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The Master Plan and the California higher education system: Success, failure and implications for China

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Abstract

The 1960 Master Plan for Higher Education in California, created by University of California President Clark Kerr and his contemporaries, brought college within reach of millions of American families for the first time and fashioned the world's strongest system of public research universities. The California idea, combining excellence with access within a tiered system of higher education, and underpinned by a taxpayer consensus on the common good inherent in equality of opportunity in education, became the leading model for higher education across the world. Yet the political conditions supporting the California idea in California itself have evaporated. The taxpayer consensus broke down two decades after the Master Plan began and California no longer provides the fiscal conditions necessary to ensure both excellence and access, especially access for non-white and immigrant families. Many students are now turned away, public tuition is rising, the great research universities face new challenges, and educational participation in California, once the national leader in the United States, lags far behind. The article traces the rise and partial fall of the Californian system of higher education as embodied in the Master Plan, and draws out lessons for other countries in general, and China in particular.

Keywords

Higher education, California, Policy, Educational planning, Participation, Research, Economic inequality, Educational stratification

1. The Master Plan in California

The later 1950s and the 1960s were an extraordinary time in the United States. The period climaxed in the explosion of ideas, identities, popular culture and political rebellion in the second half of the 1960s. That great outpouring of civil energy in America, brilliant and sustained, has tended to block from view the decade before, marked by rising expectations and all-round creativity in many spheres, including universities, research, ideas, and government itself. Government was the site of positive action for the public good, the collective well-being of society. Government did not carry the stigma it later acquired in the United States. It was the time of the civil rights movement and of Lyndon Johnson's Great Society. Both government and critics wanted to make a better world. Both believed that this was possible.

In higher education, there was the 1960 Master Plan in California. In his historical account of economic and social inequality, *Capital in the Twenty-first Century* (2014), Thomas Piketty shows that special and unusual circumstances after 1945 in the modernized industrial countries opened the way to greater social mobility and a larger role for social allocation via higher education.

Before World War I, inherited wealth and capital incomes had retarded the potential for upward social mobility through work and education. However, the world wars and the 1930s depression evacuated many of the great fortunes. This partial emptying out of the upper echelon of society provided more space for social mobility after 1945. Progressive income tax, capital taxes and inheritance taxes, which had been used to mobilize resources for the war effort, continued into the postwar era, reducing inter-generational transfer and creating more room for the expansion of the middle class (Piketty, 2014, p. 374). The top tax rate was high and managers' salaries were restrained, compared to later experience. In the United States between the 1940s and the 1970s, savings from labour were the main source of wealth, rather than capital incomes, and facilitated the spread of home-ownership by what Piketty calls the 'patrimonial middle class' (p. 260). As has been the case in the last two decades in China, but will not always be the case, in 1960s America there was more than the usual scope for upward movement into the top layers of society and, partly because of that, more room opening up in the middle of society. The long thirty years of economic growth between 1945-1975 drove the expansion of public and private sector employment and the former, especially, enlarged the scope for merit. This, together with its role in science and technology, brought higher education into a more central role in American society. It was the pathway to the future for families, the economy and the nation. As in China today (Goodman, 2014), higher education in 1950s/1970s US was a great engine room for the growing middle class.

Clark Kerr and the negotiation of the Master Plan

Nowhere in the world was higher education practiced on a larger scale, and with more original thought and far-reaching innovation, than in fast growing California, the largest American state. The central figure in fashioning higher education in California was Clark Kerr, Chancellor of the University of California at Berkeley from 1952 to 1957, and President of the University of California from 1958 to 1967. Kerr was the principal architect of the 1960 Master Plan, the best known of all blueprints for system organization, one that helped to shape higher education across the country and across the world, and the author of what is still the best and most influential book on modern research universities, *The Uses of the University* (2001a/1963).

Clark Kerr was the principal architect, instigator, negotiator, advocate and public face of the California Master Plan for Higher Education. The immediate conditions for a plan were clear. There was a growth crisis in California but the state had enough money to finance an expanding higher education system. There was unregulated sprawl and competition between sectors of education, with no clear division of labour. The question was, what plan—or rather, whose plan? The universities'? The state colleges'? The politicians'? Kerr 'realized that the University needed to take the lead in building a consensus, particularly if the University wanted to maintain its unique role in the tripartite system' (Douglass, 2000, p. 248). The Plan was not so much a system blueprint as a hard-negotiated bargain between contending parties.

The strategy of the University [of California] was clear. Our three new campuses ... along with the expansion of programs at Davis, Santa Barbara, and Riverside, were adequate to fill an anticipated void in facilities for training PhDs and conducting research and in the political map of fast-growing population areas without a UC campus. We did not want to share resources with sixteen additional 'university' campuses (the twelve established state colleges and four more then being developed) who would then claim lower teaching loads for their faculties and higher research subsidies at greater cost. And we did not want to watch the state colleges abandon their highly important skill training functions for teachers in the hot pursuit of the holy grail of elite research status. The state did not need a higher education system where every component was intent on being another Harvard or Berkeley or Stanford. An upward drift was desirable in quality but in the direction of several models. What we needed were three improved models—the open-access model, the polytechnic model, and the research university model. If the state colleges 'went university', some new colleges would have to be founded to serve the polytechnic role (Kerr, 2001b, p. 178).

