center faculty engagement in public policy debates about Brazilian education. Since its creation, Carnoy has devoted more than half of his research time to Brazil-related work, producing two comparative books that include Brazil as a case study and more than a dozen articles specifically on the Brazilian school system.

The two books with case studies on Brazil are *University Expansion in a Changing Global Economy: Triumph of the BRICs?* (Stanford University Press, 2013) and *Power and Prejudice: Racial Inequality in the United States, Brazil, and Nova Scotia* (forthcoming 2027). These collaborative books illustrate the range of Carnoy's work on Brazil, the first focused on the rapid expansion of university education in the BRIC countries (Brazil, Russia, India, and China) and the second on racial inequality in education and the labor market. Both books engage State theory and place the nation state as a central explanatory variable for understanding similarities and differences across contexts. More specifically, *University Expansion in a Changing Global Economy*, draws on theories of State legitimacy developed by Offe (1973) and Weiler (1983) to argue that university financing is not a question of private versus public provision, but rather a State financial strategy to meet economic growth, income distribution, and the need for political legitimacy (a more detailed description of the book is included in Section 1). The book had a big impact in Brazil, with (CAPES, Coordination for the Improvement of High Education, the major government organization promoting graduate studies and university-level research), translating the book into Portuguese and distributing more than a thousand free copies across the country.

The second book, *Power and Prejudice*, is a more recent joint project of the Stanford Lemann Center and the Racial Studies Research Group at INSPER University in Brazil. The book is focused on analyzing racial inequalities between white and black citizens, workers, and students in Brazil, the United States, and Nova Scotia in Canada. The book represents Carnoy's most direct return to State theorizing since the 1980s, as it synthesizes a wide range of State theories and their different explanations for racial inequality, from the liberal theories of the enlightenment and Gilberto Freyre's theory of racial democracy, to more contemporary perspectives, including Anthony Marx's (1998) comparative-institutional analysis, Cedric Robinson's (1983) racial capitalism, and Michal Omi and Howard Winant's (2014) racial formation. As in his previous work on State theory, Carnoy divides these perspectives into three broad categories: pluralism (the State as an expression of diverse and shifting citizen interests mediated through a political bureaucracy); institutionalism or corporatism (the State as an expression of evolving bureaucratic and institutional configurations of power); and the contested class state (the State as the political expression of the economic power structure). Empirically, *Power and Prejudice* provides a brief history of race relations in Brazil, the United States, and Canada, as well as a description of Black-white educational, economic and social differences and an analysis of the relationship between education and the labor market, assessing throughout this empirical analysis the explanatory potential of different state theories. In the end, Carnoy does not embrace one theory, but rather, argues that researchers and educational policy makers should be more explicit about their theory of why racial inequity persists, as one's theory of power is crucial in formulating appropriate strategies to address racial inequities.

The articles Carnoy has published on Brazil since 2011 have generally been written in collaboration with his students or other visiting scholars at the Lemann Center. They have focused on questions related to Carnoy's second strand of research—production functions, or the impact of school interventions on student outcomes, from increasing the amount of time that students spend in school to subnational government collaborations. One highly cited paper “The Effectiveness of an Early-Grade Literacy Intervention on the Cognitive Achievement of Brazilian Students” written by Costa and Carnoy (2015) analyzes the Pacto pela Alfabetização na Idade Certa (PAIC) (Pact for Literacy at the Right Age), a large-scale early-grade literacy intervention implemented in Ceará, and finds that this program led to significant improvements in student achievement in both Portuguese and mathematics. The paper is situated within broader debates on early interventions as a strategy to reduce achievement gaps that emerge before or at school entry. While much of the literature has emphasized early childhood education as the most effective stage for intervention, this study complicates the promise of these interventions: although PAIC improved overall learning outcomes, it did not reduce gaps between students with and without prior early childhood

education. In this sense, the paper suggests that interventions at the early grades can improve learning but may not be sufficient to compensate for inequalities established before children enter school.

