



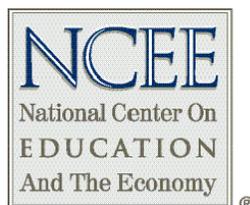
CHINA: A STUDY IN PARADOXES A PRELIMINARY REPORT

China: A Study in Paradoxes
A Preliminary Report

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China: A Study in Paradoxes¹ *A Preliminary Report*

Years ago, when Deng Xiaoping took the reins of power in China, he concluded that there would probably not be a new world war and so decided that the country's leadership could safely make economic growth their primary goal. Deng then authorized some experiments in Guangdong Province that proved to be the entering wedge of the introduction of the market economy in that country, which of course led directly to China's explosive economic growth.

In recent years, our business press has been nearly obsessed with the dramatic rise of China, a natural consequence of the steady transfer of American manufacturing jobs to that country, the unprecedented and growing trade imbalance with China and the increasing American debt held by the Chinese.

In the early years of China's rise, many people assumed that, when everything was sorted out, China would end up being the world's factory for low value added products, but the West would continue to produce the high value added products and services that sustain high employment, high wage economies.

Over the last year or two, however, we have heard of more and more multinational firms transferring their R&D operations to China, and in the last few months, that giant semiconductor fabrication plants and hard disk manufacturing plants are being located there.

¹ This is a preliminary report of field research done in China in October 2005 as part of an international comparative study conducted by the National Center on Education and the Economy. The team included Judy Coddling, Mark Troppe, Barbara Rivard and the author for NCEE; Ben Vickery, of the National Institute for Standards and Technology and Yong Zhao, Distinguished Professor at Michigan State University. This research was supported by the Hewlett Foundation, The Bill and Melinda Gates Foundation, the Annie E. Casey Foundation and the National Center on Education and the Economy. This paper also draws on material gathered by Marc Tucker and Judy Coddling during a number of earlier trips to China, two of which were sponsored by the Asia Society and the Chinese Ministry of Education.

At the same time, we have been reading reports that Chinese universities are turning out hundreds of thousands of capable engineers every year from their burgeoning university system, on the order of six to seven times the number of engineers produced every year in the United States. And we have heard, too, of a comparable increase in the number of new managers emerging from their new business schools.

No one was surprised to learn that the Chinese were unwilling to accept their assigned status as producer of low value added products for the world, while the west retained the right to produce the high value added products on which real wealth depends. What was surprising — and frightening — to many was the news that China might be well on the way toward building the kind of highly trained workforce that would enable it to run away with the grand prize: an economy that could corner the market on the whole range of manufactured products, including the most advanced that the world has to offer. It looked as though China might be creating an economy that could run on the slogan of high skills *and* low wages, thus putting it in a totally impregnable competitive position.

So five of us went to look. In two grueling weeks, we talked to over 200 people in government at every level, businesses, educational institutions and other institutions. We attended seminars, watched presentations, read the English-language newspapers daily, walked around factories, visited research parks, and sat in on classes. We talked at length with students at every level of the system. We got the official line and heard what the critics had to say. We read everything we could get our hands on.

We intend to collect more data, talk to more experts, and read many more reports and articles. So what follows is a very preliminary report. China is an enormous country undergoing tumultuous change. It is highly decentralized. The result is constant surprises. So we reserve the right to change our minds about almost anything as our research continues.

The Chinese economy and education system are two sides of one coin. All the way through, you will find a kind of on-the-one-hand-but-on-the-other-hand quality to this narrative. That accurately reflects our investigation and our intense conversations with each other as we ranged through Beijing, Shanghai, DongGuan, Shenzhen, and Hong Kong. One moment, China looks like a juggernaught and the next like Gulliver. So get ready for a bumpy ride.

Judging from the front pages of our press, China is the world's 800 pound economic gorilla. There are some respects in which this is true and others in which it is not. The next few paragraphs sum up a recent article in the Far Eastern Economic Review that will help us to keep things in perspective.