In the bargaining, Kerr and the University of California came out on top. Though the colleges gained coherence and autonomy as a sector, they were unable to secure the research role and doctoral degrees that they wanted. California already had nine per cent of the nation's population but 15 per cent of its elite research universities, argued Kerr (Douglass, 2000, p. 184). It did not need more research universities. Kerr worked hard to ensure the University would protect its near monopoly of research, holding his nerve as the deadline for final agreement was approached.

Excellence and access

The policy hallmark, normative power and lasting achievement of the Master Plan was that it explicitly combined the principles of excellence and access and made this work in practice. Until 1960 these had been largely seen as opposing principles but Kerr and the Master Planners showed that it was possible to have both within a single system. The Master Plan established a three-tier structure to achieve both principles.

The elite University of California secured its role as excellent by monopolizing the public investment in research and recruiting only from the top 12.5 per cent of the high school graduate cohort. The UC was separated from the two-year community colleges by the middle sector, the state colleges, that provided four-year degrees to the top 33.3 per cent of school graduates. Without research and doctoral training, the colleges were positioned as the top tier of mass higher education. Below them were the volume building open access community colleges where most of the enrolment was concentrated. The

downward segmentation of opportunity, with firm barriers to upward academic drift by both the two-year and four-year institutions, was to be softened by guaranteed upward transfers between tiers. Given that most enrolments were to be located in the bottom tier, if the Plan was to sustain and expand equality of opportunity, much depended on the transfer function, and on the capacity of the school system to adequately prepare students from all districts, and all social and ethnic backgrounds, who would be able to move successfully upwards.

At the time, the revolutionary change was open access. The Plan guaranteed that there would be a place in college for every high school graduate or person otherwise qualified who chose to attend. In 1960, 45 per cent of California's college-age population matriculated to a higher education institution. The national average was about 25 per cent. The Master Plan promised to keep California ahead of the country. It endorsed the continued growth of participation, in response to both economic need and popular demand, which were not distinguished. It proposed a tripling of the enrolment by 1975. It appeared to suggest that with access barriers gone and upward mobility secured, there would be social equality of opportunity through higher education. The promise of access is now a policy commonplace in many countries. But it was the 1960 Master Plan in California that started this.

While universal access was attractive, in fiscal terms it was not as lavish as it might appear. For the first 15 years the Master Plan promised to save money by shifting part of the expected growth from four-year to two-year institutions (Douglass, 2000, pp. 287-289). Community colleges were to be established within commuting distance of almost every resident in the state but they were less expensive than research universities.

The public mission

The California Master Plan says much about the commitment of then Californian society, and perhaps American society, to the collective public good in higher education—that sense of social solidarity that long sustained American democracy (though often also hidden beneath an individualist veneer) and was expressed by the great system builders in American higher education, some in the states and some in the federal sphere. The mentality of Clark Kerr and his contemporaries was very different to the neoliberal mindset, with its veneration of the blind justice of the economic market, that later came to dominate much of American public life. It was public vision and public dollars that built the California system (just as it is the nation-state and planning that has built modern higher education in China). If California had left the task of building to the market, the state would still be waiting.

The Master Plan was quintessentially public in its commitment to universal access, and in its systemic character, in the organizing of three sub-sectors on the basis of a division of labour. All three tiers embodied the public good mission and its ideas of democratic openness and service to all citizens. The Plan also was structured collectively; it embodied the idea of higher education as more than a set of individual institutions. These were inter-dependent institutions operating within the framework of common public structures and committed to a single set of planning ideas. Institutions, and within them individual schools and research groups, competed with each other, but within structured limits. It was a major departure from the idea of university as stand-alone firm which was then influential in the American private sector, and is more dominant in much of the thinking about higher education today.

The Plan also did something else of interest to universities everywhere. It sustained the long-term autonomy of higher education in a highly politicized state. It meant that

provided all sectors kept to the rules, higher education could more or less regulate itself. The constituent campuses of the University of California were protected by the Office of the President from the direct interference that plagued public universities in other states. Legally, the UC campuses were not owned by the state government, or the people of California, but by the regents. It was a formal independence unusual in the university world, though the funding relationship with the state underpinned continuing ties (Rothblatt, 2007, p. 258). The state colleges, later the California State University, were likewise sustained by a new Board of Trustees which also ensured that they no longer competed against each other without constraint. Instead of an overarching governing board, there was a low-key coordinating council to ensure cooperation between the sectors.

The autonomy of the institutions did not necessarily contradict the public character of the Master Plan. Californian higher education was positioned as a kind of public civil society, universal but separate from government. The public connectivity of the institutions was sustained through both their relations with their boards and their direct dealings with the world but they could choose the ways in which they would be socially responsive. This was a different kind of ‘public’ to that of direct government administration: democratic in purpose, access and transparency, and in the range of social engagement, but closed to electoral contest or political capture.

Yet the institutions could not retreat too far from public responsibility. The trust inherent in the Master Plan rested on the capacity of universities and colleges to identify and meet emerging social needs on a voluntary basis, to listen to vocal groups, and to also keep on persuading them that higher education for all was the California way. They had to become advocates for access and excellence. In this gift economy, what the higher education institutions offered to the public, jointly and severally, were the gifts of mass education, meritocracy, discovery and intellectual leadership. The two-year colleges provided an open door to all comers, undertaking to provide for the literacy of California as well as its social opportunities. The elite UC campuses were committed to providing all of scientific infrastructure, general disciplinary education and professional training at the highest possible level.