Also analyzing early school interventions, in the paper “Achievement Gains from Reconfiguring Early Schooling: The Case of Brazil’s Primary Education Reform”, Carnoy, Rosa, and Bettinger (2019) examine a Brazilian reform, implemented nationally in 2007, that extended primary schooling by lowering the school entry age from seven to six years old, effectively increasing time spent in formal education. They find that this reform led to statistically significant gains in student achievement, particularly in the early grades. While the effects declined in middle school, the study is important because it shows that increases in time spent in school can increase learning. The major contribution of this paper, however, lies in its contributions to the broader debate on how to improve education quality in Brazil: quantity or quality of schooling. Even without any other intervention (teacher training, curriculum adaptation, etc), increasing the quantity of schooling generated some improvements in learning.

This discussion is further advanced in Carnoy’s co-authored article “Is Brazilian education improving? Evidence from PISA and SAEB” (Carnoy et al. 2015). The paper analyzes broader trends in Brazilian education using data from PISA and Brazil’s national assessment, the Basic Education Assessment System (SAEB), and finds that student achievement has improved over time, with larger gains in mathematics than in reading across assessments. However, the authors argue that these gains are uneven and partly driven by increased time spent in school (the 2007 reform) rather than solely by improvements in school quality.

Another article written with Carnoy, two students, and Stanford colleague Eric Bettinger, “The effects of public high school subsidies on student test scores: The case of full-day high school programs in Pernambuco, Brazil” (Rosa et al., 2022), is one of the few studies to rigorously evaluate the effects of increasing school hours in Latin America. The study was conducted in the state of Pernambuco, where the government had implemented a full-day high school program, which later inspired a federally supported expansion of full-day schooling. The authors employ a two-way fixed effects model, and in their most conservative specification, they find that completing high school within the full-day program is associated with an average increase of 0.22 standard deviations in mathematics scores and 0.19 in Portuguese language scores. These findings provide evidence that increasing schooling time has an impact on student learning, supporting advocacy for full-day schooling policies in Brazil.

In “Intranational comparative education: What state differences in student achievement can teach us about improving education—the case of Brazil,” Carnoy et al. (2017) examine Brazil’s national math test (SAEB) data from 1999 to 2013 to analyze how much 9th-grade students’ scores improved across all 27 states. Their main finding is that student gains varied across states with similar demographic profiles – suggesting that political and administrative choices is a variable to consider when researching educational outcomes. The central explanation they offer is state-municipal cooperation: when state governments actively collaborated with municipalities on education policy, there tended to be larger gains in both state and municipal schools. Test scores in states with little or no collaboration stagnated or declined – even in wealthier states. In “Achievement gains in an unequal society: Analyzing academic performance among Brazilian school districts, 2007–2017” Carnoy and Rodrigues (2024) explain achievement gains in Brazil as the result of an interaction between socioeconomic conditions, inequality, and the organization of schooling across municipalities. While test scores increased across the country, the uneven gains are explained primarily by differences in local social structure and student distribution across schools. A central argument is that social class inequality within municipalities shapes learning.

In “Do students make greater gains in some higher education institutions’ programs than others? Insights from Brazil” (Dalmon et al, 2019), Carnoy and his co-authors turn their attention to universities and higher education. They analyze learning gains in higher education using Brazil’s national assessment data which tests students at entry and at graduation across different fields of study. They find that students in STEM fields tend to show higher learning gains than those in humanities and pedagogy programs. Students enrolled in the least selective programs experience significantly lower gains than comparable students in slightly more selective institutions, although differences are not consistent across all areas. Returning to the issue on race and social class inequalities, Silva Filho and Carnoy (2015) in the article “Analyzing social class and race achievement gaps among secondary school graduates in Brazil” use data from over 40 million test-takers on the ENEM--Brazil’s high-stakes national secondary school exam--to track social class and racial achievement gaps from 2009 to 2019, focusing on students enrolled in their final year of public secondary school. The authors use exogenous factors to explain trends in these gaps, arguing that they are closely related to Brazil’s broader economic trajectory. The gaps narrowed in the early period (2009-2013), when the economy was growing, income inequality was falling, and more lower-income and non-white students were entering the test pool. Gaps widened sharply after 2015-2016, as economic stagnation and rising inequality set in and the number of test-takers declined. Another important finding is that the social class gap was consistently larger than the racial gap. Similarly, Carnoy, Rosa, and Simões (2022) in the article “Trends in the academic achievement gap between high and low social class children: The case of Brazil” analyze trends in socioeconomic achievement gaps in Brazil using a national test *Prova Brasil* data from 2007 to 2017. Their results show that inequality increased significantly among 5th graders –especially between 2011 and 2013–before beginning to decline after 2013. This pattern holds for both language and mathematics, even after accounting for changes in students’ family and personal characteristics over time. While school, municipal, and state-level factors help explain part of the variation, they do not alter the overall trend. In contrast, inequality among 9th graders remained relatively stable over the period, with only small fluctuations—an initial increase, followed by a decline, and then a slight rise again after 2015. These papers all contribute to the broader debate on how and if schooling can reduce racial and economic inequalities.