China's economy has been growing at a real rate of 9.5 percent for the last 25 years. Lately, Chinese exports have been growing at a rate of 20 percent a year. But China is still a poor country. Its per capita income is in the same range as that of Egypt, Syria and Paraguay. Its exports are still lower than those of Germany and the United States. And Japan, Germany, Canada, Ireland and Norway all run higher trade surpluses.

What is important about China's export profile is that it is highly concentrated in a few industries like electronics, electrical equipment, home appliances, garments, textiles and footwear. Because its share of world exports in these industries is as high as 50 percent, it is causing a great deal of unemployment among workers in these industries in those countries that used to dominate these industries, including the United States. The rise of some of these industries in China has taken place with lightening speed.

The impression we have is that everything we buy in these industries — from consumer electronics to refrigerators to the clothing on our backs — is now "Made in China." That is not so. That is what the label says, but the label is misleading. Many of the components are actually made in other parts of Asia and sent to China for final assembly. This is particularly true of the high value

added components. So it turns out that China's towering trade surplus with the United States is in large part offset by China's growing trade deficit with these other Asian countries. Stuff, in other words, that we used to buy directly from Thailand and South Korea and other Southeast Asian countries is now sold to China, and then resold to us as components of things that we buy from China. The margins on the assembly work that China does are often lower — sometimes much lower — than the margins on the work done by these other countries. The value of these other countries' exports to China has been increasing at an annual rate of 20 percent to 30 percent in recent years. When you look at the whole picture, the competitive threat from China is more modest than it at first seems, both because it is confined to a relatively short list of industries and because this 'workshop of the world' includes among its producers not just China, but many other countries of the Pacific rim as well.

And then there is the question of who exactly we are competing with. Deng Xiaoping's strategy for export-led growth relied heavily on attracting foreign firms to set up shop in China, drawn there by its low labor costs and investor-friendly policies. But one of the results is that, thus far, and in real contrast with India, few Chinese firms have been successfully launched on the world stage. Sixty percent of China's exports still come from foreign-invested enterprises. They typically do their R&D, design, component production, marketing, sales, logistics and distribution outside China. These offshore companies, many from the United States, typically make much more from Chinese exports than Chinese firms do, because the cutthroat environment of business in China leads to very small margins for Chinese firms.

Still, you might say, a 20 percent per year growth rate in exports is phenomenal, as is an overall growth rate of 9.5 percent, year after year after year. Won't China's very low labor costs and its inexhaustible supply of labor ultimately enable it to deal a devastating blow to the American way of life as it gradually comes to dominate industry after industry? And what, you might ask, is to prevent the Chinese from doing their own R&D, logistics, supply chain

management, design and all the rest of the high value added jobs in the economy?

The answer, it turns out, has to do with human resources. The manufacturers we talked to told us that they were having a hard time finding engineers who could do what international firms expect them to do and they were in a state of full-fledged panic when the subject turned to finding competent managers. The best engineering graduates of the leading Chinese universities are not available; they typically head for jobs in the advanced industrial countries. Because most Chinese engineering schools don't have the kind of budgets they need for equipment, and because Chinese education traditions value theory over practical applications, Chinese engineers frequently come to the job never having laid an eye on the kind of equipment they are expected to use. One employer told us that engineers coming into the printing industry were trained on a cardboard cutout of a Heidelberg press (still the industry standard), because their school could not afford to buy the real thing.

There are over 2,000 universities in China. Of these, 100 have been designated national research universities. Of these, the top 31 are intended to be world class. The business executives we talked with said that many graduates of the top 10 went abroad, and few below the top 31 were qualified to work in international firms. This imposes a real constraint on the growth of Chinese industry. Despite an annual production of hundreds of thousands of engineers, the Cherry Automotive company of China, the country's largest automotive company, is reportedly importing engineers from the United States.

But that is not the most important constraint, even from a human resource point of view. The biggest problem is managers. Many foreign-owned firms set up shop in China with business plans that called for starting with a cadre of expats as senior managers, to be replaced with Chinese, at a much lower cost, within two or three years. It is not working out that way. The highest status in the Chinese system goes to engineers and scientists. Managers are much further

down the totem pole. So only those young people who cannot get into engineering programs go into the management schools.

