

# Across the Pacific:

## Understanding China's Development through the Lens of Education

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Stanford University



# TANG FOUNDATIONS

Bridging understanding between the US and China.



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# **Poverty Backgrounder**

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## Poverty Backgrounder

Throughout recorded history, most humans have lived as hunter-gatherers or subsistence farmers in remote rural communities at the poverty line. The absolute poverty line—a term coined by economists at the World Bank in the 1970s—represents an income of about one to two dollars per day. This amount is thought to be enough to buy sufficient food to live on with a little bit left over to acquire the bare minimum of other necessities, such as cheap clothing, poor housing, and very little else. There is no room at the poverty line for even the smallest luxury good. Surprisingly, even in the most prosperous of societies in human history—the ancient Egyptians, Greeks and Romans, Imperial China, and even Revolution-era America—nearly all people lived in households that earned slightly above, exactly equal to or slightly below the poverty line. When households live at the poverty line, they face grave risks of sickness and early death, especially if they are hit by any sort of income shock. At such low levels of income families have little savings and almost no way to insure themselves against the real and frequent risks that befall all humans. The wealth that we sometimes associate with these great societies of the past was concentrated in the hands of very few.

Modern economic development, a phenomenon that did not come into being until well after the start of the Industrial Revolution, refers to a process by which a nation is transformed from a simple, low-income economy to a complex, high income economy.<sup>1</sup> Development is characterized by a shift from a farming-based economy, in which most people live in rural communities, to an economy that is urban based, industrialized and modern. When a country becomes fully developed it is able to produce high levels of wealth, and this wealth allows most of the nation's population (though certainly it need not be all—there can still be poverty for a minority along with prosperity for the majority) to live more comfortably and have the means to avoid the risks that accompany disasters and other negative shocks to income that occur. Responsible governments usually try to develop the economies of their nations in order to improve the lives of their citizens.

Today China is in the middle of the development process. A mere 30 years ago, almost everybody in China was poor, working in agriculture, and living in villages. Now China's urban areas support a middle and upper class that is growing very quickly. Its industries have grown strikingly. Cities (which we will examine in a future unit) have blossomed where there once were only fields and rice paddies. Western news media often report on China's growing wealth and influence on world affairs.

But China is a big country—its land size is almost exactly the same size as the US. At nearly 1.3 billion people, China has the world's largest population. There are about four to five people in China for every one person in the US. Not everyone in China has grown rich and secure during these past decades. Far less than half of China's population lives in cities or even small towns. Most babies are born and grow up in the same farming villages that their parents and grandparents and great grand parents were born in.

Probably around half of the children in China learn to read and write in small rural schools that are not heated in the winter and have only the most stripped down facilities. Most adults spend at least some of their days working in the fields, raising

pigs and chickens, and eating the food that they planted, harvested and prepared themselves. That is not to say that the quality of life for most people has not gone up since the late 1970s. It has. But it has not changed as much as life has for the people living and working in urban Shanghai or the nation's capital, Beijing.

Who are the poor in China? What are their lives like? It turns out that many people in rural China are still very poor. In this unit we will explore the dimensions of poverty and the ways in which it continues to manifest in China today. In particular, we aim to address the following key questions:

- What causes poverty?
- What is the state of poverty in China?
- What factors have reduced poverty in China?
- How can China escape poverty for good?

### **I. What causes poverty?**

Poverty is the result of a combination of factors: geographic, economic, political, and social. When combined with one another, these conditions reinforce each other in ways that intensify vulnerability and privation among poor people.<sup>ii</sup> People living in poverty often lack adequate access to food, shelter, education, health, credit, market opportunities, transportation, and arable land.<sup>iii</sup> Without regular access to such goods, people are left vulnerable to a large number of uncontrollable events, such as disease, violence, economic shock, bad weather, and natural disasters. Reducing the risk of exposure to these events is key to reducing poverty.<sup>iv</sup>

Consider a typical poor village in a remote area. It has no schools or banks. There probably is no doctor—at least one that practices modern medicine. Like most poor villages, this one is not connected to other areas by decent roads. All inhabitants are subsistence farmers. If by chance a resident gets sick, there are very few options for care. If there is drought or a natural disaster one year, residents will suffer. There is no health insurance or crop insurance or disaster aid. Families survive off what they can grow on a small plot of land and collect in the forests. The problem is that they do not always survive. The average life span of a person in poverty like this is much shorter than that of a person in a rich country. In poverty-stricken regions of the world, children die frequently on account of curable diseases, malnutrition, exposure, and many other preventable conditions.

Families in a village like this naturally will want to earn more income and establish a comfortable home for themselves and for their children. Parents want to be able to guard themselves against the risks that plague poor, rural societies. They are willing to work hard if there is a chance to enhance their wealth and make their lives less uncertain. To do so, however, a villager would need to be able to gain access to more land, purchase new or more efficient assets that will let them earn even more income in the future, and/or trade their farm products for useful items not available in the village. But without ready cash, loans or a markets to trade in—the situation in many poverty-stricken areas—their options are limited. Even if we assume there is a school near the village, parents often keep their children at home because they are so valuable as workers and caretakers on the family farm. Even young children can watch herds of sheep or cattle or watch younger brothers and sisters, allowing parents

to work in the fields. As a result of these conditions, the residents remain vulnerable to many risks and have little opportunity to offset them. If these problems plague villagers in this generation, the same problems will likely face those villagers in the next generation.

While this example is simplified, enormous numbers of people in the world are vulnerable like those we have sketched out here. There are 6 billion people in the world today, and nearly half of them live on less than \$2 a day. A fifth of them, or 1.2 billion people, live on less than \$1 a day.<sup>v</sup> While it is difficult to provide exact figures common to all poor areas of the world, billions of the world's poor are malnourished. A majority of people living in poor areas report at least one symptom of disease. Conditions that leave an individual bedridden or necessitate a trip to a doctor are commonplace. Going without meals or cutting meals is a frequent phenomenon. Up to about a third of poor people report difficulty in carrying out at least one daily activity, such as carrying water, working in a field, or even walking. They also commonly report levels of anxiety and worry that interfere with sleep, work, or eating. Vision problems are rampant among poor communities. As these details make clear, the level of human tragedy among the world's poor is high. The promise of economic development is to bring security, comfort, and opportunity to more of these people.

## **II. What is the state of poverty in China?**

Between 1950 and 1980, China's government directed the economy in a way that allowed most people in the city to raise their standard living while those in the countryside remained mired in poverty. Today, almost all poor people live in rural villages. As we will see in later units, not all city dwellers are rich, but on average they are much better off than rural households, and only a few percent of urbanites live anywhere near the poverty line. Although poverty in China is chiefly a rural phenomenon, not all rural people are poor. Nevertheless, poverty continues to afflict millions across the country.

Geography is one of the main drivers that determines who is still poor. The country's richest areas are generally located in the flat plains areas near China's eastern coast or next to its large inland rivers. When rural areas are concentrated in the coastal plains region, it is easy for leaders to supply transportation and communication services, for markets to penetrate, and for irrigation and other measures to help farmers cultivate their land more efficiently. The nearby oceans link these areas to global markets, facilitating trade and investment that can help generate prosperity. Much of the rest of China, (about 70 percent of the country), however, is composed of mountains, desert or high altitude plains. Due to such geography, the huge western interior of China is not suitable for large scale agriculture and is far removed from the cities that thrive on China's coast. Nevertheless, over the centuries people have come to occupy almost every habitable corner of these areas. That means that villages in China's poor regions tend to be spread out across sprawling, low quality lands that are remote from cities and are poorly connected by roads.

The poor inhabiting China's western interior are mostly engaged in farming and raising livestock. Unlike some countries in the world, nearly all poor families have access to cultivated land. However, the size of their holdings are miniscule, often the size of a large garden (actually about one acre per family, nearly one thousand

times smaller than the typical farm in the US). They work on small family farms where the land is often of such low quality that they barely produce enough to survive on. It is difficult for many families to make the necessary amount of money required to sustain themselves and their families and provide basic necessities like food and clothing. Diets of family members of poor households are composed largely of grains like wheat and rice. Most such diets lack sufficient levels of protein as well as other essential micronutrients and vitamins. About half of the children living in households at or below the poverty line are slightly malnourished, and micronutrient deficiencies remain a severe problem among China's poor (case study: Xiao Qiang). Today, although their incomes have risen, rural inhabitants must also spend a larger portion of their earnings on services that were previously free (or subsidized), like healthcare. This added financial obligation has been proven to contribute to their impoverished status.<sup>vi</sup> (case study of a Tibetan who has upper respiratory tract infection, pays to go to the Tibetan hospital which sucks. Describe the hospital)

Life in poor regions of rural China remains difficult. People often walk long distances to find clean water or fuel which they then carry back to their homes (case study: Zhang Jianguo and Zhang Xiaofang). Farm labor is non-mechanized in many parts of the country. That means farming tasks are undertaken by hand and with oxen, donkeys, and other beasts of burden. Farm work typically lasts from sunrise to sundown. People live in simple homes of brick, stone or mud. When traveling long distances, it is common to see rural people transporting their belongings using shoulder poles. Farming land with such limited resources means that the individual input of every family member becomes essential, and children often drop out of school in order to contribute.

#### **IV. What factors have reduced poverty in China?**

While there are still many poor people today in rural China, in the late 1970s there were far more that were even poorer. So, what happened? Over the past three decades, China's government has employed enormous resources to develop poor areas and extend basic services across the country. Major government initiatives have linked far flung areas to electricity and telecommunication networks, improved land for agriculture, paved thousands of miles of roads, expanded access to education, and improved healthcare, among other things.<sup>vii</sup> The goal behind these initiatives has been to develop the economy and lift a majority of citizens above the poverty line. On account of such efforts, as many as 300 million Chinese people have moved out of poverty since the 1970s.<sup>viii</sup> Is this a lot of people? In fact, during the past three decades, more people in China have escaped poverty than in the rest of the world (including India, all the countries of Africa, Mexico and the rest of Latin America) combined! Case study of ningxia household that was near the road easy to get to town etc.)

While these policy achievements represent great progress, around 100 million Chinese are still mired in the type of poverty described above. It is also worthwhile to put the government's investment in rural China into perspective: for all the money China spends to raise standards of living in rural areas, it spends many times that amount in more productive urban areas.<sup>ix</sup>

It is also true that provision of basic services like roads and schools is only part of the challenge of development. Creating the conditions for further development is a complex and difficult task. Consider a remote village in the mountains. In order to develop, the village needs not only basic services such as roads, hospitals, and schools, it also needs access for its residents to off-farm employment opportunities. Without investments in and improved access to services like these, it is impossible for the conditions of life to improve beyond a certain basic level. A small farm on poor soil located in a remote mountainous area will never be able to produce enough to substantially improve the lives of the family. Yet building roads and schools and hospitals is extremely expensive. Who is going to build them?

In China, like most places, only investors like the government or major companies have enough resources to undertake such tasks. And even if private firms have enough assets to invest, they often do not have an incentive to do so, since people are poor and the amount that can be charged for education and health is necessarily small (given the poverty status of the individuals). Therefore, the government has to be the major player.

In China's poorest and most remote villages, it may be almost too expensive for even the government to invest in basic services and infrastructure. Not every inhabited place in China is suitable for growth. In the history of the US we had areas, like remote parts of New England and the mountains of Appalachia, which at one time housed large populations but ultimately were left behind. In fact, millions of Chinese people today live in areas that are fundamentally not conducive to development. These places are too remote, too difficult to access, or too lacking in resources. From the perspective of government, extending expensive infrastructure and high quality services to these areas is simply not worth the high cost. What do people who live in these areas do to achieve a higher quality of life? In many cases the answer is simple: they prepare themselves to leave.

If you visited several rural villages in China you might notice they tend to have something in common: there are few young people living in them. Adults and young adults in poor villages frequently move elsewhere to search for work and new sources of income. Most often this means leaving for an urban area to work in a factory or another low-skill job. Sometimes villagers who are able to work will live elsewhere for part of the year and come home to the village for part of the year. It is very common for rural families to have at least one member who spends part or all of the year working somewhere else. Families are frequently separated for extended periods of time. However, the extra money that villagers earn elsewhere is important for providing care and security for older generations that remain in the village. Sometimes entire families move away permanently. As a result of these phenomena, many poor rural villages have several empty homes, and their communities are composed almost exclusively of elderly individuals and young children. In the next unit, we will explore more about those individuals that have left and see what their lives are like in the city as well as examine how their ties to their homes have been maintained or severed.

### **III. How can China escape poverty for good?**

What is the answer to escaping continued poverty in China? As in many poor areas of the world, providing good education is key to development. In the areas where there is little hope of growth, among the best ways to generate new sources of income for people is to educate them so they can contribute to productivity elsewhere (World Bank, 2011). As you will learn in the next chapters, urbanization/migration is a key part of the processes of modernization and development. When people move from poor areas of the countryside to find opportunity in urban areas, their chances of securing prosperity and productivity go up enormously if they are educated. China's government has therefore tried very hard to expand education throughout poor areas.

### **Elementary Boarding Schools?**

Expanding physical access to schools has been one way the government has tried to better educate its citizens. In the 1950s and 1960s, the government tried to build schools in nearly every village. By the 1980s it became clear that spreading limited resources so thinly made for substandard schools. Also in the 1980s the number of children in rural areas began to decline rapidly on account of migration and the stringent one child policy in effect throughout the country. Beginning in the 1990s the government began drastically reducing the number of rural schools (Liu et al., 2010). This process is still underway today. Although merging schools has allowed for a higher concentration of limited education resources, <sup>x</sup> a lower number of schools means that villages can be quite distant from the nearest local school. That is why boarding is commonplace in China, even among primary school children.

The government has endeavored to extend the reach of the education system by reducing schooling costs for families and improving school quality. Until relatively recently, there was no free public school in China. Parents had to pay to send their first graders to public schools. However, this changed in the 1990s when the government extended free public education up to grade nine (Wang 2008). As wealth in China has increased in recent years, the government has begun investing in teachers, launched programs to encourage and reward rural teaching, and set aside more money for school facilities and curriculum development (Wang 2008). All of these investments in education over the decades, from expansion of schools to raising the quality of curricula, have yielded some success. To its credit, China has a literacy rate that is higher than nearly any other developing country. Most girls in China attend at least six to nine years of school.