In the public non-market form production there is no natural limit to the volume and quality of outputs. There are merely opportunity costs, when within a bundle of finite resources one course of action is chosen over another. There are also limits to the imagination, but this is less of a constraint in research universities with scope for bright people to take decentralized initiatives. In return the UC campuses gained the freedom to accumulate resources, and local, national and global power, on a secure basis—providing the public subsidies continued to flow. In charge of their own destiny, they could become institutionally distinctive and creative. This freed the research multiversity to do public good, and to be itself, while holding it at the pinnacle of the higher education system, the crown of the modern secular order. The 1960s California, public education and science were seen as the higher public good, not battleships and certainly not banks.

The outcome: Excellence

How then did the different components of the California Master Plan fare after 1960?

Imagined social forms never shine as brightly in practice as their ideal version would suggest. Large-scale and far-reaching constructions fail more than most. All the same, there are no iron laws. The distance between idea and reality, the extent of the failure of the plan, varies from case to case. In the case of Californian Higher Education, the political, fiscal and social conditions are now very different to those of 1960. There is continuing commitment to some aspects of the vision but not others. Despite this, the

division of labour between the three sub-sectors has proven stable, more so in many other countries which have seen upward ‘academic drift’ from the lower tiers. In California the multiversity has travelled better than has the overall system design. The goal of excellence has been realized more completely than access. Equality of opportunity through public education seems a long way off.

The University of California has sustained unquestionable research excellence across all campuses, except UC Merced, founded in 2005, which is still emerging. In the Shanghai Academic Ranking of World Universities (ARWU), focused solely on research, seven UC campuses were in the world top 60 in 2016. UC Berkeley was third behind Harvard and Stanford Universities, and ahead of the University of Cambridge in the UK, Princeton, Oxford and Caltech. UC Los Angeles was twelfth and San Diego was in fourteenth place, followed by San Francisco (21), Santa Barbara (42), Irvine (58), Davis (75) and Santa Cruz (83). Riverside was also in the first 200 (ARWU, 2016). If science is the hope of the world, then much of that hope continues to be invested in California.

[Insert Table 1 about here]

The University of Leiden Centre for Science and Technology Studies (CWTS) provides detailed comparisons of high quality university research output. It lists the number of high citation journal papers, in the top 10 per cent of their field by citation rate, from each university. In the 2011-2014, 20.9 per cent of Berkeley papers were high citation papers. There were 2669 of such papers in the four years, behind only Harvard, Stanford, and the much larger public universities of Toronto in Canada and Michigan in the US. This is a good indication of Berkeley’s total scientific firepower. Berkeley did this without a medical school and the associated research in clinical medicine. The nearby medical school to Berkeley is UC San Francisco, which had 1990 high citation papers in 2011-14. Together Berkeley and San Francisco had 4659 such papers, 45 per cent more than local rival Stanford. In the Leiden field-specific measures, UC Berkeley was first in the world in high citation papers in Physical Sciences and Engineering, a field in which Tsinghua was fourth. UC Davis was first in the world in Life and Earth Sciences with UC Berkeley third. UC San Francisco had the fourth largest number of high citation papers in Biomedical and Health Sciences. In Mathematics and Computer Sciences, Berkeley was sixth. Note that in this field, Tsinghua was world number one and Nanyang University of Technology third (University of Leiden, 2017).

Despite this stellar achievement, state funding cuts, especially after the 2008-2009 recession, mean that the UC has become less competitive viz a viz Stanford in competition for top-end global research talent. UC tuition has been pushed up for the growing number of out-of-state students, helping to keep the in-state price down, but there has been ever more nimble footwork with tuition discounts and student aid.

The outcome: Access

Moving from the excellence objective to the access objective, the picture is more mixed. The UC campuses still make a good contribution to access. The lower tiers did for the first 25 years of the Master Plan, but since then their contribution has faltered.

The UC campuses—including Berkeley, Los Angeles and San Diego—take in more students from socio-economically disadvantaged backgrounds than do almost any other leading research universities, anywhere in the world—far more than Oxford and Cambridge in the UK, and I expect it is also more than at Tsinghua and Peking University in China. In total, 42 per cent of all UC students receive federal Pell Grants, allocated to

families with incomes of \$44,000 a year or less, enabling these universities to play a great role in facilitating social mobility. UC Berkeley and UC Los Angeles together enroll more Pell Grant students than the top sixteen private universities in the United States. In 2014 Berkeley enrolled 9742 students in receipt of PELL grants compared to 10,106 at Cornell, Columbia, Pennsylvania, Harvard, Brown, Yale, Dartmouth and Princeton combined (Wilton, 2014). All student aid in the University of California is needs-based. Under Berkeley's progressive tuition regime, 40 per cent of students pay no tuition and are financed by tuition from higher income families. In all 65 per cent of UC Berkeley students receive financial aid, and half of all of those students graduate with no debt. In 2013 the average debt of Berkeley graduates of \$19,000 was just over two thirds of the national average of \$27,000 (Douglass, 2013, pp. 4-5).