China has a very authoritarian culture . This comes in part from its Confucian roots, which place a very high value on veneration of one's parents and ancestors and on respect for those in authority, and in part from the Communist government. Though the Communist government has embraced capitalism with enormous enthusiasm, it has not given up its control of Chinese society. To take one important example, the party officials in the universities, not their presidents and provosts, have the last word on who gets hired, including into professorial posts. People who seem likely to take an independent line on anything the Party cares about will not be hired, and those who have been careful to curry favor with the Party officials in the university are more equal than others when positions are filled. Thus economists who have explanations for economic behavior that do not fully accord with Marxism-Leninism need not apply. In these and many other ways, those with ideas in many other fields that do not conform to the orthodox are weeded out and almost everyone learns from an early age that conformity pays.

One consequence is that Chinese managers tend not to show much initiative, defer to their superiors whether or not their superiors are worthy of deference, and wait around to be told what to do. Education generally is not very hands on and Chinese management schools, unlike American ones, do not require that entering students have some actual management experience. So graduates of these schools come to work not knowing much and waiting around to be told what to do and how to do it. This may be a caricature, but it was told to us so often by the business executives with whom we talked, that we came to believe that there is more than an element of truth to it.

Because capable managers are in short supply, it is a sellers' market. Incumbents are always looking for their next job. The typical tour is two years or less before departure for the next job. It is not uncommon for capable people to get offers to double their salary on the spot. The result is that foreign-capital firms are paying

native Chinese managers with the right skills and experience as much as they paid expats to do the same work.

This problem, combined with the swiftly escalating costs of land in the coastal provinces and rising costs of commodities on the world market, is driving up the cost of doing business in those provinces very quickly. In Tianjin, the “Diamond of the Bohai Gulf,” a major industrial and port city near Beijing, the fully loaded labor costs are twice what they are in other parts of Southeast Asia. Investors continue to come to China because of the enormous internal market, modern deepwater ports, good infrastructure, excellent logistics and generally supportive government officials. In time, this closing of the gap between the cost of doing business there and in the West will make China less of a threat to the rest of the world. In the meantime, the problem of finding engineers who can meet international standards, and, particularly, the challenge in finding capable managers, will impose real limitations on the continued growth of Chinese enterprises.

Or maybe not. One possible solution to at least some of the problems I have just described seems to be emerging in the form of what might be called the superregionalization of the Chinese economy. Up to now, Beijing’s policy seems to have been to set every jurisdiction in China into competition with every other one. But that is now changing.

One of several examples of superregionalization is the case of the Pearl River Delta. Hong Kong island sits just south of several other islands that, in turn, lie just to the south of a vast region through which the Pearl River and its associated tributaries and offshoots drain. The cities and provinces in this region, including the Hong Kong special administrative region, recently joined together, with the active encouragement of Beijing, to promote the economic growth of the region. The concept, as related to us by top Hong Kong officials, is for Hong Kong to become the ‘brains’ of the region, with the other provinces supplying the brawn. This is a very powerful idea. It has been very difficult, up to now, for foreign firms to do business here because, among other reasons, the mainland Chinese

believe that the negotiations should begin when the contract is signed, not before; because there are a bewildering array of potential suppliers and it is very hard to assess their capabilities and because the mainland Chinese, notwithstanding the provisions of the WTO treaty, have very little regard for copyright restrictions. And then there are all the problems of getting quality management and other professional staff mentioned above.

But Hong Kong is full of very capable managers, understands international finance, is in a position to assess the capabilities of mainland suppliers, will stand by a contract, respects intellectual property rights (more so, at least, than the mainland) and so on. Hong Kong, in other words, is in a good position to provide the high value added business services that are in such short supply on the mainland. Properly married to the extraordinary resources of the mainland, the combination could be dynamite. Or at least that is the theory, still to be tested.