An enormous number of challenges remain, however, particularly in poor areas of the country. Despite school reduction programs, the number of schools in need is high and the amount of resources available in rural areas remains relatively small. In the countryside it is not uncommon to encounter single room school houses with broken windows, filthy floors and no equipment beyond a few aging desks (**Case study: Mr. Tian**). These conditions lead to recruiting and retention problems. Experienced or talented teachers have very little incentive to stay or relocate to rural areas to teach. The flow of good teachers and school administrators is in large part unidirectional: quality staff in a village school aspire to work in the county town and those in the county town aspire to work in the city (Wang, 2010). Due to a lack of adequate staffing, rural schools often offer fewer courses, in particular computer, music and art classes. Even rural schools that have worthwhile computer rooms often do not use them because there are not qualified computer instructors. Those teachers

that do work in rural schools frequently end up having to teach subjects for which they have little training or conviction. Other factors of poverty further reduce educational achievement among poor areas, such as poor nutrition, limited access to preschool programs, and low quality healthcare. (Case study: Principal Yang)

The cost borne by families to educate their children has also proven difficult to overcome. Today, public high school in China is not free, and getting into high school requires passing a test, not unlike getting into college in the United States. For many poor rural residents, the costs of sending children to high school -- and even junior high -- are substantial. Besides tuition, transportation, and other direct costs of attending school, there is another, hidden cost: the opportunity cost. This cost refers to the lost income that would have been accrued had a school-aged child worked on the family farm or taken a job in the unskilled labor market instead of going to school. Nearly everyone in China knows that going to school is important, but the payoff of staying in school comes several years in the future when a child grows up and finds a good job. Many poor families simply cannot afford to wait that long for added income. (Case study: Cheng Shengjun)

There are many complex reasons why expanding access to quality education remains a challenge in China. A significant part of the problem is that the government does not spend a large percentage of available funds on education. The government has spent roughly 2.6% of the total national GDP on education, a lower percentage than most developing countries.<sup>xi</sup> By comparison, the United States spends about 5.7% of GDP on education (almost double that of China).<sup>xii</sup> Without a larger “slice of the pie,” improving education across China’s rural interior will remain an elusive goal.

Poverty has plagued communities in the developing world for generations. A few decades ago, the vast majority of China’s citizens lived in grinding poverty. Over the past thirty years or so, China has made impressive strides in improving the lives of these people. But eliminating poverty in China is an enormous task that remains far from complete. Addressing the chronic shortcomings in China’s rural schools is critical for allowing more Chinese to participate in and benefit from the country’s growth.

# Poverty Case Studies



**Xiao Qiang**

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Xiao Qiang is ten years old and attends primary school in Pingli County, Shaanxi Province. Both of his parents are farmers. They grow local vegetables on a small plot of land, but mostly they raise mushrooms. This part of the province is well known in the immediate region for producing quality mushrooms. His parents sell mushrooms to local buyers three times a year. In total they earn close to 6000 RMB, or about \$900, per year.



Like many impoverished children in China, Xiao Qiang suffers from nutritional deficiencies because he does not eat enough meat or fresh vegetables. In fact, a recent health survey found that he was anemic. He eats three small meals a day: some steamed bread in the morning; a stew prepared at his school's kitchen for lunch; and dinner at home—usually noodles, a soup or vegetable stir-fry. He reports being able to eat meat three times per week because school provides it sometimes for lunch and his family buys a small supply each week. He hates the taste of the food prepared at school because he believes the food is not fresh. Very possibly, he is right. Instead of eating school lunches, Xiao Qiang often eats a package of instant noodles that he can purchase very cheaply at a small nearby shop. Instant noodles are one of the most processed and least nutritious foods imaginable. Xiao Qiang reports eating instant noodles almost every day. He also reports being hungry often when he goes to sleep.

Xiao Qiang is representative of many impoverished children in China that still are not able to maintain nutritious diets. His case stands in stark contrast to children his age in many of China's urban areas, who eat three high-value meals a day and plenty of snacks—much as a typical American child might.



**Zhang Jianguo and Zhang Xiaofang**

This husband and wife couple live in Guoluo Prefecture, Qinghai Province. The area they live in is almost entirely populated by ethnic Tibetan pastoralists. They are not Tibetan, however—they are some of the very few ethnically Han people in the area. They are both in their forties and for reasons that they prefer not to explain, have no children. Neither has any education beyond primary school.



The couple moved to Qinghai Province from rural Sichuan, a neighboring province, fifteen years earlier in search of opportunity. They opened a small shop in a county town but it was not profitable and they closed it. Now their lives are very hard. They travel to pastoral grasslands throughout the area and pay a little bit of money to local yak herders to scour their pastures for yak dung. The altitude is so high in this area that there are no naturally occurring trees or bushes, just rolling grassland. Coal is expensive and not dependably available. For these reasons, dried yak dung is a common source of fuel for stoves. Zhang Jianguo and Zhang Xiaofang collect yak dung and sell it to people in the county town who do not have enough money for coal and do not have any yaks to collect dung from. In addition to this work, the two take odd jobs as they arise—working on a road crew or planting trees for the county government, for example. The couple earns about 350 dollars a year doing this work.

The Zhangs are representative of many rural families in China that have not been able to take advantage of China's rapid economic growth. There are tens of millions of impoverished people like the Zhang's who continue to scrape by while other groups,

particularly in urban areas, grow wealthy. Providing adequate opportunity to the remaining impoverished people in China is a major task.



**Mr. Tian**

Mr. Tian is a teacher at a “teaching point” elementary school in a small village in arid Ningxia Province. Teaching point schools can often be found in remote areas where the nearest primary school—which themselves are often quite remote—is not close enough for local children to attend conveniently. Teaching point schools are often very rudimentary: they typically have simple classrooms, one or two teachers, and a dozen or so young students. When children at teaching point schools are old enough, they go to the nearest regular school.



The village where Mr. Tian’s teaching point school is located has about eighty households. His is the only school within twenty five kilometers, and he the only teacher. Mr. Tian has been teaching at this school for twenty-eight years.

In addition to teaching, Mr. Tian also farms his own land. Without farming, he says, he would starve. However, he teaches because he loves it, and does not know what else he would do. Over the past twenty-eight years, Mr. Tian says that he has seen several changes. The most significant change is the number of students who go on to attend elementary school and even high school. Speaking about the fifteen students he currently teaches, Mr. Tian says that he expects some of them to make it to high school. In the past, he says, he could not say that.

Mr. Tian has three children of his own, and only one of them has made it to high school. His daughter was not able to go past elementary school because the nearest middle school was too far and he did not want her walking such long distances. He

felt her time was better spent working in the fields at home, and contributing to the housework. Now she is nineteen, and was just married last year.

Mr. Tian's teaching point school is very basic. It is housed in an aged, one-room structure, and boasts only a few worn out seats and an old chalk board. A metal stove sits in the corner to provide heat in cold weather. Mr. Tian teaches from an old primary school primer. His students have a few torn hand-me-down exercise books and nothing else. There are about 10 students and they range in age from 6 to 9 years old. Mostly they sing songs together and practice a little bit of math. Mr. Tian has no formal credential as a teacher, but one can tell he cares for his children.

Mr. Tian enjoys what he does, and says he hopes to stay at this job for many more years. He does not plan on moving out of the village. He says that he has only been to the nearest county town six or seven times in his life, and has never been anywhere farther away than that. That means Mr. Tian has not travelled outside of a radius of about forty kilometers from his home village in his entire life. He tells his students to go out into the world and do great things, but says that he has no time or money to travel for himself. What's more, he is content doing what he does, and does not see any changes in his life within the near future.



**Principal Yang**

Mr. Yang is the principal at an elementary school in Gansu Province, a mostly arid and poor province in China's northwestern interior. The school has 174 students, and a total of five grades. There are eight teachers for the entire school, which, according to Mr. Yang, amounts to "not enough hands." Sometimes, teachers must teach up to three or four different courses. When asked about the shortage of teachers, Mr. Yang says that this is a very poor and mountainous area, so it is hard to attract qualified people. The people he needs would rather stay in town.



Mr. Yang has been hoping for better teachers for a long time, but more than anything he says that he is hoping for the government to send the school a computer. That way, he imagines the students will have access to good teaching materials, though because there is no internet in the area, it is not immediately clear what he means. He says that the government has promised to send the school a computer, but he doesn't know when or if it will really arrive.

Mr. Yang grew up in this same county, and his highest level of education is vocational middle school. After many years of teaching, Mr. Yang was sent to the school where he currently works to serve as head master when the previous head master stepped down. He had no experience in school administration, but according to Mr. Yang, there were no alternative candidates for the job.

Mr. Yang says that most of the students who attend this school walk about 3km to

reach it each day. He thinks is not a very long walk compared to some of the other school commutes in the county.

Mr. Yang's school is representative of countless rural schools that are severely underfunded and understaffed. Improvements in these schools will require enormous commitment on behalf of the local and national governments. The fate of millions of China's youth is tied to the fate of these schools.



**Cheng Shengjun**

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Cheng Shengjun is from a farming village in Henan Province. He is twenty-one years old. He dropped out of school when he was sixteen.

Shengjun's parents are both farmers, and neither has education beyond elementary school. He has one older sister and one younger sister. His older sister dropped out of school to get married. His younger sister dropped out of school because she was unable to excel at her school work.

Shengjun's parents calculated that on a tight family budget, it was not worth the cost of keeping a daughter in school if she was not performing well. They placed their hopes instead on Shengjun. He soon dropped out of school as well – he was not doing well and did not get along with his teachers. His parents were not happy about it but could not change his mind. Now Shengjun works with a construction team in the county seat. He hates the work but earns about 200 dollars a month, which he believes is enough to live on for now. He also sends a fraction of his monthly income to his parents back in his home village.



In order to expand his horizons, Shengjun is planning on attending a vocational school and getting a commercial drivers license. He hopes that training he receives at the vocational school will make it easier for him to secure new work. With a commercial driver's license he can drive a truck and earn money that way as well.

Hundreds of thousands of young people in poor rural areas drop out of school for similar reasons as Shengjun and his sisters. Often their lives are very difficult. Shengjun admits that one day he may regret his decision to quit school, but he tries to focus instead on making the best of his circumstances.

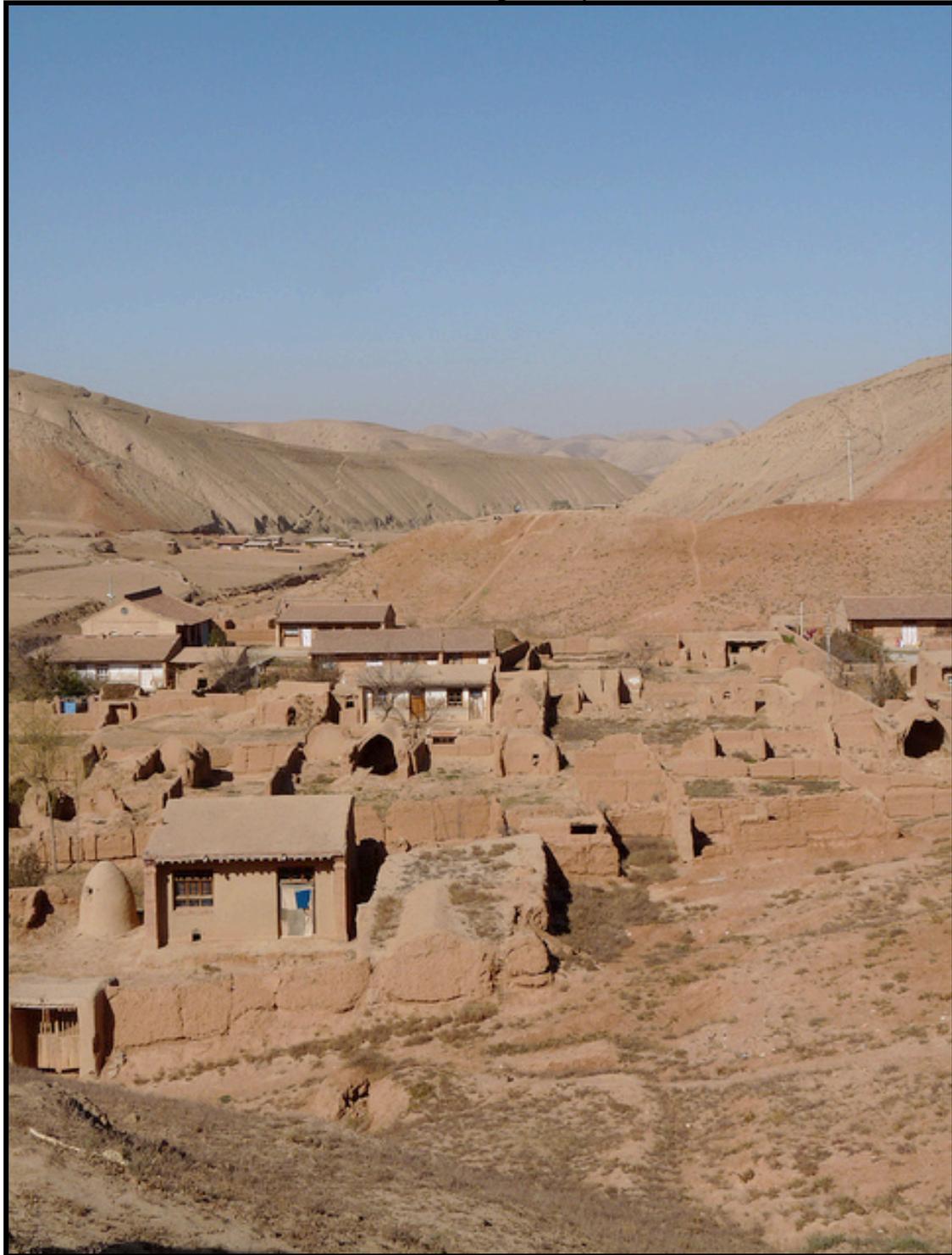
# Poverty Photos



**Homes in China's rural northwest are often made of adobe and wood, like this one.**



**Children in a rural primary school.**



**Many rural villages, like this one, contain many empty households – residents have moved away to seek opportunity elsewhere.**



**Much farm work in rural China is done by hand on small plots of land.**



**Much of the land in China's impoverished northwest cannot be planted because it is too mountainous. Above, a typical adobe village of the area.**



**One of the elderly folks who remain in rural villages.**



**Rural homes are often very simple.**



**Above, small plots of land in China's northwest.**



**Transporting wheat to be threshed in a small town.**



**Two rural girls in a corn field in southern Shaanxi Province.**

# **Migration Backgrounder**

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## Migration Backgrounder

With explosive growth over the past three decades, China's economy is rapidly urbanizing, industrializing, and modernizing. Migration has played a key role in this growth and transformation. Since the 1970s, industrialization has occurred on a massive scale in China. Hundreds of millions of people have moved off the farm into jobs in factories and in the service sector. Urbanization is also happening with tens of millions of families moving from their native villages into cities. The scale of the migration is unprecedented in human history. The sheer human drama of so vast a transformation is compelling by itself. Studying migration in China also offers key insights into how countries develop their economies to create wealth and new opportunities for their citizens. Our examination of migration in China will help us understand the sacrifices of those who migrate, the uncertainties that they face and the potential gains that they will achieve if they are successful—gains that, when added up across all of the hundreds of millions of migrants, constitute a very real part of the modernization of China.