However, the UC takes in a relatively small minority of the age cohort. It cannot on its own sustain a successful equality of opportunity regime across Californian society. The outcomes from higher education as a whole have been less favourable. This has been due to problems both internal to the Plan and external to the Plan.

Internally, the Plan under-estimated growth, and the effects of growth on the balance between tiers. After 1960, the Californian population grew more rapidly than predicted, and the growth of social demand for higher education outstripped demographic growth. The Plan itself lifted aspirations. However, the continued scope for egalitarian access depended on the capacity of the schools to bring students from all Californian communities and social groups to the starting gate for higher education, on the capacity of community colleges to bring students through to successful completion, on the scope for upward transfer from the community colleges through to the CSU and the UC, and on a proportional expansion of the UC and CSU in line with the growth in the bottom tier sector, the community colleges. In turn, each of these positive developments depended on the maintenance of the necessary public resources, and continued no or low tuition, in schooling and in all three tiers of higher education. In other words, a primary difficulty was that the resource needs of the expanding system were much greater than envisioned in 1960, especially after 1980. This made the Master Plan vulnerable to changes in state finances.

The growing costs also locked in the balance between sectors. As planned in 1960, growth was concentrated in the community colleges. The CSU and UC systems were not expanded in proportion. Direct opportunities for social mobility were attenuated. In most other nations that provide research universities the proportion of young people entering those institutions has expanded markedly in the last forty years—through growth of the institutions or more often, the opening of new research universities. This expansion helps to broaden the highways for mobility into the professional and managerial occupations. But in California the research university sector remained confined to the top 12.5 per cent of school leavers. This was a flaw in the original system design. It placed too much pressure on the transfer function. Transfer between institutions in a vertical hierarchy is always a second-best form of social access because it requires in students a greater stamina of aspiration.

The external factors within California were the state's changing ethnic demography, growing inequality, fiscal politics, and growing social and economic inequality in the country as a whole. In 1970 California was 77 per cent white, 12 per cent Latino, 7 per cent Afro-American and just 3 per cent Asian or Pacific Islander. This distribution changed dramatically. In 2010, 40 per cent of California was white, 38 per cent was Latino, many first generation migrants, 13 per cent Asian-Pacific, and 6 per cent African-American, with a high white concentration in the wealthiest part of the population. The Latino population was much younger than the white population: 51 per cent of Grade 6 in the public schools

was Latino, 27 per cent white, 11 per cent Asian/Pacific and 7 per cent African-American. Though Latinos were 43 per cent of high school graduates in 2009 they were just 28 per cent of students in public higher education, and 16 per cent in the University of California. In the UC the white proportion 38 per cent, Asian-Pacific a high 33 per cent, and the African-American 4 per cent; though the ethnic distribution in the CSU and community colleges was closer to the population averages than in the UC (Callan, 2012, pp. 74-75).

Latino and African-American school populations, like most ethnic groups, have mixed class locations, but they are disproportionately concentrated in under-funded schools in poor communities. In 2012, 79 per cent of all high school students who started in 2008-09 had graduated, with 8 per cent still at school. Latinos had a school graduation rate of 73 per cent, and African-Americans students only 66 per cent.

Graduation and transfer rates in the community colleges mirror the regional and ethnic inequalities apparent in the school system. Access, retention, graduation and transfer all sharply favor the white middle class. It is far from the 1960 promise of equal opportunity. By 1995 upward transfer rates from community colleges to the CSU and UC systems ranged from 8 per cent in Southern California to 50 per cent in the San Francisco Bay Area—a small group of community colleges play a prominent role in access to UC Berkeley and other UC campuses. 15 years later just 22 per cent of commencing community college students transferred to a four-year degree (Douglass, 2011, p. 22). Transfer was much lower among African-American and Hispanic students than white or Asian students (Rothblatt, 2007, p. 268). Community colleges were pulled between immediate graduate employability and the academic requirements of transfer, which focused on the liberal curriculum (Hansen, 2011, pp. 42-43), but they were not fully funded to play either role well. The labour market standing of two-year diplomas fell further from the 1960 position and this probably contributed to low completion. Tuition increases were needed but threatened to reduce enrollment. In the Californian State University campuses, also increasingly under-resourced, transfer again varied by institution and region. Current completion rates are low at about 45 per cent, compared to 90 per cent in the UC (p. 27).

2. American political limits to the Master Plan

However, ethnicity and poverty in California became associated not just with inequality in education but with the fracture of the social and political consensus on education as a public good that underpinned taxpayer support for the Master Plan.

Taxation as theft

The 1970s tax revolt in California and other states was impelled by the deep seated belief held by many Americans that taxation for all but a minimal set of public goods, such as national defence, was illegitimate. Such beliefs, never entirely absent in the United States, gathered an increasing support from the mid 1970s onwards.

In 1978, the anti-tax movement in California broke through by securing a ballot majority for Proposition 13, which sharply reduced property taxes, the main source of income for local counties and school districts. When the state moved to protect schools, cities and local communities, this placed the rest of the budget in jeopardy, including higher education. A host of further tax cutting and tax-related measures followed. In 1988, partly to compensate for Proposition 13, California adopted Proposition 88, which allocated 40 per cent of state income to schools and community colleges. After all the spending mandates and tax limitations had been accounted for, only 15 per cent of the

budget was unallocated. The three public higher education systems were funded out of that 15 per cent. Proposition 13 and the tax revolt showed that the ageing white middle class was unwilling to resource schooling of good quality across all districts, for all citizens and non-citizens, including legal and illegal migrants (Pelfrey, 2012, p. 70).