Please note, the size of the population whose governments are signatories to the regional treaty just described is somewhat larger than that of all of Europe! And there are several other conurbations of coastal provinces that have much the same potential as the Pearl River Basin.

It is not unimportant to note that we have never seen anything to equal the sheer determination and energy of the Chinese with respect to economic growth. Whether or not superregionalization ends up defining the future path of Chinese development, this determination will be a force to contend with. When the government in Beijing understood that competitiveness in many countries, especially in Europe, would depend on meeting international quality standards, it simply mandated compliance with those standards on the part of its companies producing for export. When QuangDong's leadership saw that its firms could not compete for labor with the provinces in the interior, it mandated a 17 percent increase in wages. Little wonder that more than 80 percent of the refrigerators sold in the United States are manufactured in Quangdong.

There is much more to be said about the Chinese economic challenge, and we hope to say it in a longer paper to be written on the subject, but it is time to expand on the subject of education and training in China, from the perspective of their contribution to the nation's modernization.

One can only begin by commenting on the Herculean effort that China has made to extend compulsory schooling through nine years, improve school attendance in the compulsory years and reduce illiteracy in the working age population. The proportions by which these gaps have been closed, combined with the numbers of individuals affected, even if one is quite skeptical of government claims, is breathtaking.

One must remember, too, that in the late 60s and up to the mid-60s, during the cultural revolution, universities everywhere were closed down. Many faculty hid out in the mountains; many others were sent to the countryside to work doing manual labor. In 1978, when the cultural revolution was over, university faculty slowly returned from the countryside to reclaim their campuses and started to rebuild their shattered institutions. Even as recently as 1993, university faculty could be found living at the end of muddy unpaved roads in dormitories with leaking roofs, with communal toilets and kitchens in the common hallways, working for the equivalent of \$100 US a year.

Deng Xiaoping, who was deputy premier during the cultural revolution, became the power behind the throne afterwards. It was Deng who played the key role in opening China to the West. For Deng, the key to China's future lay in economic growth and the key to economic growth lay in education, science and technology. The challenge he faced was how to jump start a nation that was very far behind the West and whose intellectual resources had been largely destroyed by the cultural revolution. His strategy for addressing this challenge was to arrange a massive transfer of intellectual capital from West to East. The first step occurred in the late 70s, when he began sending people abroad in large numbers to be educated. It is estimated that some 80 percent of the current top leadership of China, right down to department heads, was educated in the West,

preeminently in the United States. And, just as Deng hoped, they brought back Western ideas when they returned. It is arguably the case that one of China's biggest and most important educational revolutions took place right here in the United States.

Later, as Deng found the money to invest in the development of higher education in China, he embarked on round two of his program of intellectual transfer; he insisted that Chinese universities establish units in the office of the president of those universities with the express purpose of fostering serious, long terms exchanges and partnerships with major Western universities. This was a natural extension of his initial strategy to jump start the Chinese education system by directly accessing the best intellectual resources in the West.

In time, Deng set a goal of building 100 research universities in China, each of which would have at least one department or discipline regarded as world class. Later, his protégé, Jiang Zemin, established the goal of having a smaller number (now 31) of universities of the first rank. Of those 31, two, both in Beijing, have been designated as the best in the nation and receive the highest levels of investment.

But all university systems are no better than the systems of primary and secondary schools that supply their students. So what can we say about China's schools?

I begin with the observation that Hong Kong scored among the top four countries in the recent PISA (OECD) international comparisons of educational achievement in mathematics as well as in problem-solving. Mainland China has not thus far agreed to participate in PISA (we are told this is because of the poor performance they expect from their rural provinces), but the people in Hong Kong in a position to know thought that mainland Chinese children would score even higher in mathematics than the Hong Kong children did. The limited data that are available from the Stevenson-Stigler study suggest that this might in fact be true.