### UNIT QUESTIONS:

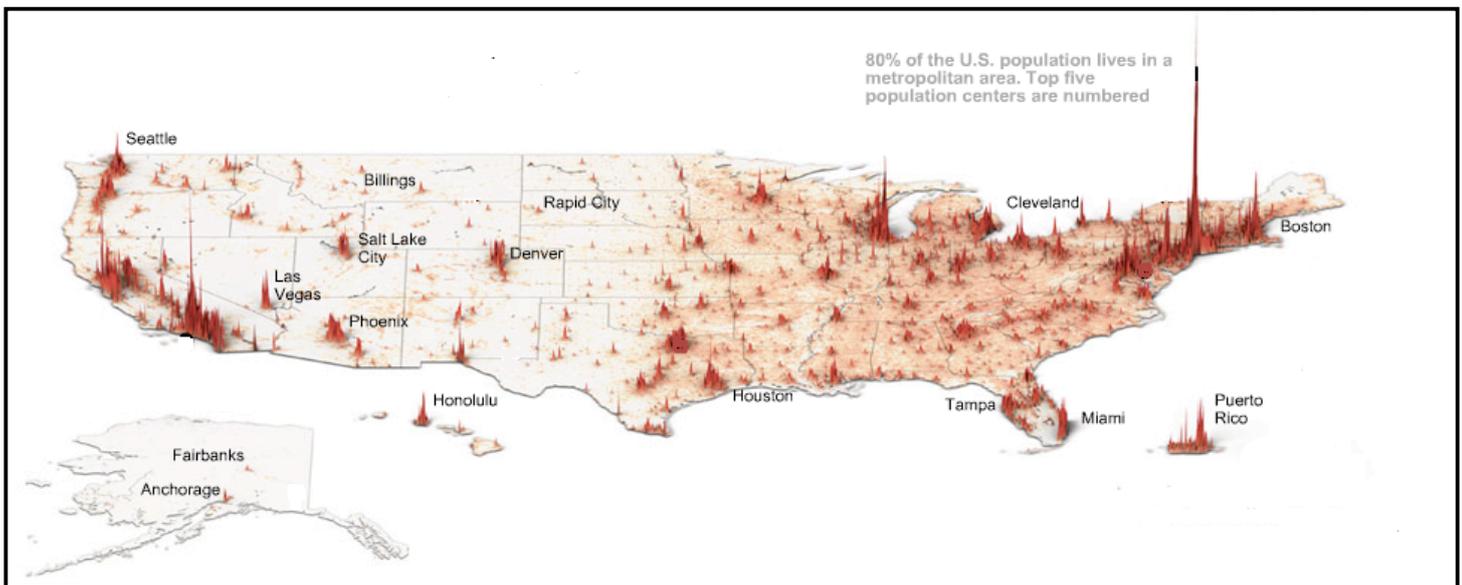
- Why does migration/urbanization happen?
- What are the potential benefits and drawbacks of migration and life in the cities once the migrants arrive?
- What factors drive migration in China? Why would anyone do this?
- What is life like as a migrant in China?
- What challenges do migrant families face in educating their children?
- What are the future challenges posed by continued migration in China?

### I. Migration and Development

The “iron law” of modern economic development states that as a nation grows and modernizes, the proportions of its population living in rural areas and engaged in farm labor decreases, while the proportions of those living in cities and engaged in off-farm labor increases (Kuznets, 1955). In almost all poor, underdeveloped countries, most people live in rural areas and engage in farming, animal husbandry, or other farm related work. As seen in the previous unit, these families are typically living at or near the poverty line. The level of resources in agrarian villages is insufficient to support high standards of living. In all wealthy, developed countries, most people live in cities and engage in work that is not related to farming at all. Urban residents provide labor for manufacturing or services such as business, banking, or law.

As a country grows and modernizes, people who once farmed the land move to cities in search of new opportunity and provide labor to the expanding industrial sector. Gradually the industrial output of a nation rises and more and more people work off the farm in the factories and the service firms that support them. This process is called industrialization. Since factories and service industries function most efficiently in cities, families move from their homes in rural areas to cities where the jobs are. The process of urbanization thus often accompanies industrialization.

Large-scale industrialization and urbanization has occurred in all modern economies. In the 19<sup>th</sup> and early twentieth centuries industrialization and urbanization occurred in the United States as people moved from agricultural areas in the South and Midwest toward urban centers in search of new jobs and higher standards of living. Today, about 80 percent of the US population lives in urban areas, and most of the rest live in rural areas not far from major metropolitan areas. Only one percent of Americans are engaged in farming. The same process occurred in Europe, Japan, Australia and New Zealand—all of the world's wealthy and modern regions. In Japan, for example, the country experienced rapid growth following the massive destruction of World War II. Today more than 80 percent of the population is urbanized, with almost all rural residents concentrated within 50 kilometers—or commuting distances—of the Japan's three largest cities.<sup>xiii</sup> Only a small fraction of Japan's labor



force works in farming.

***[This map is just an idea to show urban density in a developed country. You can find it and others online:***

<http://visualecon.wpengine.com/wp-content/uploads/2008/09/time-population.png>]

In the many countries in the world today that are developing, the process of industrialization and urbanization are occurring right now. For example, Brazil is experiencing heavy internal migration, particularly from the rural areas of the country's northeast to big cities like Sao Paulo and Rio de Janeiro. In Mexico, many people are leaving their farms and moving to the cities in search of jobs in the newly emerging industrial and service sectors. Similar transitions are underway in South Africa, India, and many countries in Southeast Asia, as people move to escape limited fertile land and the lower standards of living typical of rural life.

Industrialization and urbanization can be difficult processes—with potential benefits and costs. Migration itself is often not easy. Individuals and families that have lived in a rural community for many generations are moving from familiar surroundings to impersonal cities. Prices for food and housing are often higher in the city. The skills for finding and keeping a job are not always easy to develop. With few specialized skills, there is a lot of competition for jobs and wages are often low. With housing prices high, people live in cramped quarters, often without the support of

families and friends that they used to have in the village. City people often look upon them with disdain, and discrimination can be common. Migrants sacrifice a tremendous amount to move from the farm to the city.

If there are so many costs, then why do households move? In few cases people are actually forced to move. In most countries individuals and entire families do the arithmetic, adding up all of the costs (discussed in the previous paragraph) and comparing them to the benefits of jobs and the earnings from those jobs. In the end in the case of most young individuals and families, if there is a job available, they decide that it is worth it to move. Why? It must be that the benefits of migration are high. Because factories and service firms in cities add more value than the small farms that occur in most developing countries, workers in cities can be paid an hourly wage that is typically much higher than the hourly earnings on a farm. They can also work more hours—factories, after all, do not operate seasonally and are often open days and nights. When lots of people live together in the cities, there is also high demand for services such as food preparation in restaurants, transportation services, et cetera. Finally, if the economy is growing in the country, additional increases in the standards of living are apt to occur in cities long before they reach the countryside (if they ever do!).

Are the cost and benefits worth it? If families move to and stay in a city (especially when they may also have a home in the countryside that they could return to), then the demonstrated answer must be yes – though the transition is not likely to be easy. But again, migration is the conduit of development and transformation of a nation from poor to rich. Nations also gain from migration. When millions of individuals move from low productive farms to high productive factories, domestic productivity rises: the same number of people is producing a lot more goods and services. When workers earn a higher income, they are also going to spend more, which itself will fuel high demand and more growth.

Because national economies gain from migration, leaders that are interested in guiding their countries towards an objective of modernization also play a role in managing migration. In short, their job is to try to reduce the costs of migration for the migrants and existing city dwellers while enhancing the benefits. Because migration creates a large-scale shift in population composition (agricultural to industrial, rural to urban) it is challenging to manage migration effectively. In order to sustain productivity in cities, governments need to ensure the provision of a wide array of services to urban residents, such as housing, healthcare, education, roads, drinking water, public safety, sanitation, fire departments, sewage systems, and trash disposal. Services such as these are necessary to deliver a basic standard of living for large numbers of people living together.

Yet properly funding, planning and executing such an increase in services requires enormous resources that not all cities have. In developing countries, the pace of industrialization and urbanization is often faster than the rate of economic growth in cities. A number of problems can develop as a consequence. For example, it could be that rural migrants expect jobs to increase faster than the economy can produce them. In other words, there might be a shortage of jobs to accommodate fast-growing migrant populations and an inadequate extension of services to migrant communities. Frequently these shortcomings lead to a proliferation of urban slums. Transportation

facilities can lag behind, making commutes from home to work unpleasant and costly. As more and more people move to cities, housing prices rise due to the increased demand. Wealthy urban residents snatch up available housing and a dearth of affordable housing ensues. Impoverished migrants cannot afford housing and accumulate in slums because there is no where else to go. Because these individuals tend to lack capital, credit, education, or political voice, the slums persist. Disenfranchised communities like those found in slums give rise to new problems such as crime and poor sanitation, placing an additional drag on urban productivity. Some of the clearest examples of the slum phenomenon can be seen in the outskirts of Mumbai in India, the inner core of Nairobi in Kenya and the suburbs of Mexico City and San Paulo, Brazil.

Clearly migration is a two-edged sword for both individuals/families and for nations. However, it is an inevitable by-product of development. It is a messy but necessary part of the transformation of nations from poor to rich, rural to urban, and farming to non-farming. All countries, including the US, went through exactly the same process. The sacrifice of the generations that migrated is almost incalculable; however, if countries modernize successfully, the benefits are enjoyed by the residents—including the children and grandchildren of the migrants—for many generations after. Paris and London and San Francisco and Tokyo are marvels of the modern world: they all were built on the sweat and tears of millions of migrant families in years gone by.

## **II. Migration in China**

Migration did not start occurring on a significant scale in China until the economic reforms began in the early 1980s. Today, migration and urbanization are occurring on an unprecedented scale. Rural migrants have flocked to cities by the millions, congesting the roads, filling the trains, and stretching job availability in the city centers. While only 30 years ago only 20 to 25 percent of China's population lived in the city, according to World Bank predictions, more than half (53 percent) of China's total population will live in cities and townships by 2020.<sup>xiv</sup> This means that around 700 million people—more than double the entire United States population—will be living and working in China's cities.

Why are all these people moving to cities? As in most of the rest of the world migration is voluntary in China. Individuals and families decide on their own to stay in the village to work on the farm or move to the city to work in a factory or at a service job. Consciously or not, they consider the costs, compare them to the benefits, and make the decision to migrate or not. The costs and benefits can be conceptualized as “push” and “pull” factors. There are costs and benefits of staying in the rural village. If the costs (and foregone benefits) of leaving are low (that is, migrants are leaving behind hard lives of poverty and low income-earning opportunities), it is often said that villagers are “pushed” out of the village since there is little keeping them behind. Push factors are important when life is hard in the village and resources are few. There are also costs and benefits of entering the city. The net benefits (that is, benefits minus costs) can be thought of as the force that attracts, or “pulls,” rural individuals out of villages and into cities.

Let's look closer at some of the push factors. As we have seen in unit one, poor rural areas often have limited access to resources and little chance to improve quality of life. While villages are often plagued by poverty, life in cities provides the prospect of more varied job options, higher wages, better access to commercial goods, and more comfortable living conditions. Information about opportunities and options is also more plentiful in cities. With higher wages, migrant workers can send money to family members in the countryside. Grueling, risky conditions in rural villages can lead to feelings of helplessness.; migrants, on the other hand, often view the booming city as a new window to a brighter future. As we will see later in the unit, life as an urban migrant is not easy, but moving to a city provides potential access to opportunity that is simply unavailable to people in poor areas of the countryside. That is the "push" factor that sends millions of rural residents to the cities.

There are also "pull" factors that drive migration in China: the tremendous need for labor in urban areas. There are a lot of jobs in China's cities. Why? China today is the "factory of the world." All factories need workers. Look at your shoes. Look at your clothing. Look at your TV, mobile phone, and appliances in your homes. Look at everything in your house. Where is most of it made? China. The same is true of consumer items you would find in other countries of the world. Who is making all of these items in China's factories? Migrants are. And as the number of factories grows, China's leaders are trying to keep up in building the infrastructure for them and for those newly prosperous citizens that have benefited from the new growth. This is another source of jobs since labor is needed to build the enormous expansion of infrastructure projects in China: roads, subway networks, airports, railways, office buildings and residence blocks. A country cannot grow without building these investments in infrastructure and each requires an enormous amount of labor to complete. Since 2000 over half of the world's cement and steel is consumed in China; it is being used in building this infrastructure. Migrants are doing the building. These jobs pay more than what one can earn in the countryside. Higher incomes frequently translate into higher standards of living, especially when incomes are relatively low to begin with. This potential in improving living standards is the "pull" factor that brings migrants to cities.

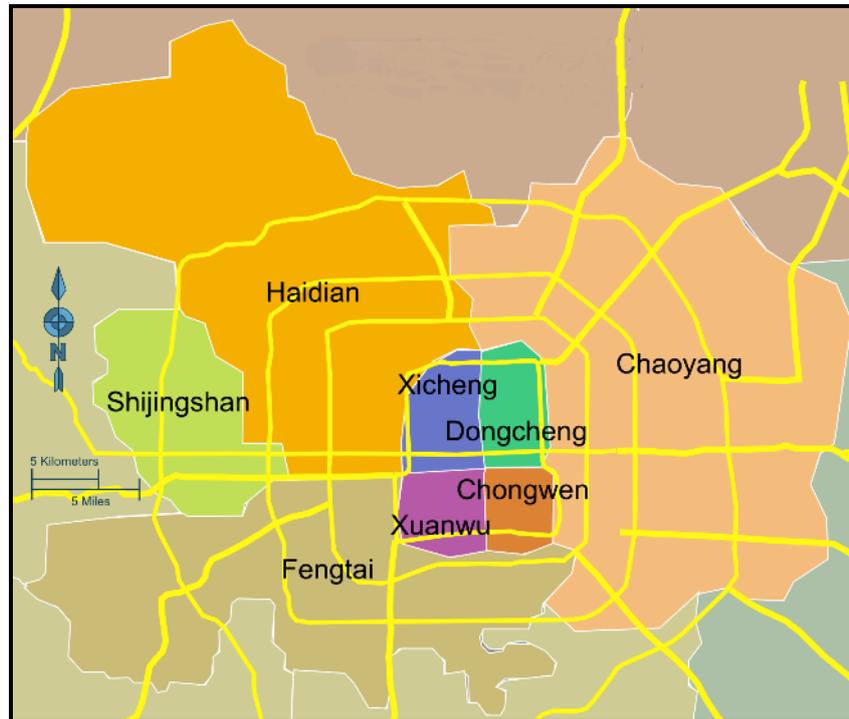
### **III. Life as a Migrant**

Migrants are a highly mobile population, constantly adapting to changes in the demands of the workforce. Nearly half of migrants are between the ages of 16 and 25, only 16% are over 40, and a majority of migrants are male.<sup>xv</sup> Older adults tend to remain in rural villages, even if their children have migrated to the cities. Migrants sometimes choose to bring their children to the cities, but depending on circumstances may also leave them in the villages with grandparents or other family members. The majority of migrants have little education—less than nine years—and some report never having attended school.