Overall, Carnoy’s research on Brazil since 2011, written with his students and other collaborators at the Lemann Center, reflects both the breadth of his research agenda, its overarching theoretical concern with student achievement, and its methodological approach squarely within the economics of education. Across these studies, recurring themes such as inequalities in learning across social class and racial groups, as well as differences in outcomes across varying levels of state capacity, are present, but are examined within the specific context of Brazil. At the same time, this body of work highlights a consistent tension: while education plays a role in processes of social change, reducing inequality is closely tied to broader socioeconomic dynamics, suggesting the limits of schooling alone as a driver of equity.

Final Reflections: Martin’s Legacy

At an annual meeting of the Comparative and International Education Society (CIES), in March 2015, Martin Carnoy participated in a panel with World Bank researcher George Psacharopoulos, “Fifty years of comparative studies of educational returns: A panel in honor of Dr. Martin Carnoy and Dr. George Psacharopoulos,” discussing their decades of research on rates of return to education. In the period for questions, Greek scholar and previous president of CIES, Andreas Kazamias, took issue with the panel’s framing of education’s contributions as “rates of return” declaring that if Aristotle were in the room he would be appalled. He then asked Carnoy a pointed question: “How is it possible that a scholar who had written the book *Education as Cultural Imperialism* was now discussing education as an economic input, as a rate of return?”

Rebecca Tarlau and Maria Luiza Rocha Bueno, Rates of Return, Production Functions, and State Theory: The Eclectic and Powerful Contributions of Martin Carnoy to Education Scholarship, *Global Comparative Education: Journal of the WCCES* (ISSN: 2522-7491), Vol.10 Nos. 1&2, September 2026

Rebecca Tarlau and Maria Luiza Rocha Bueno, Stanford University, USA

[Global Comparative Education](#) is an open-access journal published by WCCES and licensed under [CC BY-NC-SA 4.0](#)

Carnoy's response to Kazamias reflected how he sees the interconnections between the different strands of his research over the decades. He explained that he did not see a contradiction in pointing out how political elites and former colonial countries used schooling systems to increase their own power, while also using empirical analysis, such as rates of return to education, to understand how the relationship between education and earnings differs among societies and whether investments in education increase economic growth or impact income distribution. For many scholars, the framings of education as an oppressive tool of imperial power or an investment in a public good are in contradiction. For Carnoy, these are empirical not ideological questions. In other words, while Carnoy has been deeply influenced by political theory throughout his lifetime, his research has focused on analyzing, with concrete terms, the world around him. He has refused to let his research be driven by what he considers to be ideological dogma, whether that be Marxist assertions about the reproductive role of schooling or free market beliefs that competition and a minimal state should structure schools and society. Instead, he has insisted on spending time in schools and factories observing the reality of those institutions and gathering data first hand to gain insights into what secondary data might not reveal. Carnoy has never been afraid to take question the consensus of any moment—whether that be reducing spending on education, implementing school choice reforms, nationalizing curriculum, and expanding university education, or the theoretical trends of neoliberalism, neo-Marxism, or more recently decoloniality in education³—and assess the evidence and state his opinion of those reforms, policies, and theories, no matter how many feathers he might ruffle in the process.

We encourage education researchers to read Carnoy's own description of his scholarly contributions, which he summarized late in his career in *Transforming Comparative Education: Fifty Years of Theory Building at Stanford* (Stanford University Press, 2019) and *Political Economy of Education* (Cambridge University Press, 2024). The former book is a history of the field of comparative and international education, through the lens of the scholarship that came out of Stanford University. In this book Carnoy recounts in much more detail the personal history and major intellectual contributions summarized in this article. The latter book is a comprehensive analysis of the major themes that Carnoy believes are important for education policy and practice, with useful summaries of the research in these areas and Carnoy's perspective on that research. The themes included in the book represent the wide range of topics Carnoy has contributed to throughout his career, including the case for a political economic analysis of education; the contributions of economics of education; the State and education; education, labor markets and earnings; returns to investment in education; alternatives to human capital theory; education, economic growth, and income distribution; educational production functions; early childhood education; vocational education; teacher labor markets; school-system accountability (both market and public sector); financing education; and the political economy of higher education.