That is, of course, just plain extraordinary for a very poor country. There are two reasons for it. The first reason is the very intense pressure on Chinese children to do well in mathematics (a subject to which I will return in a moment). The second is the high quality of mathematics teaching in their schools. The quality of mathematics teaching in China is not news. Jim Stigler, Harold Stevenson and Liping Ma have written eloquently on this subject over the last several years. The essence of the story has to do with the heavy emphasis on early and continual mastery of the key conceptual foundations of mathematics. In a nutshell, the Chinese end up understanding how and why the mathematics works while our students are learning to do the operations with little understanding.

The part of the story that has not been widely reported has to do with the extraordinary pressure that Chinese students are under to learn mathematics. This story actually begins in the Chinese universities. These universities are finely graded by status by the Chinese Ministry of Education. Every year, students in Chinese high schools who want to go to university take the entrance examinations given by the central government and the provinces. All students must take exams in Chinese, English and mathematics. The score on the mathematics part of the university entrance exam counts for not less than 25% of the total score, whether that students wants to study engineering or music. Each university is allocated a certain number of slots by the Ministry of Education. The candidates are sorted by their scores on the exams. Thus the students with the highest scores are allocated to the universities at the top of the status hierarchy and then within the university by the status of the department within the university (so Peking University gets higher scoring applicants than almost all other universities and the school of engineering gets higher scoring students than the school of management.).

So, voila! Performance on the mathematics exam turns out to be one of the most important factors in determining a student's future, irrespective of what that student might want to do in life. Only the score on the exam matters. Students

are not interviewed, nor are their extracurricular activities taken into account. No one cares whether they demonstrated leadership or have had experiences that might make them better people.□Nothing else matters. Little wonder that every student in every school at every level works like blazes to do as well as possible in math.

When I say, “works like blazes,” I mean exactly that. Many primary and secondary school students in China are boarding students. Their day begins at 7:30 in the morning and runs until the late afternoon, with an average of three hours of homework at night. By our rough count, corroborated by observers who know both countries well, Chinese secondary students typically spend twice as many hours a year studying as American students do. And it is not just time. We interviewed secondary school students wherever we could, and a large fraction reported very, very high anxiety about their exams, especially their mathematics exams. They clearly work very hard at mastering the material.

The exam itself is designed for sorting, not for finding out whether the student has learned the kind of math that might be useful to him or her. Many prompts are actually trick questions, designed to trip up the unwary and often require knowledge of some abstruse, obscure point that would rarely be used by a student during the rest of his or her life.

We interviewed a very impressive dean of an engineering department at one of China’s leading universities who told us that his department had applied to the Ministry for permission to change the admission standards for his department. He and his colleagues wanted to be able to find out whether applicants were likely to have leadership abilities, could think out of the box, could work effectively in groups, use their engineering knowledge to solve unexpected problems — all qualities that their customers, domestic and foreign firms, had told them that they badly needed. The Ministry turned them down.

Why? The people we interviewed in the Ministry know that the exams are flawed and they know that China badly needs the very kind of qualities that this

dean and his colleagues wanted to sort for. But the exam enjoys overwhelming support from Chinese in all walks of life. This is because, in a highly corrupt system, the exam seems to many to be the last redoubt of objectivity and merit.

It is, by the way, possible for the authorities to jiggle the exam results to a degree to accommodate party officials and other powerful people, but, on the whole, the extent of such corruption is small compared to the corruption in other parts of the education system. What do I mean by corrupt? Almost all the students in the top 100 universities in China are products of the “key” high schools. These elite schools are designated by the provinces and cities, just as the “Key” universities are designated by the Chinese Ministry of Education. Elite universities and elite high schools are designed for extra state investment. But they are also permitted to set aside a certain proportion of slots and use them to enroll students who do not meet the entrance standards they have for regularly enrolled students. These slots are allocated to students whose parents are prepared to pay substantial tuition charges. The lower the student’s score on the high school entrance exams, the higher the tuition charge. Thus these schools are, in American terms, a combination of public and private school. In some schools, the charges for the tuition paying students have permitted these schools to build up very large endowments, build very expensive buildings and pay their teachers much more than teachers are paid in the regular state schools. In this situation, it is easy to see why parents who could not pay such charges are afraid that if there were no exam, their students would not stand a chance of going to good schools no matter how strong their record was.