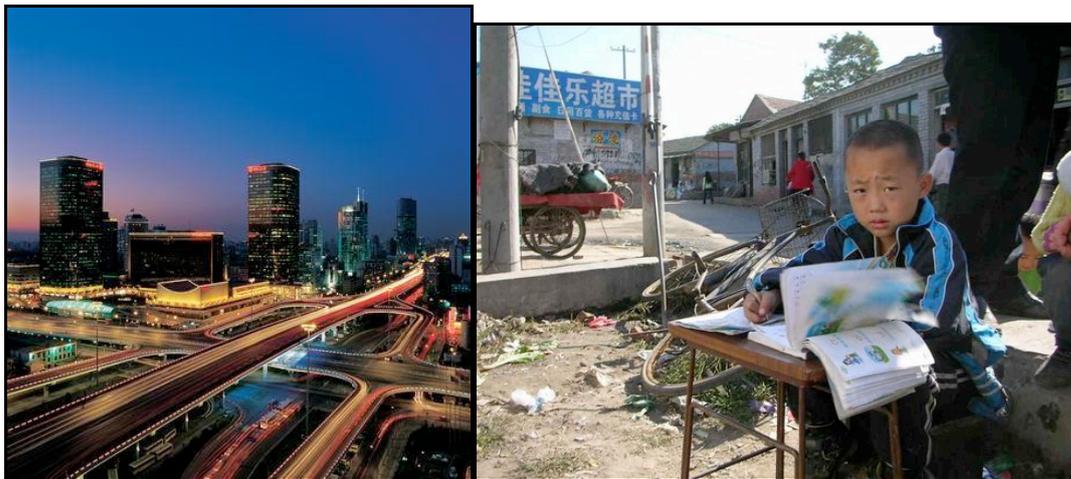
A core aspect of the challenges migrants face is China's household registration system. This system classifies China's citizens as either rural or urban residents. Most migrant laborers do not possess a residence permit for the cities in which they work. Without official urban residency status, migrants do not typically enjoy many social services that formal city residents are entitled to. While conditions for migrants vary across cities, such services tend to include access to state subsidized insurance,

housing, healthcare, and education. Without regular access to these services, living in the cities can be immensely challenging for millions of Chinese migrants.

## A Geography of Migrant Communities in Beijing



This is a map of the districts of Beijing, China's capital and home to several million migrants. Migrants typically live in communities in the outer districts of the city, including the outer parts of Chaoyang, Fengtai, Shijingshan, and Haidian districts. As the city expands, these communities are pushed farther and farther out from the city center.



Above is an evening scene of downtown Beijing (left), and a typical daytime scene in a migrant community on the fringe of the city.

*What are living conditions like?*

Once a migrant arrives in their destination city, they must begin the trying process of creating a new life. Often migrants will have contacts already living in the city that can be useful aids in finding jobs and housing. Migrants tend to live in “migrant communities”, a series of simple dwellings and shops on the outskirts of the city or in village abandoned by richer suburban farmers that moved into the heart of the city in an earlier period and left their home empty (the former suburbanites become a landlord and the migrants are the tenants). Here, buildings are old, falling apart, and sometimes half demolished; streets and sidewalks are cracked or simply made of dirt. The smell of trash can permeate many parts of migrant communities as garbage accumulates uncollected. Life is often unsettled and migrants often have to move. The buildings migrants live in are torn down regularly as the city expands to make way for new developments, so migrants are often forced to move (case study: Zhang Heng).

Living conditions can be very poor in migrant communities. Families of three, four or more might live in a cramped, one room space. Sleeping, cooking, eating and storage frequently occurs within an area of only a few square meters. Internet, personal computers, television or other consumer electronics are almost nowhere to be found. Extremes of temperature make winters and summers difficult to bear with no heating or air conditioning. Migrant laborers who come alone to the city frequently live in crowded, dingy dormitories on construction sites or factory grounds. Under such conditions, new problems in public health have arisen. It is estimated, for example, that migrant workers account for the large majority of new HIV cases in urban areas<sup>xvi</sup>. While on average better than slums in other parts of the developing world, living conditions in migrant communities are far from comfortable, safe or healthy (Case study: Chen Jiajun).

#### *Working conditions are not much better*

While there may be more opportunities to find employment in cities, the quality of jobs available is typically low. Most migrants are uneducated and can only participate in the unskilled labor market. They might sell wares on the street, work on a factory floor, serve in a small restaurant, collect recycling, or work in construction. Whatever their job may be, it is likely to be a strenuous, dangerous, or tedious way to make a living. Migrants work long hours, sometimes at night. Not infrequently they work in unsafe conditions with little safety equipment, and are often underpaid—sometimes not paid at all. Migrants can face diverse forms of harassment and discrimination in the workplace and rarely enjoy legal protection on par with wealthier urban residents. The government and advocacy groups have alleviated some of the troubles associated with migrant working conditions, but many obstacles remain. A positive trend among migrant laborers in recent years has been rising wages, as demand for labor in cities has begun to outpace supply (Case study: Liu Deyou).

#### *Children of migrants*

Among the greatest decisions that millions of China’s migrant families face is whether or not to take their child with them to the city. On the one hand, many parents are naturally disinclined to leave their children behind when they go to work in distant cities. On the other hand, their children can attend free public school in their home

areas but frequently cannot in cities. Residing in the city can be more expensive and may also pose other quality of life issues for a child, as parents work long hours and living conditions are often very low. The difficult choice faced by migrant parents has given rise to so-called “left behind children” and “migrant children.” Approximately 50 million left behind children remain in rural areas while their parents have migrated to cities to work, while an estimated 20 million migrant children have accompanied their parents to the cities (ACWF, 2008).

The educational paths of left behind children and migrant children are different, in large part due to their household registration status. Typically public schools in both rural and urban areas only serve children with the corresponding registration status. Left behind children, who may live with grandparents or other relatives in the countryside, are free to attend the local public school (case study: Chen Huxin). Migrant children in cities, however, are still legally classified as rural, and thus are not always able to enroll in urban public schools. As a consequence, in major metropolitan areas such as Beijing, tens of thousands of children are still unable to attend public schools.

In order to serve the growing numbers of migrant children in cities, extra legal, privately run migrant schools have emerged in migrant communities. Migrant schools are funded through tuition payments. As the number of migrants has risen dramatically since the 1990s, the potential to earn a profit by running informal schools has attracted all kinds of entrepreneurs—many without any background in education. For-profit migrant schools regularly crop up in abandoned buildings, unused factory floors, or other derelict spaces. Today, migrant schools remain notorious for bare bones facilities, fragmented curricula, high student turnover, and incompetent teachers (CCAP, 2009; Han, 2004; Ding, 2004). Moreover, violations of health, fire and other regulations are regular and cause schools to open one year and close the next (Liu, 2002). Due to their poor conditions and for-profit nature, city governments have often shut them down or forced them to move elsewhere. The high demand for educational services among migrant communities, however, has ensured that migrant schools continue to operate.

The continued existence of migrant schools is just one example of the challenges cities face as large numbers of migrants continue to move in from the countryside. Properly incorporating these individuals into the fabric of society is a core challenge for China’s continued development.

### **Dealing with Migration**

Schools and education for migrant children, while extremely important are not the only challenges involved in China’s continued internal migration. A key policy challenge on behalf of city administrators and the national government in China is managing the growing influx of migrants. China’s 12<sup>th</sup> Five Year Plan details a plan to move 20 to 40 million people per year into cities.<sup>xvii</sup> It is estimated that a further 230 million people will enter China’s cities before 2030. Generating job opportunities and extending services while limiting congestion and waste is an enormous challenge that will grow in intensity with each passing year.

There is some reason for optimism, however. To date, urban poverty has remained relatively low in China, which indicates a true success for the country's "migration management" policies. There is evidence of successful integration for migrants as well. Communities of migrants from Zhejiang, a coastal province south of Shanghai, were once among the poorest in China. Today, a generation later, there are many families originally from Zhejiang villages who have found high paying jobs or established thriving business in many of China's cities. They have purchased apartments in modern residential complexes. Their children are in local public schools and well on their way to college. Without a country accent, it is impossible to tell who migrated in and who did not. Clearly, many in Zhejiang province have climbed the social and economic ladder of success, making the tremendous sacrifices in previous decades worthwhile for the current generation.

Migration in China can continue to play a central role in poverty reduction, but only if it occurs productively. Well-planned urbanization can continue to provide opportunity, raise living standards, and increase productivity. Poor planning however, can result in weak and fragmented governance in the areas where migrants accumulate, chronically underfunded public infrastructure and services, and overcrowding of social facilities. Each of these generates waste and serves as a drag on development. China's urbanization will in large part be complete by 2030, so decisions made now will serve as the foundation for the continued transition. China has a strong track record in this area so far, but for better or worse, the consequences of today's decisions vis-à-vis urbanization will manifest for decades to come.

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# **Migration Case Studies**



**Chen Jiajun**

Chen Jiajun, is 32 years and hails from Tianzhen County in Shanxi Province. He is married and has a daughter and a son. When he graduated from junior high school, Jiajun decided to leave his hometown in search of opportunity. He spent the next fifteen years working odd jobs in several cities along China's coast. Primarily he worked in textile mills, but also acquired a commercial driver's license and worked for some time at a large transport company. Today, Jiajun characterizes his experience during these years in this way: "every year outside of my hometown, every year busy, and every year short of money."



In the summer of 2006, with the support of several relatives, Jiajun came to Xiyuan, a community on the outskirts of Beijing. He rented a 50 square meter space in in which to live and began a small scale waste collection enterprise. The space his family lived was in a cramped building located under a bridge. He describes it as very hot during the summer and frigid during the winter, with no drainage, heating or air conditioning facilities.

Running his enterprise required that every morning he and his wife rise early in the morning and visit as many small and large factories as they could in the western stretches of the city. Every day they collected scrap materials, brought them home, and cleaned and repaired what could be salvaged. He and his wife could then sell the

items again for some profit. In a year, Jiajun recalled being able to earn about 20,000 RMB (about \$3000) doing this work.

At this point Jiajun's daughter and son were 12 and 8, respectively, though only his son was with him and his wife in Beijing. In earlier years, his daughter also accompanied them, but after she finished primary school he sent her back to Shanxi to live with his parents and go to middle school there. This is because, like Jiajun, his daughter was registered as a Shanxi resident, and therefore could only take the high school entrance exam in her home county. Jiajun's son attended primary school at a for-profit migrant school not far from the family home under the bridge in Beijing.

Jiajun's annual earnings in Beijing were barely enough to cover his family's expenses. According to his calculations, every year he worked in Beijing he had to send 3-4 thousand RMB back to Shanxi to support his parents and his daughter's schooling. Another 6 thousand RMB went to pay for food and his son's tuition at the migrant school. Finally about 10 thousand RMB was needed to pay their rent. Any unexpected costs, including for medical care, had to be covered by he or his wife taking one or two extra odd jobs.

After the end of 2008, the impact of global economic crisis began to affect Jiajun's enterprise. Factories in Beijing were manufacturing less, and therefore producing less waste for Jiajun to salvage. He had no savings to make up for the losses he was incurring. He was barely able to earn enough for rent alone. As a consequence of these hard times, he and his wife returned to his home in Shanxi in 2009.

Since returning home, Jiajun has farmed a small plot of land that his family still owns. In addition to making what they can on the farm, Jiajun and his wife work odd jobs to make ends meet. Life remains difficult, and both are ever on the lookout for new opportunities.



**Liu Deyou**

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Liu Deyou is 38 years old and was born in a rural county in Hubei Province. He left his village in 1987, at the age of 15, to look for work. He moved to a prosperous coastal province and began working in a faucet factory. He worked his way up to a managerial position in the factory, earning 4000 RMB a month, or a little over \$600.



Ultimately the faucet factory closed down and Deyou moved to Dongguan, a manufacturing hub in southern China. With his savings and some loans from family he opened an internet bar. He purchased twenty computers and other necessary hardware from local suppliers, but due to his inexperience with them later learned he had been overcharged by twenty percent.

Nevertheless his internet bar operated profitably for some time. He had regular customers, and running the place was simple enough. He was able to earn a decent salary of 6000 RMB a month, or almost \$930.

In 2008, however, circumstances took a turn for the worse. Deyou did not hold a residence permit for Dongguan city, and was therefore unable to own a business legally. Local officials caught wind of his operation, fined him several times and then confiscated his computers and equipment. They told him he needed to acquire business license that cost three million RMB. According to Deyou, internet bar licenses were reserved for well connected entrepreneurs because internet bars were profitable and did not require much work to maintain. Because he was an outsider,

Deyou believed he did not have the required connections to get official approval for his operation. He never saw his computers again.

After his troubles in Dongguan, Deyou moved back to his home town in Hubei province. His family still owned some land there and he decided to grow canola plants and sell the vegetable oil they produced. Tending the land is hard work, and Deyou only earns about 2000 RMB per month, or about \$300. He says he has no plans to go back to the city and only hopes he can scrape enough money to send his daughters to college if they manage to get in.



**Chen Huxin and his Grandparents**

Huxin is eight years old and lives in a poor rural county called Ningshan that is nestled in the lush mountains of southern Shaanxi Province. Huxin lives with his grandparents in a small farm not far from the county seat. His grandparents explain that their son, Huxin's father, had a mental illness and was unable to attend school. When he turned 18, Huxin's father married a local woman. After Huxin was born the two of them both moved to a neighboring province to find work, leaving Huxin behind to be cared for by his grandparents. In this way, Huxin became one of China's "left behind" children. Not long after his parents moved away, Huxin's mother left his father. Huxin has no memory of her. His father still works as a construction laborer and earns enough money to live on and send some back to Huxin and his grandparents. Huxin sees his father once a year during Spring Festival, China's biggest holiday.



Huxin's village has many households which, like his, are missing a generation. The elderly care for children like Huxin while their parents are away working to earn an income to support themselves and the extended family back home. Huxin admits that his grades are only mediocre, however, because he does not understand much of the material that is covered in class. He lives in the school's dormitory during the week and returns home during the weekend to help his grandparents with household

chores, such as feeding their goats and chickens. He enjoys staying at school more than at home because his friends are at school. He says he hopes someday to become an archaeologist, and cites the need to do better in school so that he can continue his studies through middle school and beyond.

Studies have shown that left behind children like Huxin are among the poorest performing cohorts of students in all of China's education system. While Huxin's grandparents say they encourage their grandson and are proud of him, they admit they do not often help him directly with his studies because they do not fully comprehend the material he is tasked with learning. Circumstances such as these pose a great challenge to many left behind children as they attempt to progress through the school system.



**Zhang Heng**

Mrs. Zhang is a 36-year-old migrant who has been living in Beijing since 1998. She and her husband manage a small shop repairing bicycles to earn money for their family. She has two children, a 9-year-old daughter and a 6-year-old son. Both children attend a private primary school for migrants near their home.



Mrs. Zhang is originally from a small village in Henan province. Her parents and some extended family still live in her village, but most of working age have migrated to cities. She has one younger brother, who now works odd jobs in Shanghai. Those members of her family who remained in the village still do what her family has been doing for generations: farming. According to Mrs. Zhang, due to the rapid development of the county town near her village, much good farmland has been converted into commercial, residential, and industrial-use land. This change, along with the limited potential for income for those who farm, has pushed many villagers like her to move elsewhere to earn a livelihood.