It is impossible to succinctly summarize Martin Carnoy's research. Nonetheless, our own take is that Carnoy's biggest contributions to education scholarship have been threefold: 1) his analysis of the relationship between education and labor market outcomes, illustrating throughout his career that there is no straight line between more educational access and a better life, especially for minoritized or politically oppressed communities; 2) his research showing the failure of market-accountability reforms to improve education outcomes and his evidence-based policy recommendations in favor of stronger public sector accountability, in particular national standards and teacher training; and 3) his analysis of education as inherently political and contradictory, balancing the tension between preparing students for the job market and expanding democratic rights, and continually shaped by both economic elites and grassroots social

³ See Carnoy's (2025) article "Comparative education and its discontents" for his discussion on decolonial theory in education.

Rebecca Tarlau and Maria Luiza Rocha Bueno, Rates of Return, Production Functions, and State Theory: The Eclectic and Powerful Contributions of Martin Carnoy to Education Scholarship, *Global Comparative Education: Journal of the WCCES* (ISSN: 2522-7491), Vol.10 Nos. 1&2, September 2026

Rebecca Tarlau and Maria Luiza Rocha Bueno, Stanford University, USA

[Global Comparative Education](#) is an open-access journal published by WCCES and licensed under [CC BY-NC-SA 4.0](#)

movements. Beyond these scholarly contributions, Carnoy's other major legacy is his mentorship. His 105 doctoral students and over a thousand Master's students may never, as individuals, cover the breadth of topics that Carnoy has researched throughout his career; however together, they continue many of these lines of research. And they do so always with Martin's nagging question in their heads, "Does the evidence show what you claim?"

Appendix

Photographs courtesy of Martin Carnoy.



Carnoy with his first grandchild, 2004.



Carnoy with Hank Levin, 2009.



Carnoy skiing in Montana, 2018.



Carnoy's family, 2024.

References

1. Adamson, F., Åstrand, B., & Darling-Hammond, L. (2016). *Global education reform*. Taylor & Francis.
2. Bourdieu, P. and Passeron, J.C.. [1970] (1990). *Reproduction in Education, Society and Culture*. London: Sage Publications.
3. Bowles, S., & Gintis, H. (1976). *Schooling in capitalist America: Educational reform and the contradictions of economic life*. Basic Books.
4. Carney, M. L. (1964). *The cost and return to schooling in Mexico* [Doctoral dissertation, University of Chicago]. University of Chicago Library.
5. Carnoy, M. (1972). The Rate of Return to Schooling and the Increase in Human Resources in Puerto Rico. *Comparative Education Review* 16 (1): 68–86.
6. Carnoy, M. (1972). The political economy of education in the Third World. In T. J. LaBelle (Ed.), *Education and development: Latin America and the Caribbean* (pp. 123-149). Latin American Center, University of California.
7. Carnoy, M. (Ed.). (1972). *Schooling in a corporate society: The political economy of education in America*. David McKay Company.
8. Carnoy, M. (1974). *Education as cultural imperialism*. David McKay Company.
9. Carnoy, M., Sack, R., and Thias, H. (1976). Middle-Level Manpower in Tunisia: Socioeconomic Origin, Schooling and Economic Success, in Russell Stone and John Simmons (Eds.) *Change in Tunisia: Studies in the Social Sciences* (pp. 263-287). Albany, New York: SUNY Press.
10. Carnoy, M. (1984). *The state and political theory*. Princeton university press.
11. Carnoy, M., & Levin, H. (1985). *Schooling and work in the democratic state*. Stanford University Press.
12. Carnoy, M., & Samoff, J. (1989). *Education and social transition in the Third World*. Princeton University Press.
13. Carnoy, M., Castells, M., Cohen, S. S., & Cardoso, F. H. (1993). *The new global economy in the information age: Reflections on our changing world*. Pennsylvania State University Press.
14. Carnoy, M. (1994). *Faded Dreams: The Politics and Economics of Race in America*. New York: Cambridge University Press.
15. Carnoy, M. (1998). National Voucher Plans in Chile and Sweden: Did Privatization Reforms Make for Better Education? *Comparative Education Review* 42 (3): 309–337.
16. Carnoy, M. (1999). *Globalization and educational reform: What planners need to know*. UNESCO: International Institute for Educational Planning.
17. Carnoy, M. (2000). School choice? Or is it privatization? *Educational Researcher*, 29(7), 15–20.
18. Carnoy, Martin (2000). *Sustaining the new economy: Work, family, and community in the information age*. Harvard University Press.
19. Carnoy, M. (2000). Globalization and educational reform. In N. P. Stromquist & K. Monkman (Eds.), *Globalization and education: Integration and contestation across cultures* (pp. 43–61). Rowman & Littlefield Publishers.