In many of the same schools, students who do not need any tutoring are tutored nonetheless, because their teachers, who make additional income by tutoring, are known to deny needed opportunities to students who refuse to get tutored. This not so subtle form of blackmail is apparently endemic in the better schools and provides even more reason for parents to believe that the exams are a vital bulwark of fairness in their education system.

The Ministry of Education and the top officials in the big city systems will tell you that there are no “key” or elite primary or junior middle schools. But everyone else will tell you that they are alive and well, despite official discouragement, because the provincial and local officials find it in their interest to give extra funding to the schools in which they have a right to enroll their own children. They may not be called key schools, but they walk and talk like key schools.

Though ordinary Chinese schools are public, that does not mean that they are free. Tuition is charged virtually all students, in addition to a wide range of other fees. These charges and fees represent a very heavy burden for poor rural families, which is why many rural families do not send their daughters to school after the first few years, despite the requirements of the compulsory education law. The tuition and fees are voted and collected by the — typically unelected — village councils, who often stuff the schools with incompetent relatives and supporters, thus increasing the tax load on the farmers and foisting incompetent teachers on their children. This system accounts for some measure of the simmering resentment in the countryside.

These comments about tuition in public schools lead to another point. Whatever rights a Chinese student has to an education in the public schools is limited to the province or city in which their parents are registered. The children of migrant workers (that is, workers who migrate from the interior of China to the wealthy coastal provinces in search of work), of which there are now vast numbers in China, do not have the right to go the public schools in the provinces or cities to which their parents have gone to work. Any education they do get they must pay for in full. Thus private education in China is mainly education for the very poor. Its cost, if they choose to pay it, is often a very large fraction of their incomes, and the schooling is typically of very low quality. There are exceptions to this rule. Provinces and cities can choose to turn immigrants into citizens, but this right is typically awarded only to government workers and other relatively well educated (and therefore upper class) people who are invited into the province or city to fill professional positions in the workforce. As much

as fifty percent or more of the population of some of the coastal provinces is made up of such migrant workers and their families, and these restrictions on their rights has the same potential for social dynamite as we have seen among the second and third generation guest workers in France and other European countries.

Some observers describe Chinese classrooms as brutal, places where students are bullied and yelled at by their teachers. We did not see any of that. What we did see is a curious — for us — blend of a very demanding classroom manner on the part of teachers combined with an embracing pastoral care. Teachers expect a lot in class and make those expectations very clear. But, at the same time, the school staff, particularly in the boarding schools, readily accept a responsibility to support their wards in all the dimension of their personal, moral and physical development. Whereas our teachers are accustomed to a very sharp line between their responsibilities and those of the students' parents, in China school staff see themselves having personal responsibility for the development of the whole child. We saw this everywhere, but nowhere more than in the boarding schools, where the faculty is responsible for the students 24 hours a day.

But all of this is in the context of a very authoritarian environment. I pointed out above that Confucius strongly emphasized the responsibility of children to obey and venerate their parents and of adults to acknowledge and accede to the authority of the state. However much the Communist state may have hated religion, it nevertheless created an environment in which it could be and often was fatal to challenge authority. The results can be seen not just in the universities, but also in the primary and secondary schools.

Everywhere we visited schools in mainland China, students made very impressive performances for us, but often, when questioned on their performances, were unable to talk about them in a way that convinced us that they understood what they had read, could think independently about it, or were willing or able to challenge the version of reality with which they had been presented. Very often, we discovered that the performance we had seen and

heard had been memorized by students who were at sea when asked to do anything other than recite.

So we ended up with something of a paradox. The Chinese may well be producing the most mathematically adept population in the world, and therefore have the potential for producing the world's most capable workforce anywhere in the vital fields of science, mathematics and engineering. But, at the same time, they have a culture and an education system that may make it singularly difficult for them to cultivate the creative, innovative and entrepreneurial abilities that may prove most important to economic success in high wage societies in the future.