At age 16 Mrs. Zhang migrated alone to Beijing to find a job. She met and married her husband not long after arriving. They started repairing bicycles to earn money, and eventually saved enough to open a small curbside bicycle repair stand.

For Mrs. Zhang, life in Beijing is much harder than she imagined it would be. Nevertheless, she is optimistic and she and her husband work hard every day in order to support their son and daughter. Mrs. Zhang cares deeply about her children's education and gives them as much encouragement and assistance as she is able to. She

knows that because of the difficult educational circumstances for migrant children it may be difficult for her children to attend high school and college. However, Mrs. Zhang understands the importance of quality education and believes that it could be the key to her children's success.

Mrs. Zhang also worries about her elderly parents. She wishes she could make regular trips home to visit and assist them, but it is prohibitively expensive for her to return home with any regularity. She is usually able to return home once a year.

Mrs. Zhang's life is one of a typical migrant. She is from a poor region that has few opportunities outside of the farming sector. She did not receive a proper education because her family could not afford to send her to school. In order to help her family, she left the comfort of home to work in the big city. While her story sheds light on the sacrifice that millions of Chinese have undertaken in migrating to distant urban centers, it also reveals the confidence and hope for a better future that permeates migrant life.

# Migration Photos



**A dusty street corner in a migrant neighborhood in northwest Beijing.**



**A ramshackle migrant community outside Guangzhou, one of southern China's largest cities.**



**Ever wonder where Santa dolls come from? A migrant worker in a factory assembles one for sale in a Chinese factory.**



**A typically dilapidated migrant community.**



**Migrant workers entering the city from the countryside while carrying their belongings.**



**Millions of migrants move to cities to work in factories like this one.**



**Migrant children play in the streets of their community.**



**Migrant workers also often work in China's booming construction sector.**



**Small shops and grubby buildings are the norm in this migrant community.**



**The children of migrants often attend poor quality, for profit migrant schools like this one.**



**Trash and filth of a migrant community in the foreground; in the background the construction of high rises indicates the ever expanding urban center that pushes migrants farther and farther to the margins.**

# **Cities Backgrounder**

By

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And

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## Cities Backgrounder

These days the name “China” no longer evokes images of rural villagers toiling in rice paddies. Instead, imposing skylines, steel and glass architectural wonders, and a cityscape akin to New York or Tokyo are likely to come to mind. More and more people in China are making their homes and working in cities. To understand China, then, we need to understand its cities.

In this lesson, we will explore the important role that cities play in economic development. We will look at and the some of the powerful forces that draw people in developing countries to urban areas. Studying China’s cities offers key insights into how these forces play out to propel—or possibly obstruct—a country’s continued economic development. We also will explore how the average Chinese city dweller is coping and thriving in this new cityscape.

Core Questions:

- What makes cities so important for economic development?
- Why is China’s growing wealth concentrated in cities?
- What is unique about urbanization in China?
- How do people’s daily lives in cities differ from their counterparts that are still in rural areas or in migrant communities?
- What are the challenges that cities face in China?

### Urbanization in the world is increasing

In the past several decades, the world has witnessed a remarkable and rapid increase in its urban population. In fact, for the first time in history more than half of the global population lives in cities. There are about 6.7 billion people in the world, and approximately 3.4 billion of them live in urban areas. Seventy percent of global GDP is generated in cities (world bank 1). If current trends hold, it is predicted that by 2025, the world’s urban population will increase by about 2 billion people.

Over 90 percent of urban growth occurs in the developing world, where an estimated 70 million new residents move into to urban areas each year (world bank 1). During the next two decades, the urban population of the world’s two poorest regions— South Asia and Sub-Saharan Africa—is expected to double. In 2025 it is estimated that four fifths of the world’s urban population will be in developing countries like China, India, and South Africa. The remaining fifth will be in developed countries like the United States and Japan (world bank 1).

*Why are all these people moving to cities?*

What factors make cities so attractive? Cities are dense agglomerations of people. Being close to one another increases efficiency (world bank 1). Efficiency reduces cost. That cost can be measured in a number of ways: common metrics might include money, time or effort. Reducing costs is attractive to citizens, businesses, and governments.

Imagine, for example, that you own a television factory in a growing city. You

need labor and parts to make your products, and you need markets in which to sell them. One reason you chose to open your factory in the city was because it is close to the three companies that supply television parts to you. With your suppliers so close, it is quicker and less expensive to move the parts into your factory.

A similar economy is gained when you sell your completed televisions. Most of the people who buy your product live in the city. They typically have decent income so they can afford to buy your products. Because they live so close by, it is easy and cheap for you to transport your televisions into city shops where your target market can conveniently come and buy one. If your operation grows big enough, you might also want to sell to customers farther away or in another country. Cities typically have good roads to other cities. They might also have a port, allowing you to ship your products to markets overseas. Only if you keep your operations in the city can you take advantage of these efficient means of transport to sell to distant markets.

The labor required to operate your factory is also easy to find in the city. You do not need to look for labor because labor comes looking for you. People come from rural areas all over the country to your city. They are all looking for a job that pays more than they receive at home on the farm. Among the large number of potential workers, you can pick and choose the ones that best fit your factory needs. This means it is easier for you to hire hard workers for your factory floor, and effective managers to supervise them. It also means you are more likely to find innovative researchers that can help create better televisions more efficiently. Having access to a large labor market like this saves you time and money and increases labor productivity.

Chances are that other television companies will come to the city to enjoy the same benefits that you do. This increases competition and forces you to deliver a quality product at a good price – or else you’ll go out of business. At first that may seem like bad news, but maintaining high standards of quality and value in your products will end up attracting more people to cities because those people will know they can find good things to buy in the city. That means more potential customers for you.

Although this example is simplified, it reveals some of the important dynamics that attract people and businesses to cities. Proximity spurs efficiency. Efficiency reduces cost. This dynamic works to increase productivity and opportunities for higher income. It facilitates competition, induces innovation, and streamlines the linkages between goods and services on one hand and the people that consume them on the other. The combination of all these “efficiency dividends” for workers, consumers, and business, typically allows the standard of living among urban dwellers to rise.

The economies of urbanization can also facilitate the task of governance. With more people coming to the city, it is easier to extend expensive services to them – after all, people in a city are packed into relatively close area, not spread across miles of sprawling hinterland. Expanded access to government services like healthcare and education further drives up living standards among urban dwellers. The accumulation of more people in the city can also mean more economic activity and more tax revenue. Cities also harbor competition and spur innovation. The more ideas a country

can take advantage of, the stronger and more competitive that country's economy will be. Both domestically and in the international arena, economic strength helps responsible governments protect the interests of their people.

There are many examples in the US where urbanization has occurred successfully, allowing industries to explode with output, productivity and innovation. Think of Silicon Valley and the high tech companies clustered around San Francisco, the entertainment industry in Los Angeles, or the aerospace industry in Houston. These industries have been made possible by the strong economies of agglomeration in cities.

The rise of cities is not without pitfalls, however. Poor planning and administrative decision-making can cause many long term problems in cities. Having many people living together requires many public services and utilities, such as electricity and water. It requires public safety mechanisms and emergency preparedness. Residents need to be able to move conveniently throughout the city. Bad choices by urban governments can lead to excessive congestion and pollution. Public health and safety can be put at risk. These factors can slow or even stop growth in a city. Managing cities is therefore a complex challenge with high stakes. Mistakes made now can cause headaches for generations of residents and administrators.

### **Cities in China**

Since 1978, China's cities have grown immensely. As seen in the previous unit on migration, a key driver of this growth has been industrialization. On account of China's vast and relatively low income population, labor, at least in the past, has been relatively inexpensive. Low wages, of course, mean low production costs. Low production costs, among other things, can attract all kinds of industries interested in making and selling consumer goods, from basket balls and running shoes to mobile phones, televisions, and toaster ovens. In part because of this, companies from around the world invest in China's urban areas to produce goods and services for trade and export. That is why the "made in China" label is ubiquitous in department stores across the world. China's own industrialists have also invested in their economy. Today, China's factories supply almost all of its nation's processed foods, clothing, consumer goods, automobiles and buses and trucks as well as entertainment, education and health.

On account of industrialization and migration, China is urbanizing at a scale and pace that is unprecedented in human history (Case study: Liu Hongfei). What is more, the country is only in the middle of the urbanization process. To apprehend the scale of China's urban expansion, it is worthwhile to dwell briefly on some relevant projections.

- In 1950 China had 69 cities. Today the country has 670 (World Bank 3).
- China has 89 cities currently with populations that exceed one million people (World Bank 3). The United States currently has 37 such cities. By 2025, it is predicted that China will have 221 cities with more than one million people (mgi)
- By 2025 (mgi) it is forecast that an additional 350 million people will move to

China's cities.

- Today, China's cities account for about 75 percent of China's GDP. They are on track to generate 95 percent by 2025. (mgi)
- Since 1990, two Chinese "mega cities" with populations more than ten million have emerged. Analysts expect six more such cities to emerge in the next 20 years, two of which will have populations larger than 20 million people (mgi). For comparison, the population of America's largest city, New York, is today now just approaching nine million people.
- If current trends continue, one billion people will live in China's cities by 2030. That is more than three times the entire US population (mgi). The government is committed to creating an environment which will even accelerate the current pace of urbanization
- China will build nearly 40 billion square meters of floor space between 2010 and 2025 (mgi). This expansion could require the construction of between 20,000 to 50,000 new sky scrapers—equivalent to as much as ten New York Cities. This expansion means that China is consuming almost half of the world's cement production and even more of its steel and glass production.

By certain measures, the process of urbanization in China has been quite successful. The urban middle class is growing and has achieved a comfortable standard of living (case study: Zhang Xue). Because the economy has grown so quickly, the pace of job creation has more or less kept up with the pace of urban expansion, meaning that the vast majority of urban Chinese have work and at least a modest income.

There are exceptions. As we have seen, low-skill migrants that accumulate in China's cities do not typically live comfortable lives. We examined the trials and tribulations of the process of moving from countryside to city in the previous unit. But if you compare the communities of migrants in China—even some of the ones with the poorest infrastructure, housing and highest concentration of people—with the slums that proliferate in the cities of many other developing countries, migrant communities tend to be better off.

### **What is life like for most urban dwellers in China today?**

China's cities resemble American cities in many important respects. An American visitor would recognize many features of a major Chinese city: wide boulevards, freeways, mass transit systems, skyscrapers, parks, apartments, shopping malls, museums, theme parks, cultural venues—all of those institutions that Americans have come to expect in a modern, urban setting.

There are some obvious differences, however. The densities of China's cities are much higher than those in the US. On a day-to-day basis the crowds in a downtown shopping street in many of China's cities will resemble a Christmas-like crowd during the holidays in Manhattan. The automobile traffic is also more intense, more crowded, and less orderly. There are few beggars in China's cities, and certainly

less homeless than in the US, but, there are a lot more people doing business on the street—fruit stands, noodle stands, and individuals hawking everything from pirated DVDs to soft drinks. Indeed, it can be interesting to walk China's streets day or night. There are always a lot of people and a lot going on. The streets often seem to be bursting with activity.

On a more personal level, urban life in China is similar in many defining respects to American life. Adults in China spend much of the week working and commuting. Increasingly, city dwellers in China own their own car. They might often be anxious about financial obligations like monthly bills. A large fraction of family income in China is often put aside for children's education. A high school and college education strains the family budget in China in the same way that it does for parents in the US with children in college. Why do Chinese families work so hard and put away so much to get their children into school? Mostly it is because in their daily lives, it is likely that Chinese people hope for things like security, prosperity, and contentment just as most Americans do.

Inevitably there are differences in day-to-day life as well. Because there is limited social security in China, most families with middle class income save money—a high share of their income—to care for their elderly parents, or to store in reserve for potential medical or other emergency costs. Families in China's cities put away up to 40% of their income. Compare that to the US, where many families have high credit card and mortgage debt and where average net saving rates are around 0. Retirement and convalescent homes are not as common in China; grandparents commonly live with their grown children and help them care for grandchildren, frequently crowding into small apartments (Case study: Liu Tonglong).

### **What challenges lie ahead?**

Despite the many successes of China's cities—they boast high productivity, prosperity, safety, low poverty, low unemployment—a great diversity of vexing challenges lies ahead.

As we saw in the migration unit, as more and more people migrate to cities, expanding services like education, healthcare, and roads is both very important and very expensive. Preparing for the influx of new residents is vital, however, because mistakes now will be exceedingly costly to fix later and in the interim productivity will be lost. Balancing costs and planning effectively will require an enormous amount of discipline and administrative skill on behalf of city governments and beyond.

As cities continue to expand, demand for energy and other resources will grow sharply. Most casual visitors to China's major cities notice dense smog and other evidence of heavy pollution. Increased energy consumption can further drive up pollution unless sources of clean energy are exploited on a much larger scale. Clean water is another resource whose scarcity could limit the growth of cities.

China's urban areas are also increasingly congested. More people and more wealth mean more cars and more commuters. China's urban roadways and transit systems are often choked with people. Congestion is by nature inefficient, and unless

smart plans are enacted to move people smoothly and quickly – by mass transit, more roads, or other measures – productivity will not reach potential.

Congestion, sprawl, and pollution can reduce the appeal of a city. Until recently China's economy has been based largely on exporting products to other countries. Economic activity has begun to turn inward, however, as more Chinese people have enough wealth to spend on goods for themselves. Consumption among China's rapidly expanding middle class already accounts for at least a quarter of China's GDP growth (mgi). As this trend continues, environmental quality, public spaces, and leisure and entertainment opportunities will become increasingly important in attracting investment—after all, people who can afford not to live in a polluted, inconvenient city will move elsewhere. If China's cities remain polluted and congested it will be increasingly difficult to sustain growth (world bank 3).

Transforming the urban labor market is another key challenge. Although migrant labor is plentiful and cheap, most migrants have very few skills. As you will see in the next unit, knowledge and skill will become increasingly important in China's workforce. As China tries to transform from a “made in China” economic model to an “invented in China” model, the demand for educated workers will grow. Today's migrant workers, no matter how numerous, cannot fill skilled jobs without higher levels of education. Of the approximately 350 million people that China will add to its urban population by 2025, more than 240 million will be migrants. If the migrants are not properly educated, they will not find jobs. If they do not find jobs they will serve as a serious drag on urban growth. Properly educating migrants is a challenge that is key to continued growth for China's cities.

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# **Cities Case Studies**



**Zhang Xue**

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Zhang Xue is 22 years old and from Xiamen, a large city of in the coastal province of Fujian. Fujian is a prosperous province whose cities have benefitted greatly from special government policies that allowed them to trade more freely with other countries beginning in the early 1980s. Zhang Xue's father owns a profitable furniture manufacturing company. He owns a factory in Guangdong, the neighboring province. The factory employs two hundred workers, the vast majority of whom are migrants from China's rural and interior areas.



Zhang Xue had a comfortable upbringing. Her family lives in a two story condominium in Xiamen, owns two cars and enjoys many comforts of modern urban life. Growing up Zhang Xue went to some of the most respected grade schools in the city—excellent learning institutions with modern facilities and highly trained teaching staff. After graduating from high school she attended Zhongshan University, a prestigious institution in southern China, where she majored in English.