20. Carnoy, M. (2001). *School vouchers: Examining the evidence*. Washington, DC: Economic Policy Institute.
21. Carnoy, M., & Castells, M. (2001). Globalization, the knowledge society, and the Network State: Poulantzas at the millennium. *Global Networks*, 1(1), 1–18.
22. Carnoy, M., & Loeb, S. (2002). Does external accountability affect student outcomes? A cross-state analysis. *Educational Evaluation and Policy Analysis*, 24(4), 305–331.
23. Carnoy, M., & Rhoten, D. (2002). What does globalization mean for educational change? A comparative approach. *Comparative Education Review*, 46(1), 1–9.
24. Carnoy, M., Jacobsen, R., Mishel, L., & Rothstein, R. (2005). *The charter school dust-up: Examining the evidence on enrollment and achievement*. Washington, DC: Economic Policy Institute; New York: Teachers College Press.
25. Carnoy, M. (2006). Presidential Address, Comparative and International Education Society (CIES), annual meeting.
26. Carnoy, M., Gove, A. K., & Marshall, J. H. (2007). *Cuba's academic advantage: Why students in Cuba do better in school*. Stanford University Press.
27. Carnoy, M., Loyalka, P., Dobryakova, M., Dossani, R., Froumin, I., Kuhns, K., Tilak, J. B. G., & Wang, R. (2013). *University expansion in a changing global economy: Triumph of the BRICs?*. Stanford University Press.
28. Carnoy, M., & Rothstein, R. (2013). *What do international tests really show about U.S. student performance?* Washington, DC: Economic Policy Institute.
29. Carnoy, M., Tsheko G., Chilisa, B., & Luschei, T. F. (2012). *The Low Achievement Trap: Comparing Schools in Botswana and South Africa*. Pretoria: HSRC Press.
30. Carnoy, M., Khavenson, T., Fonseca, I., Costa, L., & Marotta, L. (2015). Is Brazilian education improving? Evidence from PISA and SAEB. *Cadernos de Pesquisa*, 45(157), 450–485.
31. Carnoy, M., Khavenson, T., Loyalka, P., Schmidt, W. H., & Zakharov, A. (2016). Revisiting the relationship between international assessment outcomes and educational production: Evidence from a longitudinal PISA–TIMSS sample. *American Educational Research Journal*, 53(4), 1054–1085.
32. Carnoy, M., Marotta L., Louzano P., Khavenson, T., Recch Franca Guimarães, F. & Caranúba F. (2017). Intranational comparative education: What state differences in student achievement can teach us about improving education—the case of Brazil. *Comparative Education Review* 61, no. 4: 726-759.
33. Carnoy, M., Rosa, L., & Bettinger, E. (2019). Achievement Gains from Reconfiguring Early Schooling: The Case of Brazil's Primary Education Reform. *Economics of Education Review* 68: 1–12.
34. Carnoy, M. (2019). *Transforming comparative education: Fifty years of theory building at Stanford*. Stanford University Press.
35. Carnoy, M., & Tarlau, R. (2019). Paulo Freire's continued relevance for U.S. education: Social movements, education research, and practice. In *The Wiley handbook of Paulo Freire* (pp. 231-248). Wiley-Blackwell.
36. Carnoy, M., Rosa, L. & Simões A. (2022). Trends in the academic achievement gap between high and low social class children: The case of Brazil. *International Journal of Educational Development* 94: 102650.