The Chinese are very aware of this paradox and determined to do something about it. And they may have the means. I have been careful to refer here to mainland China. If you were to construct a dimension line extending from mainland China to the United States on the variables I have been discussing, you might want to place Hong Kong halfway between the two. We got plenty of stiff, memorized performances from Hong Kong students, too. But when we asked the Hong Kong students to talk about what they had said in their presentations, they had no trouble doing that. Hong Kong is busy revising its curriculum and changing its exams to take account of the problems we have described on the mainland, without lowering their standards. The Hong Kong authorities have studied the West very carefully and are determined to get the best of the West without giving up any of what they value most in their own culture and traditions.

If Hong Kong succeeds in its alliance with the mainland Chinese provinces bordering on the Pearl River Delta, its education system could provide the kind of intellectual and managerial leadership that the alliance will need for the next stage of development. Over time, the other provinces could adopt many of the educational policies and practices that have enabled Hong Kong to join the ranks of the most highly developed societies in the world.

All through our most recent visit to China and after, our team furiously debated whether the glass was half empty or half full — whether the problems we saw would prevent China from rising to the economic front rank among nations or whether China was likely to overcome those problems to do exactly that.

The progressive educators among us were very put off by the intense anxiety among the very large fraction of the secondary school students who lived in daily fear of shaming their parents by poor performance on the exams, the deflated attitudes of the students in the ordinary secondary schools who had given up because they had not managed to get into a secondary school that could get their students into university, the crushing inequities of a system in which wealthy “key” schools existed literally right across the street from impoverished ordinary schools at the same level, the appalling unfairness of the system that prevents the children of migrant workers from gaining access to the public schools, the rampant corruption of system in which places in good schools were sold to the wealthy parents who could afford them, and the lack of anything approaching real academic freedom in the universities, to say nothing of engineers trained to operate cardboard cutout models of the equipment they were supposed to be able to operate, university hiring decisions being routinely made by political operatives, and systematic underinvestment by the authorities in the education system as a whole.

But, at the same time, we had to acknowledge that astounding advances had been made in a very short time in school attendance rates and adult literacy, universities and research parks were being constructed and put in operation at dizzying rates on an enormous scale, mathematics achievement was remarkable and the production of engineers far outstripped the rate in the United States.

It is all too easy to be smug when viewing China from a Western perspective. But China has a way of holding up the mirror to our own country. Which of us would profess to be shocked when told that school district payrolls in this country are often stuffed with incompetents who just happen to be relatives or supporters of people on the school board? Or that very wealthy (ostensibly

public) schools accessible only to the children of the very wealthy families that can afford to live in those communities exist only a few miles from very poorly equipped and staffed schools serving only the very poor? Or that many students in our system whose parents expect them to attend the best private universities in the land are driven by the same anxieties that drive the best Chinese students? Who is to say which is worse — a system that expects very little of most students and so puts very little pressure on them or a system that expects much and puts much more pressure on them?

Most of the problems we saw in the Chinese education system are problems that the Ministry has acknowledged and is trying to solve. They want their students to be more independent, to be able to apply what they have learned to real world problems, to be more creative. They want to put an end to rote learning and promote problem solving and critical thinking. They are very worried about the inequities in their system, particularly for the rural schools in the interior and the children of the migrant workers in the coastal cities, and are trying to redirect resources to address them. They want to build a more effective vocational education system. And they want to eliminate the defacto system of favored elite primary and lower secondary schools.

These are all daunting challenges. But, given the Chinese record of success over the last three decades, one would be foolish to bet against them. The most serious issues, though, are not on this list. They have to do with the deeply rooted nature of the authoritarian system in China, briefly discussed above. It is precisely that high regard for authority that has enabled China to make such striking progress on such an enormous scale. But it is that very set of values and its influence on individual behavior that may constitute China's greatest obstacle to success in the years ahead.

Whatever happens, there is already much that we can learn from this dynamic country. Not the least of that learning comes from the light that China shines on the choices that we have made in our own economy and our own education system.