Last year Zhang Xue graduated from college and spent several months travelling abroad with a friend of hers. She visited France, Great Britain, and Egypt. She has also been to the United States once before when she accompanied her father to attend a furniture convention in Las Vegas.

When asked what she thinks of the United States, Zhang Xue says she has a generally favorable impression. She finds it fascinating that American states have their own laws that are distinct from one another. While she is impressed with America's wealth she also points out that there are many homeless people in the US, which is something she does not often see in Chinese cities. She is also under the impression that Americans are freer to choose their path in life and as a consequence not as close to their families as she believes Chinese people are. She loves American pop music, and looks forward to when her favorite bands come to tour in China.

Having finished college, Zhang Xue recently moved to Shanghai where she has started work at an American public relations firm that just set up their first office in China. She does not know yet whether she likes the work but feels optimistic about the future. In her free time, she practices her cooking skills and indulges her childhood interest in Japanese comic books.

Zhang Xue and her family are among the growing ranks of China's affluent. Her parents endured a great number of hardships in past decades to stake out a successful enterprise and earn some money. As a consequence of their hard work and perseverance, Zhang Xue will be the first to admit that she has lived a privileged life.

While young people like Zhang Xue are still a small minority in Chinese society, their numbers will surely grow as China continues to develop.



**Hui Tonglong**

Hui Tonglong lives in Shanghai and is a senior in high school. He was born in Suzhou, a prosperous city not far from Shanghai. His parents moved to Shanghai when he was eight years old because his father transferred jobs. Tonglong notes that Shanghai is a much more cosmopolitan city than he remembers Suzhou to be, as there are people from all over China and the world living and working there. He imagines, probably accurately, that walking down the street in the central business district of Shanghai is not too different from strolling in New York or London.



Tonglong lives in a middle class apartment block in the western area of the city. His father works in a city administrative office and his mother is a teacher. The family lives in a modest but comfortable apartment with two bedrooms, a living room, bathroom and kitchen. Like many urban people of his generation, Tonglong is an only child.

Shanghai, with a population of twenty-two million, is so vast that even though Tonglong's home and his high school are both located in the city proper, he still boards at his school because commuting would take several hours every day. He takes public busses to get home on the weekend. Along his way home he passes many residential districts, shops, and people. He says, "in Shanghai you can never find a place with no people." Nevertheless, he, like many residents of China's big cities, has adapted to crowded environments. The hustle and bustle that is common when

commuting, taking a stroll, or eating in a local restaurant is just part of the fabric of life here.

Tonglong spends most of his time studying. He is hoping to perform well on the university entrance examination so that he can get into a reputable university. When asked what he does in his free time, he points out, “I have no free time—I always study, even on weekends.” With a little prodding, he admits to watching movies and taking walks along the city’s shopping boulevards occasionally with friends.

While his parents ear a comfortable income, they are careful savers. They seem to never spend extravagantly, and Tonglong cannot remember the last time anyone in his family travelled for vacation. Nevertheless he does not believe they are struggling financially. When asked about where he thinks his family is in the income spectrum in Shanghai, he says, “in the middle.”

Tonglong’s most immediate concern is getting into college. He has studied for years to pass the university entrance exam. He does not have extravagant dreams for the future, only hopes to find a decent job, start a family someday, and live comfortably in the city. Millions more in China’s cities no doubt share these hopes.



**Liu Hongfei**

Liu Hongfei is 18 years old, and grew up in a middle-sized city in Sichuan Province called Guang'an. She was born in a rural village in Sichuan, but like so many people in the 1980s, her family moved from their ancestral home to a nearby city to take advantage of the opportunities presented by economic reforms. Her family arrived in Guang'an when Hongfei was four. Guang'an was relatively poor at the time, boasting only some ramshackle buildings and a few outdoor markets. It was growing, though, and Hongfei's parents established a small convenience store there that soon began to thrive.



Guan'an is located in eastern Sichuan, and is quite close to the much larger city of Chongqing in the neighboring province. Chongqing is a major urban center in central China. Its location along the upper stretches of the Yangtze River, one of China's primary waterways, has meant that the Chongqing has become of a hub for commerce and investment in China's interior. The city has grown very quickly over the past thirty years. Over the course of its development, a major highway was built westward from Chongqing directly through Guang'an. The advent of the highway transformed Guang'an into a satellite city of Chongqing. New enterprises and businesses blossomed practically overnight. Gone are the days of dusty streets and run-down brick buildings. Guang'an now has wide boulevards and gleaming shopping centers.

Hongfei says her parents can hardly believe they live in the same town anymore. Their convenience store thrived on account of the development and eventually moved into a larger space and began selling more varieties of items. While by no means rich, Hongfei's parents continue to make a decent living operating the store.

Perhaps most importantly, their successful business allowed them to fund Hongfei's education. Hongfei was a good student to begin with, and her test scores secured her a place in the best high school in Guang'an. She excelled there, and is now finishing her first year at Renmin University in Beijing, one of the best universities in China.

Hongfei misses the days in middle school when she would help her parents tend the cash register and stock items on the shelves. Her life now seems complicated and busy by comparison. Nevertheless she is happy for the security, stability and opportunity that her parents' work has brought into her life.

# Cities Photos



**Busy street corners and heavy traffic are common in Chinese cities.**



**China has dozens of so-called middle tier cities like this one that boast over one million people apiece.**



**Chinese cities have a higher population density on average than most American cities.**



**China's urbanites often live in tall housing blocks like this one.**



**Another typical residential high rise in a large Chinese city.**



**You can find many familiar brands on display in China's urban shopping areas.**

# **Innovation and University Backgrounder**

By

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## **Innovation and University Backgrounder**

Many consider China to have become a world economic superpower. Today, China's GDP—or Gross Domestic Product, a measure of an economy's size that is useful for comparing across countries—is almost nine trillion dollars. According to this measure, China has the second largest economy in the world. It is about two-thirds of the size of the economy of the United States, which has a GDP of about 14 trillion dollars. Although China's per capita GDP of \$6,700 remains far behind the developed world (including the US, which has a per capita GDP of about \$47,000), its economy continues to grow at great speed. Over the last 30 years, China's GDP has grown by an average of just over 10% a year (while the economy of the US has grown at about 3% per year since 1990).

In this unit we will examine four things: First, we will try to understand, in general, how countries grow. We are interested in identifying the major sources of economic growth for economies in the world today. Most importantly, we seek to reveal the role that innovation, one of the major sources of economic growth, plays in long-term economic growth. Given the importance of innovation, the second goal of this section is to identify the factors that foster innovation-based growth. We will show that a sound higher education system, investment in research and development (R&D), a vibrant venture capital (VC) sector and an environment that protects intellectual property rights (IPR) are all keys to allowing innovation-based growth to flourish. Third, we will examine how China has grown in the past, and illustrate how past sources of growth are not sustainable. Finally, we will show why innovation is essential for China's future growth, and assess the extent to which China is prepared to innovate. We will pay special attention to whether China's university system is equipped to generate new ideas and power an innovative society. For the purposes of this unit, we will define universities as all post-high school, three- and four-year institutions of higher education that offer advanced technical and professional, undergraduate and graduate level degrees.

Some core questions for this unit include:

- How do economies grow?
- What is the role of innovation in economic growth?
- How is innovation created?
- Why are the forces that generated past growth in China?
- Why is innovation important for China's future growth?
- Are universities in China fostering innovation?
- On the whole, is China ready to innovate?

### **I. How do Economies Grow?**

Economists have debated the question of how economies grow for a long time. Almost certainly, they will continue to debate it long into the future.

However, while some uncertainties remain, there is consensus on certain core issues. Most economists would agree that three factors play an important role in economic growth: the mobilization of inputs (labor and capital); trade (both domestic and international); and the creation of productivity-enhancing innovation. The

capacity of each of these “ingredients” to grow an economy is different. In this section we briefly examine how each of these ingredients contributes to economic growth.

### *Inputs—Labor and Capital*

Inputs refer to certain factors of production that contribute to economic growth. Generally speaking, inputs can be divided into two types, labor and capital. Labor refers to the work that an individual can put towards producing something. A farmer, for example, uses labor to grow wheat. If he or she “adds labor” into the production process by working an extra hour (or more) every day, he or she is able to produce more wheat. In a growing economy labor is required to produce all things. Under the right circumstances, the more people are able to contribute their labor, the more output a country can produce. This increase in production contributes to economic growth. Many countries that are just beginning on the path to economic development have relatively young populations and high fertility rates. Successful development can often occur from the strategic mobilization of a young, hardworking labor force. Investments in education and health can also lead to higher quality labor by creating a more productive work force.

Capital refers to a non-labor input into production that increases output. In the case of our farmer, another way he or she can increase wheat production is by adding fertilizer, or by using machines to facilitate work in the fields. Both of these new inputs are forms of capital that can help the farmer produce more wheat. In most cases capital is a physical asset that is added to a production process in order to generate more output in the form of goods or services. During the development process, capital can come from many sources. It can come from other countries that invest in the developing country (Foreign Direct Investment, or FDI), the government investing tax revenues, the utilization of savings from households within the country, or from domestic firms that reinvest their profits.

While both labor and capital are vital components of economic growth, the capacity for these inputs to grow an economy is limited over the long run for two reasons. First, in the case of labor, although family sizes are large with many children in poorer countries, people typically decide that they do not want to have many children when countries start to grow and incomes rise. When fertility falls, as it does in almost every economy as development takes off, the supply of labor will slow down (or cease growing altogether) at some point in the future—say one, two or three decades into the development process. In fact, after five or six decades of sustained growth, the size of the labor force often starts to fall. This trend is obvious in developed countries like Japan and many European countries where couples have few babies and migration is not common.

The second reason why growth by inputs is limited over the long term is because inputs are subject to what is called “diminishing marginal returns.” Diminishing returns refers to the idea that as you add more and more inputs, the increase in value you get for each added increment of the input diminishes over time. In other words, if a company did not have any computers, its efficiency and overall output would grow a lot if it acquired one computer. The computer would likely be used for tasks that can provide very high returns. After the same company had been

outfitted with 1000 computers, however, the increase in output from going from 1000 to 1001 computers is likely to be lower than from going from 0 to 1 computer. Countries face the same constraints with labor and capital in growing their economies that firms do with adding computers. The first expressway in a country can make life much better and can lead to large gains in output. After a certain point, however, each new highway, factory, or other capital investment that a country adds builds will contribute increasingly less to growth.

### *Trade*

A developing economy needs all kinds of resources and its consumers demand many different commodities and products. Countries, however, have mixed access to resources: some have an abundance of one resource while little of another. Some countries are particularly good at producing certain commodities while others are good at producing others.

Trade allows countries to profit from resources they have in abundance or products they can produce easily. Trade also facilitates the acquisition of resources from elsewhere in the world that may be in short supply locally. Imagine two countries. One has vast forests and the other has large deposits of iron ore for making steel. In order to thrive economically, both countries need things that are made out of wood and things that are made out of steel. If the two countries agree to trade with each other, the one that has a lot of wood can “specialize” in the production of building materials and sell them to the country that has few or no timber resources. Similarly, the country with a lot of minerals to make steel can specialize in making steel items, like I-beams and sheet metal, and sell them to the country that has no steel resources. In both cases, the countries can build factories and create jobs for their people by selling their “specialty” products to the other country.

Growth can occur in countries that did not trade in the past but decide to open up their economies to trade with other countries. In the early years of development, or before growth gets started, many countries do not trade. Instead they try to build everything they need by themselves. This means that the country’s resources become tied up in inefficient, often low quality, production rather than focused on specific industries for which the country has a comparative advantage. Once countries open themselves up to trade, however, they can begin to specialize. When they stop producing all goods and begin to specialize in items that they have an advantage in producing, growth can increase. This trading phenomenon serves as a source of economic growth for trading countries and higher standards of living for their citizens.

But again, as with inputs, the capacity for trade to increase growth in an economy is finite. Once a country fully opens its economy to trade with other countries, the benefits of that trade, while still there, do not continue to increase. The gains, while substantial in the past, only remain constant. So, while trade can lead to growth when a country that does not trade decides to change course and begin trading, once the country builds its trade volume, the growth from trade will slow and eventually stop. For this reason, experts usually consider trade to be a “one time” approach for growing an economy.

## *Innovation*

So if inputs and trade can only help an economy grow a certain amount, how can an economy grow sustainably over a long period of time? The answer to this question lies with innovation. Innovation refers to the creation of a new good, service, or method that improves productivity. Increased productivity refers to the conditions whereby an economy produces more while maintaining a steady level of inputs.

For an example of how innovation can contribute to growth, let's return to our farmer. Innovation spurs new technologies that can help the farmer generate more output on the same farm with the same amount of labor. The invention of the mechanical harvester (such as the cotton gin by Eli Whitney or the wheat reaper by Cyrus McCormick), for example, represented an innovation that allowed farmers to produce an equal amount of output per acre with substantially less labor. With the advent of the harvester, the farmer can harvest much more quickly and with less effort than he or she did when harvesting by hand. This change can be considered an innovation-based rise in productivity. Other innovations for the farm might include the invention of new disease-resistant strains of seeds, or advanced chemical fertilizers that help grow more and higher quality wheat. Another example: mobile phones today use the same amount of plastic, silicon and circuitry as they did ten years ago—maybe even less—but think about how much more today's mobile phones can do! Those advances in productivity occur on account of innovation. Highly complex industries such as those centered on renewable energy and information technology depend on constant innovation that makes products and processes ever more productive.

Innovation-based growth has another very important characteristic: it is sustainable over a long period of time. At least over the past 100 years, the world has not run into any hard “limits” on the growth potential of innovation. Since World War Two, the US economy has grown about three percent per year. Almost all of this growth has come from increased productivity derived from innovation. And, hopefully, this growth is not over. The theory is that there are always new and improved services, tools, and methods of production to be discovered and capitalized upon.

## *Growth in developing economies versus growth in developed economies*

The primary drivers of growth in developing economies, like in India or South Africa, are different from those in developed economies, like Great Britain or Japan. Developing countries usually grow by increasing inputs and expanding trade. In these countries there is a lot of potential for growth in these areas because, for example, there are many people working on farms, families have a lot of children, levels of education are low, there are very low levels of initial investments in capital, or there is not very much trade. When education levels of a population are low, a person can produce a lot more output by adding a little bit of schooling. Because there are not many factories or other forms of capital, there is plenty of “room” to build and, in so doing, contribute to growth in a fairly rapid way. What is more, many developing countries do not trade fully with other countries. Establishing new trade agreements and opening up the economy can present another opportunity for growth. It is

important to remember, though, as we saw earlier in the unit, that the potential for growth by either inputs or trade is limited in the longer run.