The full impact on higher education was not felt immediately. It accumulated. Periods of growing state revenue alternated with funding cuts that were not fully restored. From 1990 it was apparent that California could no longer fully support the Master Plan. Then the 2008-2009 recession triggered a massive fiscal decline that was passed on to all three systems. Much of the reduction looks to be permanent.

In terms of the principles that shaped the Master Plan, the most significant outcome of the reduction in the fiscal base was that public higher education in California could no longer provide for universal access. The community colleges first began to turn away students in bad budget years in the 1980s. Now, in the mid 2010s, at least 200,000 potential students each year miss out on a place. CSU enrolment was first reduced by 50,000 in the early 1990s, and after the 2008-2010 recession the CSUs were again unable to accept all eligible students (Douglass, 2013, p. 10; Callan, 2012, p. 71). Across the world, a growing number of national systems provide near universal access to higher education. California created universal access, and lost it.

California is no longer the national model for high participation higher education. In 1960 state participation was double the national average. In 2010 California was 43rd state of the 50 in the proportion of 18-24 years olds with Baccalaureate status.

Clark Kerr would have been only half pleased at the outcome of his work. For 55 years, the Master Plan has functioned well in the research multiversities, providing for excellence limited only by the imagination, and combining elite academic entry with high social access. It has failed across higher education as a whole to provide universal access or to sustain the quality of mass higher education amid expanding participation. In the end the execution of the Master Plan faltered where the original Plan was strong—in the big picture, in the economics and politics. California has lost the public values that sustained the 1960s belief in universal social advance through higher education, and understood taxation as a shared asset that is used for the common good of each and all, rather than as a reduction in individual freedoms.

Weakened commitment to the common good

But why did support for the common public good deteriorate in California and in the United States? The ideas underpinning the tax revolt began in Cold War strategic circles in the United States. In 1951 defence intellectual Kenneth Arrow (1963) published a paper on ‘Social choice and individual values’, which inquired into whether it was possible to derive collectively rational decisions from the aggregation of individuals’ preferences. Arrow used set theory to prove that when two or more individuals were making decisions over three or more alternatives, it was logically impossible to derive collectively rational group decisions from the individual preferences, whether through voting, social welfare policy or markets. There was no prospect of achieving a common decision consistent with every person’s individual preferences. In instances of collective decision-making, one or the other assumption would have to give way—either the outcome of individual preferences would not be collectively rational, or individuals would lose their freedom to determine personal ends. There could be no such thing as ‘the public good’ without violating individual freedoms. This became known as the ‘impossibility theorem’.

Crucially, Arrow’s argument was grounded in his starting position: that methodological individualism prevailed, meaning that all goods were individualized, there

were no collective social goods distinct from the aggregation of individual goods (Lukes, 1973; Amadae, 2003, p. 122); that individuals made rational decisions based on utility; that their preferences were unrestricted and inviolable; and these preferences were incomparable (Amadae, 2003, p. 84 and pp. 103-104). The impossibility theorem assumed that autarkic individual freedom was absolute. The shared conditions enabling that freedom to be exercised and enjoyed were taken for granted—even though such social conditions would be fatally undermined when all persons pursued their absolute self-interest without regard for others. However, the pure logic of Arrow’s ultra-individualist rejection of Soviet collectivism appealed to many in the United States (p. 106). Arrow’s ideas were taken further by James Buchanan, the principal creator of public choice theory. Buchanan opposed himself to what he called the ‘normative delusion’ that ‘the state was, somehow, a benevolent entity and those who made decisions on behalf of the state were guided by consideration of the general or public interest’ (Buchanan, 1997, p. 85).

Ideas matter. With Ronald Reagan, the public choice theorists had a president willing to put their arguments into action. Reagan’s 1980 campaign slogan stating that government was not the solution, it was the problem, was the exact reversal of the John F. Kennedy presidential campaign of 1960, and Lyndon Johnson’s Great Society in the 1960s, which had raised expectations of government and drew public support for large collective solutions of the type of the California Master Plan. In setting himself against the notion of a common public interest, Reagan reduced taxation on high incomes and capital gains, reduced spending on social programmes, including federal education funding, and weakened unions in the workplace, opening a surge in executive incomes. The top tax rate fell from 70 per cent to 28 per cent. The increase in measured income inequality in the United States dates from 1980.

Income inequality after 1980

Since 1980 there has been extraordinary growth in the inequality of private incomes and wealth in the United States, freed up by the evacuation of the public good. Growing inequality has reworked the conditions, character and potentials of public higher education, increasingly pulling it away from the world that Clark Kerr and his colleagues inhabited and served, in which the Master Plan was a practical solution.