37. Carnoy, M., & Rodrigues, E. (2024). Achievement gains in an unequal society: Analyzing academic performance among Brazilian school districts, 2007–2017. *International Journal of Educational Development*, 107, 103049.
38. Carnoy, M. (2026, forthcoming). *Power and Prejudice: Racial Inequality in the United States, Brazil, and Nova Scotia*.
39. Costa, L. O., & Carnoy M. (2015). The Effectiveness of an Early-Grade Literacy Intervention on the Cognitive Achievement of Brazilian Students. *Educational Evaluation and Policy Analysis* 37 (4): 567–90.
40. Dalmon, D. L., Fonseca, I., Pondé Avena C., Carnoy, M. & Khavenson, T. (2019). Do students make greater achievement gains in some higher education institutions' programs than others? Insights from Brazil. *Higher Education* 78, no. 5: 887-910.
41. Friedman, M. (1955). The role of government in education. In R. A. Solo (Ed.), *Economics and the public interest* (pp. 123–144). Rutgers University Press.
42. Friedman, M. (1962). *Capitalism and freedom*. University of Chicago Press.
43. Freire, P. (1970). *Pedagogy of the oppressed*. Seabury Press.
44. Illich, I. (1971). *Deschooling society*. New York, NY: Harper & Row.
45. Kuzmina, Y. & Carnoy M. (2016). The Effectiveness of Vocational versus General Secondary Education: Evidence from PISA 2012 for Countries with Early Tracking. *International Journal of Manpower* 37 (1): 2–24.
46. Marx, A. W. (1998). *Making race and nation: A comparison of South Africa, the United States, and Brazil*. Cambridge University Press.
47. McEwan, Patrick J., & Carnoy M. (2000). The Effectiveness and Efficiency of Private Schools in Chile's Voucher System. *Educational Evaluation and Policy Analysis* 22 (3): 213-239.
48. Memmi, A. (1965). *The colonizer and the colonized*. Orion Press.
49. Morsy, H., Khavenson, T., & Carnoy, M. (2018). How international tests fail to inform policy: The unsolved mystery of Australia's steady decline in PISA scores. *International Journal of Educational Development*, 60, 60–79.
50. Offe, C. (1973). The abolition of market control and the problem of legitimacy. *Working Papers on the Kapitalistate*, 1, 109-116.
51. Omi, M., & Winant, H. (2014). *Racial formation in the United States* (3rd ed.). Routledge.
52. Raskin, M. G. (1971). *Being and doing: An inquiry into the colonization, decolonization and reconstruction of American society and its state*. Random House.
53. Robinson, C. J. (1983). *Black Marxism: The Making of the Black Radical Tradition*. Zed Press.
54. Rosa, L., Bettinger, E., Carnoy, M., & Dantas, P. (2021). The effects of public high school subsidies on student test scores: The case of a full-day high school in Pernambuco, Brazil. *Economics of Education Review*, 84.
55. Rosa, L., Martins, M., & Carnoy, M. (2019). Achievement gains from reconfiguring early schooling: The case of Brazil's primary education reform. *Economics of Education Review*, 68, 1–12.
56. Silva Filho, R. L. C., & Carnoy, M. (2025). Analyzing social class and race achievement gaps among secondary school graduates in Brazil. *International Journal of Educational Development*, 117, 103349.

57. Schultz, T. W. (1959). Investment in Man: An Economist's View. *Social Service Review*, 33(2), 109–117.
58. Thias, H. H., & Carnoy, M. (1972). *Cost-benefit analysis in education: A case study of Kenya*. Johns Hopkins University Press for the World Bank.
59. Weiler, H. N. (1983). Strategies of compensatory legitimation in educational policy. *Comparative Education Review*, 27(2), 153–175.
60. Zakharov, A., & Carnoy, M. (2021). Does teaching to the test improve student learning? *International Journal of Educational Development*, 84.
61. Zakharov, A., Tsheko, G., & Carnoy, M. (2016). Do “better” teachers and classroom resources improve student achievement? A causal comparative approach in Kenya, South Africa, and Swaziland. *International Journal of Educational Development*, 50, 108–124.