Developed economies, by contrast, do not grow primarily through the mobilization of inputs or by generating new trade relations. Developed countries, such as Canada, Italy and France, may have grown like this in the past, but, in most cases, these countries have nearly exhausted those avenues of growth. Instead, developed countries mostly grow by innovating and increasing productivity. Think about it: the US does not build a lot of factories anymore. In fact, it shuts down more factories than it builds. It also is not adding much labor either. The population of the US is growing quite slowly. There is some migration from outside of the US that is adding to the population, but the rate of population growth is only a fraction of that of most developing countries.

So how does the US grow? Through innovation. The US creates new things and new processes that increase productivity. Building a new factory in the US will not generate a lot of sustainable growth. However, inventing new machines—such as computers, robotics, or the internet—can. Consider this: the US has not added a lot of new computers in the past ten years. That is to say, most of the places that have computers today—schools, homes, and businesses, for example—had computers ten years ago, too. The difference is that today’s computers are much more powerful: they can do more tasks, complete tasks faster and they often perform at a higher level of quality. Telecommunications, automobiles, renewable energy, and many other industries in the US thrive on account of new and more productive processes. That is how the US and other modern economies maintain growth—by innovating and creating new ways to be productive and efficient.

## **II. What does it take to innovate?**

So how can an economy become innovative? Generally speaking, scholars have identified four primary components of a well-functioning innovation system like that of the United States or Western Europe: a strong system of universities, significant funding of research and development (R&D), an effective venture capital (VC) system, and legal protections and regulatory certainty for innovators.

Innovation in the 21<sup>st</sup> century requires highly trained individuals who understand the complexities of specialized sciences that underpin many of today’s most important innovations. Consistent innovation is nearly impossible without a high quality system of higher education. Universities are hotbeds of innovation; they are the places where new ideas are born, new innovators are reared, and past orthodoxies can be abandoned. Without a robust system of universities to provide a constant supply of graduates, ideas, and technical research, economies cannot remain innovative over time.

Another area important for innovation is R&D. Much research and development support comes from the government, which provides funding for universities to conduct basic research. The US government spends billions of dollars every year helping to fund universities and their research. The fruits of this research often end up serving as the building blocks of future commercial innovations. Many corporations also support their own R&D departments that refine the findings of basic

research and incorporate them into products that they can sell. These practices ensure that resources are available to move a steady stream of new ideas from the “drawing board”—that is, from the classrooms and laboratories of universities and/or the board rooms of corporation—into society in ways that can generate productivity.

Additionally, well-functioning innovation systems need to have a robust venture capital sector. Venture capital companies are constantly on the lookout for small firms with new innovations that do not have the resources—either capital or management—to take their innovations from “the garage” to the market. Venture capital firms invest in these start-ups by providing the resources and guidance they need to succeed in exchange for a share of their future profits.

Finally, once the people and resources are in place, countries that pursue innovation-based growth need to have a legal framework that reduces risk for innovators and further incentivizes people to innovate. Intellectual property right protections, like patents and branding, and a transparent regulatory system are essential in ensuring that successful innovators can profit from their work if they are able to create something of value. This assurance gives potential innovators (and their venture capital partners) the security and incentives they need to take on the risk and invest the time and effort it takes to innovate.

### **III. Economic Growth in China**

We know that China’s economy has grown by leaps and bounds in the past 30 years. How has China achieved its remarkable economic growth? In this section we will show how inputs and trade—not innovation (at least until today)—have been the engines of China’s economic growth and its remarkable rise over the past few decades.

#### *The planned period, 1949-1978*

From the founding of People’s Republic of China in 1949 until the time that Mao Zedong—China’s former leader—died in 1976, China attempted to operate under a “planned” economy. Under this model, the government owned all property and directly managed most aspects of the economy. This system was generally inefficient and contributed to a long list of calamities and human-made disasters. During the 30 years that this system was in place, China’s economy barely grew at all. The basis of the meager growth was achieved through the input of labor and capital. On the other hand, China’s people were encouraged to have children during this period. The population grew substantially, and increasing numbers of young people created a large labor pool. Rudimentary schooling and healthcare service spread across the country and provided for modest gains in human capital for the burgeoning labor force. Capital investments by the state allowed for some growth in heavy industry but not very much else.

Trade in China was nearly non-existent during this period because there were no markets -- all resources were supposed to be allocated by the state. With no markets, trade within the country or internationally was close to impossible. China was a hermit nation, much like North Korea and Cuba are today. Mao Zedong, China’s former leader, believed that China should “walk on its own two feet.”

However, this meant that China had to produce everything it needed and could not specialize. The growth made possible through trade therefore did not occur during this period.

Innovation-based growth was also more or less non-existent. The political climate of the time was highly distrustful of academic pursuits in general and, as a consequence, China's universities were extremely underdeveloped. Less than one percent of the population attended universities. R&D investments remained very low, and VCs were not welcome. IPR and other regulatory protections for innovations were largely absent, and there were very few innovations to protect anyway.

As a result of this problematic economic environment, growth in China was anemic for thirty years. The vast majority of China's citizens struggled on farms in grinding poverty. Starvation and severe privation were common. Meanwhile, other countries in East Asia with market oriented economies, notably Japan, South Korea, and Taiwan, were rapidly growing and prospering.

#### *The onset of reforms: the 1980s and 1990s*

After about thirty years of the planned system, China's leaders saw that the country was not much better off than when they seized control in 1949. In 1978 new leaders gained control of the country and set profound economic reforms in motion. These reforms have touched nearly all aspects of economic life in China, but have not yet managed to develop a highly innovative society.

Foremost, the reforms allowed for the mobilization of inputs to propel new growth in China's economy. One of the earliest changes allowed farmers to keep any extra grain they produced, instead of handing it over to government planners as they had in the past. This change meant that farmers had an incentive to produce more food. Since farmers got to keep everything that they produced (after paying a tax), they worked more hours, worked harder during the hours that they worked, and managed their farms with more thought and care. Huge growth in food production ensued.

With the extra availability of food, people in China could afford to leave the farm and pursue work elsewhere. Once people moved off the farm, they were able to work in business and the factories that were beginning to proliferate in China's cities. In these jobs they worked long hours, toiling in poor conditions. While the conditions for these unskilled laborers were bad, their labor was significantly more productive than it was on the farm, and they earned more wages. What is more, China was enjoying a substantial demographic dividend. Children that were born in the 60s and 70s reached working age just as reforms were starting to take effect. Large numbers of young people constituted an abundant labor pool that had relatively few dependants to take care of. These factors generated tremendous growth in labor productivity as China began to change into a manufacturing heavyweight for consumer items to be sold at home and overseas.

In addition to this growth from increased labor mobilization, China's economic reforms allowed for big investments in new capital. This capital came from diverse sources. For the first time since the 1940s, many foreigners were allowed to invest in China. Because numerous foreign countries had industrialized long before China, they had access to knowledge and resources that the Chinese did not. By

allowing foreigners to bring their capital and ideas into the country, China was able to build factories and buildings that they had not been able to build before. Domestic investments also surged, as the government began to accrue resources that it could deploy in the form of roads, bridges, ports, railways and other capital investments. China's own firms—which were now allowed to be owned and operated by individuals (instead of the state)—were also growing and increasingly able and willing to reinvest profits into capital that would further enhance their productivity.

China also began to open up its economy and encourage trade. During the planning era, China hardly traded at all. But reforms allowed China to enter the global trade networks and occupy a spot in the global production chain for goods and services. China's factories, whether set up by foreign or domestic enterprises, began churning out low-cost manufactured items like garments, toys and simple electronics. Because labor was plentiful, the cost of these manufactures stayed low and sold both at home to a growing middle class, and abroad to consumers in wealthier nations. China also began to import complicated manufactured goods like airplanes and high-tech software—items that the country could not produce by itself. Along with new labor and capital, this trade contributed significantly to growth.

Generally speaking, however, little of the rapid growth of 1980s and 1990s was derived from innovation. Of the 10 percent per year GDP growth that China enjoyed across the period, only a small fraction, two percent or below, was generated by innovation. Why was innovation-based growth so lacking? The components of an innovative economy in China had to start from scratch, and were only just beginning to develop. Investment in education was growing, but not sharply, and the university system was only beginning to recover from the damaging policies of the 1970s. University enrollment was still less than five percent until well into the 1990s. High performing academics commonly moved abroad, often to the US, where mature institutions could reward their research skills. R&D was growing, but only slowly. The government was spending its money on roads and new factories and the amount that could be invested into long-run R&D was still relatively low. VCs did not start emerging until the early 1990s and their activities remained tightly regulated in those early years. Legal protections began to emerge but were not well developed or enforced. As a consequence of this environment, talented people typically sought secure jobs linked to the state or left China to work and innovation remained low.

### *Into the 21<sup>st</sup> century*

Since 2000, inputs and trade have continued to generate tremendous growth in China. But as we noted in our discussion above, inputs and trade can only contribute to growth in a limited way. Once people move off the farm, the potential to grow from new sources of labor is severely limited. China still has many people engaged in agriculture. These people will continue to move to cities, but the days of plentiful and cheap labor are rapidly drawing to a close. China's demographic dividend has begun to wear thin as people who were active in the workforce during the 1980s and 1990s begin to retire. Population growth, which adds to the labor supply, has also begun to taper off in China as incomes rise. China's population growth will continue to diminish in coming years. Both of these trends—an aging population and slower growing population—will sap future growth from labor inputs. Capital is also subject to diminishing returns. China has built huge numbers of factories and vast networks of

infrastructure. Each new capital investment in the future will yield less and less growth.

The returns from China's expansion of markets and trade are also limited. Today, China is one of the world's greatest trading nations – it is the world's largest exporter and the third largest importer. The country exports labor-intensive manufactured goods all over the world. If you went to a department store and picked an item off the shelf, there is a good chance it was made in China. China is also an enormous market for imported goods, and imports vast volumes of natural resources and a wide variety of high tech items. China has functioning stock markets, insurance markets, credit markets and more. However, having successfully exploited trade opportunities, the ability to grow from trade has waned considerably.

As the returns to growth from inputs and trade continue to decline, economists predict that overall growth in China will begin to slow down. Why? The years of “easy” growth from input mobilization and trade reform are over. In coming years China will need to start innovating on a much larger scale in order to maintain robust rates of growth. The important question is, if China commits to developing the components of an innovative economy, will the country be able to pull it off?

#### **IV. “Made in China” or “Invented in China”?**

China's leaders, let there be no doubt, are fully aware of the importance of innovation in sustaining economic growth. They have provided huge increases in funding to the university system and research institutions to promote innovation—and they have something to show for it in the increasing number and quality of Chinese graduates and research products.

Can China make it? Despite the recent efforts to invest in universities and R&D and to improve the IPR environment, many Chinese scholars worry (as do many observers from outside of China) that the impressive sums of money that have been spent to create an innovative economy are not being spent effectively. It is also possible that the nature of the university system—even if there are more graduates—will not promote the type of learning that is needed to promote sustained, innovation-led growth. Hence, in spite of impressive growth in recent years, there are signs that China's output of innovative research remains relatively low when compared to the level of investment that is being poured into it.

In this final section we survey some of advances and a number of the remaining constraints in China's pursuit of innovation-based growth.

*Some important gains toward becoming innovative...*

China's university system has improved and expanded a great deal over the past few decades. Thirty years ago, the system was extremely weak, having struggled through years of damaging policies under China's former leader Mao Zedong. It is hard to imagine an environment less conducive to innovation than what existed under Mao. In fact, during the late 1960s, all universities in China were actually shut down. Students were sent to remote rural areas, in Inner Mongolia, Manchuria and Tibet to work, and University professors were often harassed and sent to labor camps.

Along with the other reforms outlined in the previous section, China has renovated its university system since the early 1980s so that the country's young minds can better contribute to growth. These investments in the university system already appear to be paying substantial dividends. In 1980 only a tiny fraction—in the neighborhood of one percent—of Chinese people attended university. For the vast majority of young people in the country, university was a distant, nearly impossible dream. Today, university enrollment has reached about 25 percent. In a country of 1.4 billion people (with about 20 million people per year old enough to attend college), that represents an enormous expansion of higher education. China's growing numbers of science and engineering graduates have helped power China's remarkable economic growth by designing the roads, setting up the factories and managing new trade relations. On account of an extremely rigorous testing regimen throughout grade school (starting from grade 1 and continuing through grade 12) Chinese students are typically ahead of students in other countries in math and the knowledge of science and engineering when they enter university. (see *Box A: Getting into College in China*).

The government has even greater plans for the future for investing even more money and resources into the university system. They hope to encourage and accelerate the improvements to high education. The government's "Project 985" is an ambitious effort to develop China's top 39 universities into world-class institutions as quickly as possible. During Project 985's third phase, the Chinese government has channeled nearly \$6 billion into these top universities.<sup>1</sup> From 2009 to 2010 alone, Chinese education spending grew by 9 percent, and spending on science and technology grew by an equally impressive 8 percent.<sup>2</sup> It is likely that investments in university education will continue to rise.

China has also made some progress in developing other components of an innovative economy. Since 2000, Chinese spending on R&D has increased nearly five-fold to USD \$87 billion in 2009.<sup>3</sup> This is a hefty sum, and it is likely that R&D spending will continue to rise. The VC sector has enjoyed growth in the past decade as well. Starting essentially from zero, venture capital has increased dramatically since private companies began to proliferate in China during the late 1990s. China's regulatory environment, the last important key to protecting new ideas, while still far from adequate in many important respects, has improved since the 1990s.

*...but stubborn obstacles remain*

Sizeable structural problems persist in China's innovation environment. Despite gains for the university system, important challenges remain unmet. The intense pressure to excel on university entrance tests may produce sterling book smarts, but it may also stifle creativity. Many scholars worry that a single-minded focus on testing may deprive Chinese students of the freedom necessary to learn to think and reason creatively. A system so heavily dependent on final tests has the risk

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<sup>1</sup> [http://www.chinadaily.com.cn/bizchina/2010-11/10/content\\_11530103.htm](http://www.chinadaily.com.cn/bizchina/2010-11/10/content_11530103.htm)

<sup>2</sup> <http://english.people.com.cn/90001/90776/90785/6910670.html>

<sup>3</sup> [http://www.chinadaily.com.cn/china/2010-12/02/content\\_11639670.htm](http://www.chinadaily.com.cn/china/2010-12/02/content_11639670.htm)

of encouraging students to memorize and recite results, rather than understand the material comprehensively. While many Chinese educators are deeply aware of this issue and have begun to focus on open-ended evaluation that encourages creative and “outside-the-box” thinking, the culture of test-based evaluation is deeply embedded in Chinese universities.<sup>4</sup> Stifled creativity and poor incentives for academic exploration may serve to hamper China’s young people from thinking in innovative ways (Case studies: Rao Yi, Cha Xuanzhu, Li Yuan).