In the Anglo-American countries, the concentration of wealth and income in hands of each of the top 10 per cent, top 1 per cent, top 0.1 per cent and top 0.01 per cent—that is, one in every ten thousand persons—have risen very considerably since 1980, especially at the very top (Piketty, 2014; Stiglitz, 2013; Dorling, 2014; OECD, 2014.). Between 1980 and 2010 in the US the income share held by the top 0.1 per cent of the income distribution rose from 2 per cent to nearly 10 per cent. Piketty finds that income from labour in the United States is now ‘about as unequally distributed as has ever been observed anywhere (Piketty, 2014, p. 319 and p. 256). Eduardo Saez (2013) notes that the top 1 per cent of income earners in the United States captured 95 per cent of the income gains made in the recovery after the recession, in 2009-2012 (Saez, 2013, p. 3). At the other end of the scale, between 2000 and 2010 the average income of the poorest 10 per cent of Americans fell by 15 per cent in real terms, according to the OECD (OECD, 2014, p. 1).

What primarily characterizes the United States at the moment is a record level of the inequality of income from labor (probably higher than in any other society at any time in the past, anywhere in the world, including societies in which skill disparities were extremely large) together with a level of inequality of wealth less extreme than

the levels observed in traditional societies or in Europe in the period 1900-1910 (Piketty, 2014, p. 265).

In the Nordic countries in the 1970s, the most equal modern societies, the top 1 per cent received about 7 per cent of all income. In Europe in 2010, the top 1 per cent received 10 per cent, in the United States 20 per cent, same level as in the aristocratic societies of late nineteenth century Europe (Piketty, 2014, pp. 247-249). However, the more modern form of salary-based inequality is legitimated by an element of merit. It is seen as the product of hard work, not just property and capital, though as the role of networks in elite graduate recruitment shows, competition for high labour incomes is not a level playing field. Piketty calls the United States ‘a “hypermeritocratic society”’—or at least, ‘a society that the people at the top like to describe as hypermeritocratic... a very inegalitarian society, but one in which the peak of the income hierarchy is dominated by very high incomes from labor rather than by inherited wealth’ (pp. 264-265). The argument that wage inequality in the US is primarily driven by technological change has fallen from favour. Most industrialized countries have similar technological change but divergent income patterns (Milanovic for IMF, 2011, p. 8; Piketty, 2014, p. 304 and p. 321; Stiglitz, 2013, p. 243). American inequality is centered on top end managers, especially in finance and business services (Autor et al., 2008, e.g. p. 318; Mouw and Kallenberg, 2010; Wolff and Zacharias, 2013, pp. 88-90). Two thirds of the top 0.1 per cent are managers (Piketty, 2014, pp. 300-301).

Income inequality and higher education

In the United States, as in the rest of the English-speaking world, the rapid growth of economic and social inequality is occurring in societies in which formal participation in higher education is at or near an historic high. According to UNESCO data, in 2013 the Gross Tertiary Enrolment Ratio in the United States was 89.1 per cent (UNESCO, 2015). According to human capital theory, education produces human capital, which determines marginal productivity, and marginal productivity determines rates of return to graduates. This suggests that growing income inequality is grounded in a corresponding growing inequality of skills and productivity. Yet US higher education, while highly stratified, with the leading private universities dominated by affluent families, seems to be largely decoupled from the surge in top incomes since 1980, which is shaped by tax policy and by salary determination at work (Piketty, 2014, p. 315).

Education and growing income inequality are joined in ways other than the human capital equations, through the process of social reproduction. The intrinsic limit to equality of opportunity, in any era, is the persistence of irreducible differences between families in their economic, social and cultural resources. The growing inequality of incomes and wealth in the United States magnifies the effects of unequal social backgrounds on educational outcomes. In turn educational inequality tends to reproduce and enhance prior social and economic inequalities. In the highly stratified American higher education system these reproductive effects are further enhanced.

At the bottom end, low income recipients, accessing low value colleges in the educational hierarchy, find that as inequality increases higher education becomes both more expensive and less useful as a means of occupational and social mobility. Both the social and economic value of mass public higher education, and the capacity and motivation of its users both tend to become emptied out. The participation rate in US higher education long was the highest in the world but is now falling.

In 2013, a near-universal 77 per cent of persons in the top family income quartile in the United States had completed a Bachelor degree by age 24 years. In this quartile the graduation rate had almost doubled since 1970, increasing from 40 to 77 per cent in 1970. In the bottom family income quartile, the graduation rate had again risen, but from 6 per cent in 1970 to only 9 per cent in 2013. In the second bottom quartile the graduation rate was 17 per cent in 2013 (The PELL Institute, 2015, p. 31). Thus the overwhelming majority of the bottom half of the population in income terms had not achieved graduation by age 24 years. However, the overwhelming majority of top quartile people had done so.

These national patterns better explain the faltering of institutional funding and quality in California since the 1980s, and the attenuated completion and transfer rates in the community colleges and the California State University. In *Degrees of Inequality* (2014), political scientist Suzanne Mettler find: ‘Over the past thirty years ... our system of higher education has gone from facilitating upward mobility to exacerbating social inequality.’ Higher education fosters a society that ‘increasingly resembles a caste system: it takes Americans who grew up in different social strata and it widens the divisions between them and makes them more rigid’. Higher education ‘stratifies Americans by income group rather than providing them with ladders of opportunity (Mettler, 2014, pp. 4-5, p. 8). In this external setting, it was inevitable that the Master Plan’s access mission would falter. At the same time, the failure of the Plan was accentuated by its internal structural limitations.

3. Lessons from California

Political cultures and state strategies vary greatly across the world. In the United States, they have varied greatly between the generations. The tragedy of American public higher education, once such a shining example in the nation, is that its democratic promise, its contribution to self-determining individual freedom and fulfilment—which is the philosophical centrepiece of both the American political right and the political left—has been so far reduced. The American paradox is that the nation in its normal business of life regularly overturns its own ideals. In a sense, the hyper inequality of the last generation is typical of the United States—yet so was the real commitment to equality of opportunity that went before it. In that sense the faltering of the Master Plan both negated the national character, and fulfilled it. Yet the influence of American ideals is not confined to America or stymied by their domestic failure. The 1960s American coupling of excellence and access, the world-class research university together with open participation and a ladder of educational opportunity, continues to set benchmarks for higher education in many countries.

The Master Plan might have faltered in California, but since 1960 its influence has never ceased to spread across the world. Amid rising participation and greater policy emphases on basic science and research-led innovation, the comprehensive research multiversity that Clark Kerr described in *The Uses of the University* is now more clearly paradigmatic in higher education everywhere. This is apparent in three ways. First, a growing proportion of science is found in comprehensive research universities rather than separated academies. Second, in some though not all countries, non-university second sectors, institutions that specialize in a narrow group of disciplines, and institutions offering elite teaching and professional training without research, have been folded into research universities (Salmi, 2009; Huang, 2015). Third, many governments have implemented funding and performance management policies designed to elevate the globally-referenced research outcomes of designated elite institutions (‘World-Class Universities’).

What are the lessons of the successes and failures of the Master Plan for Higher Education in California? The larger lessons, for all systems in all countries, are three-fold. First, steep structural stratification in higher education weakens the potential for both social equity and educational equity, especially for families positioned at the base of the social pyramid, while it also tends to empty out the social value of mass higher education, further undermining equity (Marginson, 2016). The Nordic systems, German-speaking countries and Dutch higher education all provide better democratic structures than American higher education. Perhaps because the American revolution predated the French revolution by 15 years, the United States never completely broke with the idea of aristocracy that it inherited from Britain. The hyper-meritocracy of the income earning elite, legitimated by Ivy league colleges and postgraduate business degrees, is a form of modernised aristocracy—at least to the extent that American tax laws permit the transmission of family wealth down the generations. The Ivy League institutions parallel the class they serve. Educational aristocracy, a strange echo of feudalism in modernity, legitimates not only unequal educational outcomes but the underlying social and economic inequalities as well.

Second, it is easier to sustain a national consensus about the public good mission of stellar research universities than about universal high quality mass higher education, for both social-cultural and economic-fiscal reasons. But shared social values are essential if public higher education is to fulfil both missions, those of social inclusion and equalisation.

Third, and most importantly, a progressive taxation system, coupled with firm egalitarian policy in states not controlled by corporations and privileged families, is the lynchpin of commitment to the common good.

Lessons for China

What are the lessons specifically for China? Higher education in China has many features in common with California. Both involve large, regionally uneven and institutionally complex systems, though the scale of China is many times greater. Both use institutional classifications to manage a firm hierarchical division of labour between types of institutions. In both that hierarchy is steep by comparison with the countries of Western Europe, in terms of institutional status and resources. In both the creation of a layer of leading global research multiversities has been of crucial importance to policy makers, university leaders and the society at large. Both attempt to ensure some social equality in access to the leading universities through extensive financial aid in the leading universities, though affluent families play the leading role. In both societies the affluent classes have gained stronger social influence over time. There are differences. The US has a substantial elite private research university sector, alongside the public research universities and competing with them for prestige, including in California Stanford, Caltech and the University of Southern California. China has a stronger vocational sector than the United States.

The Californian model was dynamic during its period of most rapid development in the 1960s and 1970s. The Post-Confucian model of China has been at least equally dynamic since the late 1990s. In China R&D spending rose from 0.91 per cent of GDP in 2000 to 1.31 per cent in 2005, and then to 2.02 per cent of a much larger GDP in 2013 (OECD, 2015), an increase of almost 0.1 per cent a year. The policy target is 2.5 per cent of GDP. At this rate, China's total investment in R&D will pass the total R&D investment of the United States within five years. In the last 15 years China's annual output of journal papers has grown by 15 per cent a year. The improvement in quality has been equally

dramatic. For example, in the year 2000, in Chemistry, China's produced 0.6 per cent the top 1 per cent papers, the papers with the very highest citation rates. By 2012 that 0.6 per cent had become 16.3 per cent. There are similar figures in Engineering and Computing (NSF, 2014).

The dynamism of the 1960 Master Plan in California was sustained by economic growth; by consensus about the familial and national benefits of higher education, and by consensus about the public good benefits of expanding opportunity on an accessible basis. There was high dependence on public money but at first enough resources to support low tuition and infrastructure. The institutions managed their own evolution in response to need, within the systemic plan. The dynamism of the modern Post-Confucian Model of higher education in China (Marginson, 2013) is conditioned and sustained by economic growth; it continues to be rooted in Confucian educational cultivation and ambition in the home, and a broad social consensus about the familial and national benefits of higher education; and it secures the largest part of its momentum from a modernizing state determined to direct priorities and sustain the pace of educational and scientific progress. There is more private funding in China than in 1960 US public education but less emphasis on the autonomous institution. The state in China is a more important factor overall than was its 1960 Californian counterpart, and this is likely to remain an irreducible difference between East Asian and American cultures. The essential features of the Post-Confucian Model of higher education are found not only in mainland China, but also in Taiwan, China, Singapore and Korea. They were also integral to the rapid evolution of a large scale and high quality higher education and research system in Japan between the 1960s and the 1980s, although the earlier educational dynamism of Japan has now faltered. The state always has a more comprehensive potential in East Asia than in the US, though the East Asian state often stops short of direct intervention. It has developed many techniques for controlled devolution.

Perhaps the most important educational system-wide lesson of California for China is the need to focus not only on lifting the tier one institutions to the global peak but on improving institutions in the second and third tier. California's second and third tier institutions eventually went not forwards but backwards. In the long run the quality of mass higher education is as important as the quality of WCUs, though in a different way, and for different objectives. This underlines the importance of not just World-Class Universities but World-Class Systems in higher education. California established such a World-Class System in 1960 but within thirty years had lost that system, though it successfully maintained its WCUs.

At the same time, as in California, in China the capacity of higher education to broaden opportunity, and even enhance social equality through educational mechanisms alone, is constrained by forms and degree of inequality in the larger social environment. This feeds back into the structuring of the education system, especially when it shapes the political outlook at the top, affecting public taxation and spending priorities—prior social and economic inequalities all too readily to govern the distribution of good quality schooling and no doubt feed into the steepness of the hierarchy in higher education. California shows that when the institutional hierarchy is steep that puts too much pressure on the transfer function. It is much better to retain more modest differences in the quality of institutions from the bottom up, by elevating the lower tiers without reducing the quality of the top research universities. But this more egalitarian system structure, one more typical of Netherlands or Sweden than California, is only possible if political and social habits will permit it.

California also provides China with a political economic warning. Periods of rapid expansion of the middle class, in which economic growth and modernization sustain a

broad-based opening of paths for new layers of the population, do not last forever. The US had such a period in the 1950s/1970s. China has been experiencing it since the 1990s. It is certain that at some future point the growth of the economy and the middle class will slow. The present society in China, in which the rapid growth of opportunity is normal, will transform into a more reproductive society in which opportunities in the social middle no longer expand much and political economic inequalities appear to become very stubborn. China has a long habit of steep social hierarchy (Goodman, 2014) and the old normal always has the potential to return—the only question is how strong is that tendency, and particularly, whether it is corrected or partly corrected by state action. If the growth of social opportunity slows down or stops this will not be primarily due to higher education. It is important that higher education is not blamed. Education cannot create equality in a society pointing the other way, as the 1980s and after in California have shown. To tackle inequality China must primarily look to the larger forces at work, to income determination in the workplace, taxation and government spending, the patterns of inter-generational transmission of wealth, to renew social openness and broad economic opportunity. California shows that egalitarian objectives in education alone are not enough to guarantee the continuing renewal of equal opportunity. Yet higher education can play a role, along with other sectors, in keeping society as open as possible. Higher education and science have moved from the edges of modern societies to become key elements, joined to others, in social and economic reproduction and development. Such is the interdependency of modern societies that to be successful, reforms in the state, wealth, industry, work and education must all be moving in the same direction.

As the growth of the middle class slows, equitable structures in education and public policy become more essential in sustaining the social consensus, and sustaining equity in education itself. It is crucial to maintain broad taxpayer support for open opportunity in higher education. It is equally essential that government remains firmly focused on both excellence and access in higher education when those ideals become harder to sustain. In China state policy on higher education and science is always crucial, even more than in California. China since the Qin and Han has depended primarily on the state not only as the driver in education but as the motor of social and economic progress. In the modern era, especially since 1949, the state's commitment to the maintenance of order and the spread and growth of prosperity, through the institutions of education and other sectors, has been joined to a broad commitment to the whole people. Much turns on the depth of that commitment and its successful translation into educational structures. Perhaps the idea of higher education for the public good will be more robust in China than it was in California.

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Table 1. Research output of University of California campuses (USA), Stanford University (USA) and Tsinghua University (China), 2011-14 compared to 2006-09

University and campus	All journal papers 2011-14	Proportion of papers in top 10% by citation rate 2011-14	Number of papers in top 10% by citation rate 2011-14	World rank in papers in top 10% by citation rate 2011-14	Number of papers in top 10% by citation rate 2006-09	Change in papers in top 10% 2006-09 to 2011-14
UC Berkeley	12,764	20.9%	2669	5	2270	+ 17.6%
UC Los Angeles	13,994	17.3%	2424	8	2263	+ 7.1%
UC San Diego	11,916	17.8%	2126	15	1813	+ 17.3%
UC San Francisco	10,179	19.6%	1990	17	1747	+ 13.9%
UC Davis	10,797	13.7%	1479	29	1322	+11.9%
UC Irvine	6295	15.2%	957	75	910	+ 5.2%
UC Santa Barbara	4266	20.5%	876	84	809	+ 8.3%
UC Riverside	3071	14.6%	449	216	454	- 1.1%
UC Santa Cruz	1996	18.5%	368	265	305	+ 20.7%
Stanford U USA	14,615	22.1%	3223	2	2560	+ 25.9%
Tsinghua U CHINA	12,690	11.3%	1453	31	830	+ 75.1%

Source: Leiden University, 2017, using Thomson-Reuters' publication and citation data from Web of Science

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