Although China boasts impressive investments in R&D, much of the funds are being invested into state-owned enterprises (“SOEs”) and government-sponsored research institutes. Some innovation experts worry that this may not be a productive way of generating innovation. The primary concern is that government bureaucrats, rather than scientists, have primary control over choosing R&D projects and setting spending priorities.<sup>5</sup> While this top-down model of innovation is not necessarily destined for failure, most of the world’s most important innovative breakthroughs have come from small businesses and grassroots-style innovation,<sup>6</sup> and China remains far behind most developed countries in producing original innovations.<sup>7</sup>

As a recipient of venture capital, China still lags far behind developed economies. The venture capital sector, a ubiquitous presence in innovation hubs such as Silicon Valley in California, Cambridge in Massachusetts and other parts of the US, is only in the early stages of development in China, and is largely dominated by foreign companies. Under most circumstances, a group of university graduates with a clever idea in China would have a hard time accessing the expertise and financing of a venture capital firm. Because the sector is underdeveloped, talented individuals are also not likely to pursue a career leading a venture capital portfolio. Changes in restrictive government regulations on the way venture capital firms can operate could help the sector reach maturity.

A final piece of China’s innovation puzzle is the legal environment for innovation. Today, China ranks 79<sup>th</sup> in the world on the World Bank’s “Ease of Doing Business Index,” an index measuring “measure business regulation and the protection of property rights—and their effect on businesses.”<sup>8</sup> Global innovative powers like the United States rank much higher on the index. China has steadily improved its legal environment but major hurdles remain. Companies in China, both foreign and domestic, lose huge profits because their products are copied without punishment. This serves as a serious disincentive to innovate. After all, why spend time and money developing something new if someone else can easily steal—or confiscate—the idea and profit without doing any work? Enforcing laws to safeguard innovators’ ideas and otherwise protecting the direct returns of innovation would likely encourage innovation-based growth.

*So, is China ready to be innovative?*

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<sup>4</sup> Rao Yi

<sup>5</sup> China’s Drive for Indigenous Innovation, Page 12

<sup>6</sup> Education for Innovation: Entrepreneurial Breakthroughs versus Corporate Incremental Improvements

<sup>7</sup> [http://www.chinadaily.com.cn/china/2010-12/02/content\\_11639670.htm](http://www.chinadaily.com.cn/china/2010-12/02/content_11639670.htm)

<sup>8</sup> <http://www.doingbusiness.org/rankings>

Innovating requires risk taking. Risk taking requires dependable rewards. If there are no rewards for taking risks, then bright minds will not risk innovating. Countries with innovative economies endeavor to establish conditions that are conducive to risk taking. They educate their young people as best as possible to provide them with adequate technical training. They support potential innovators with grants, partnerships, and other opportunities that can help cultivate novel ideas. They provide funding for start up costs. They provide a legal environment where ideas are protected from theft and copycats. All of these factors contribute to an environment in which risk takers can be rewarded—often handsomely—for acting on bold new ideas.

China has not established many of these protections and incentives. While in college, students are often rewarded for “toeing the line” drawn by class instructors. Posing questions or seeking alternative answers is not typically encouraged. This means that opportunities for taking on problems creatively are often lost in the classroom. Upon graduation, many (or most) young people in China naturally seek security. Because the incentives and protections for risk takers are underdeveloped, many graduates will conclude that the rewards of taking risks out of college are not worth the potential costs. Often this means they will look for a position in the government or a state-owned enterprise rather than starting a new business or trying to discover “the next big thing.” Government jobs and positions in the state owned sector are attractive because they offer a dependable paycheck and serve as a bastion of security in a highly competitive society. In an uncertain environment with limited social protection, landing such a secure job is the safest way to ensure quality of life (See Box B: Entrepreneurship in China and the United States). Experience in the developed world, however, suggests that a system that rewards those that play it safe and punish those who take risks is unlikely to foster innovation.

Creating better incentives and protections will require difficult reforms. Reforms that allow more creativity in China’s classrooms, decentralization of R&D spending, more room for venture capital to maneuver, and a regulatory environment that delivers real protection for ideas. Without these changes, it is possible, even likely, that China will continue to have trouble innovating according to its potential. This possibility, in turn, has serious implications for the country’s future economic growth.

### Box A: Getting into College in China

Imagine, for a moment, that you were growing up in China instead of the United States. From day one, your experience as a high school student would have been dramatically different. In China, mandatory public education ends after middle school. Students who hope to go to university pay substantial fees to attend high school. High school tuition in China is among the highest on average of any country in the world. In many respects, high schools in China focus almost exclusively on preparing students to get into college.

In your high school in the US you may have been encouraged to pursue a wide range of activities. Whether you play a sport, practice a musical instrument, join a club, or participate in one of countless other opportunities, extracurricular activities are often integral to the American high school experience. You also might have a fair amount of free time to socialize with friends or pursue individual interests. In contrast, Chinese students are encouraged to cease all extracurricular activities upon entering high school so they can fully concentrate on their studies. High school students typically study during nearly all waking hours of the day. They attend classes during the school day. Beyond these, they have review classes, supplementary sessions, tutors, self study periods and plenty of homework. It is not uncommon for studying to stop only for meals, the occasional break, and sleep. Then the routine begins again the next day. Most Chinese students only receive two months off per year and often these are spent in extracurricular review and practice classes.

As college approaches, American students fill out college applications that request information on every aspect of their high school experience: grades, scores, interests, personal reflections, and aspirations, for example. In China, only one thing matters: your score on the University Entrance Examination, or *Gaokao*. Chinese students spend years—much of their high school lives and even earlier—preparing exclusively to take this intensive, two day long exam. It is offered once every year in June. Teachers and students hope that by the time test day comes, students will have studied, drilled, and memorized so well that the answers will come “almost without thinking.”<sup>9</sup> And with good reason: the Gaokao is the sole determining factor in Chinese college admissions. High school grades, entrance essays, and outside activities do not matter. Letters of recommendation mean nothing. When applying for college, students fill out a form that is only about one page long. On the form, they create a list. This list ranks their top schools and chosen majors. After that, however, the student is passive. They can do nothing beyond score as high as they can on 12 hours (6 hours per day) of testing. After that, their Gaokao score determines where, and if, they will go to university. Once the student takes their exam, colleges and relevant department pick the students they want from the list of preferences that the students filled out before. Students do not pick colleges. Also, each student is offered admissions to one and only one college. Students who are not happy with their university placement have the option to repeat their senior year of high school and retake the Gaokao. Many do.

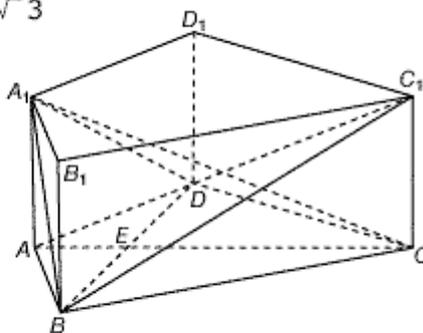
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<sup>9</sup> <http://www.chinatoday.com.cn/English/e2005/e200506/p34.htm>

Curious about the test? Take a look at some of these example math questions borrowed and translated from past Gaokao exams. How do they compare with questions you would expect to see on the SAT?

### Example Geometry Question

As shown in the figure, in square prism  $ABCD-A_1B_1C_1D_1$ ,  
 $AB=AD=2$ ,  $DC=2\sqrt{3}$ ,  $AA_1=\sqrt{3}$   
 $AD \perp DC$ ,  $AC \perp BD$ , and foot  
of perpendicular is  $E$ ,



(i) Prove:  $BD \perp A_1C$ :

(ii) Determine the angle  
between the two planes  
 $A_1BD$  and  $BC_1D$ :

(iii) Determine the angle  
formed by lines  $AD$  and  $BC_1$   
which are in different planes.

### Example "Fill in the Blank" Questions.

1.)  $m$  is a positive integer, and:

$$10^{(m-1)} < 2^{512} < 10^m$$

$$m = \underline{\hspace{2cm}} \quad (\log_{\text{base } 10}(2) = 0.3010)$$

2.) When  $[2x - 1/(\sqrt{x})]^9$  is expanded, the constant term is \_\_\_\_\_

3.) Given a function  $f(x) = \sin(x) + 2 \cdot \text{abs}[\sin(x)]$ ,  $0 \leq x \leq 2\pi$ . Note:  
 $(\text{abs}[\sin(x)])$  means absolute value of  $\sin(x)$ .)

The graph of  $f(x)$  intersects the line  $y = k$  at two and only two different points.  
What is the possible range of values for  $k$ : \_\_\_\_\_

4.) Which of the following propositions about tetrahedrons are correct:

a) If there's a tetrahedron whose base is an equilateral triangle, and its three side-surfaces form three equal dihedral angles with the triangular base, then that is a regular tetrahedron. (dihedral angle = an angle formed by two planes)

b) If there's a tetrahedron whose base is an equilateral triangle, and its three side-surfaces are all isosceles triangles, then that is a regular tetrahedron.

c) If there's a tetrahedron whose base is an equilateral triangle, and its three side-surfaces have equal areas, then that is a regular tetrahedron.

d) If there's a tetrahedron whose 3 side-edges form three equal angles with the triangular base, and its 3 side-surfaces also form three equal dihedral angles with its triangular base, then that is a regular tetrahedron.

Write the correct proposition letters(s) (a-d) : \_\_\_\_\_.

**Example “Free Response” Question. You must show your steps to get full credit. Partial credit can be given.**

Let  $f(x) = \sin(2x + k)$ ,  $-\pi < k < 0$ .

The graph of  $y=f(x)$  is symmetrical about the line  $x = \pi/8$ . (Note: Do not assume this is the only line of symmetry for  $f(x)$ . Of course it's possible that it's the only line).

I) Find  $k$ .

II) Find the region(s) of  $y = f(x)$  in which  $f(x)$  is monotonously increasing. (A function is monotonically increasing if  $m \leq n$  implies  $f(m) \leq f(n)$ .)

III) Prove that the line  $5x - 2y + c = 0$  is not tangent to the graph of  $y=f(x)$ .

**Box B. Entrepreneurship in China and the United States: Results from a Survey of University Students in both Countries.**

Entrepreneurship, or the willingness to start a new initiative or enterprise from scratch, plays an important role in innovative economies. Entrepreneurs are cultivated through institutions that encourage creative thinking and that protect and develop good ideas. In innovative economies, like the United States, entrepreneurs in business have a long history—think of Henry Ford and Ford Motors or Hewlett and Packard of HP or Mark Zuckerberg and Facebook. Countless enterprises such as these have generated enormous innovation-based economic growth for the US economy. Are institutions in China capable of cultivating entrepreneurship on the scale necessary to propel growth the way these American companies have?

In a bid to shed light on this question, we surveyed more than 400 engineering students at three top Chinese universities – Peking University, Tsinghua University (these two are often called the “Harvard” and “MIT” of China, respectively), and Beijing Normal University. We also gave the same survey to 400 engineering students at Stanford University—a top US institution of higher education—to determine their level of interest in starting a company or a venture capital start-up.

Chinese and American students gave very different responses when asked to choose their top career choice from a list of potential alternatives. While less than 3% of Chinese students ranked “starting a business” as their top choice, 22% of American students—nearly ten times the percentage of Chinese students—stated that they wanted to be an entrepreneur and start a business as their top choice of career.

So what do Chinese students want to do? More than half (52%) of Chinese engineering students ranked a career in the government bureaucracy as their top choice after graduation. This is perhaps unsurprising when one considers that China’s government in recent years has offered high paying and secure jobs to top university graduates. Who does not want a high paying job from which you almost cannot be fired? Responses to the same question among US students were very different. Only 5% of US students surveyed ranked a career in government as their top choice. .

Does this mean that Chinese students simply are not interested in entrepreneurship and innovation? Not at all! When we asked a different, but related, question “*Do you have any interest in starting a business?*” the numbers were quite different. In response to this question 50% of Chinese students were “very interested” or “somewhat interested” in starting a business. Although still less than students from the US (65% of US students said they were interested in starting a business), the gap between Chinese students and US students is much narrower. The gap between the percentage of Chinese students interested in entrepreneurship (50%) and the percentage that plans to actually pursue it as a career (3%) suggests that while Chinese students are interested in entrepreneurship, external factors cause them to choose a different career path.

Another portion of our survey asked, “*If you could speak both English and Chinese perfectly, would you rather start a business in China or the United States?*” nearly three times more Chinese students choose the US (30%), than US students choose

China (11%). Chinese students' top reason for preferring to start a business in the US was the availability of "better business opportunities." These numbers are in line with the historical trend of top Chinese students moving to the US to study and pursue their careers

So what might be deterring Chinese students from starting businesses in China? Another part of our survey examined the availability of resources for young people before and after graduation from college for cultivating innovative ideas. Chinese students were significantly less optimistic about their access to resources than their American peers. Remember, this is not just any group of Chinese students – these are the top Chinese students in the country and they feel starved for resources. In particular, we asked whether the students felt they had access to scholarships and/or financial aid; internships; research funding; mentoring for innovation; and money to start a business venture. Table 1 below includes the percentage of surveyed students in China and the US that characterized these resources as being "very available" to them.

Table 1 – Percent of Students who believe that a resource is "Very Available" to them

	Scholarships / Financial Aid	Internships	Research Funding	Mentoring for Innovation	Money to Start a Business (Venture Capital)
Chinese Students	6%	5%	8%	5%	2%
American Students	37%	58%	25%	29%	17%

According to our respondents in table 1, American students were between two and ten times more likely than Chinese students to believe that each type of support were "very available" to them. Each of these resources is either directly or indirectly related to a strong university system, R&D environment, and VC sector – three of the four "ingredients" for building an innovative economy (the fourth is a sound regulatory environment). Our survey suggests that across each of these three components of an innovative economy, Chinese students feel overwhelmingly underserved when compared to US students. Could this differing availability of resources play a role in dissuading Chinese students from starting companies? We do not have unambiguous evidence, but the circumstantial evidence points in that direction.

So what are we to make of this? Regardless of what country you are in, the decision to start a business—to be an entrepreneur—is often a risky and difficult one. If potential entrepreneurs perceive that the costs of starting a new enterprise outweigh the potential benefits, he or she might easily choose to take safer—but less innovative—path in life. To develop a truly innovative society, China must find new ways to incentivize and protect would-be entrepreneurs and innovators so that they can cultivate their interests, take risks and act on big ideas.

# **Innovation and University Case Studies**



**Li Yuan**

Li Yuan is a twenty-four-year-old grad student at Hunan Normal University in southern China. She was born in the small city of Zhumadian, located in the heart of Henan Province. Even though the city has a sizeable population, it is still considered small and poor. It is not very developed, and while the unemployment rate is low, the average salary is meager compared to well known cities such as Beijing or Shanghai.



Flat, low, and uniform buildings blanket the city while people bustle around on motor bikes and bicycles. Most of the people Zhumadian use bikes or mopeds to get around, but the number of private cars is growing. People buy groceries at open air markets where farmers from the outskirts of town bring their produce to sell at ramshackle stands and booths. The sound of haggling fills the air as vendors try to entice buyers to purchase their fruits and vegetables rather than their neighbor's.

When Li Yuan was young, the city was not considered developed. All the stores were small and uniform, selling only local goods and a few nationally branded items. The clothing stores only carried practical, basic options and fashionable outfits were hard to come by. Today, Zhumadian is still rather provincial, but changes have occurred. There are now three large department stores that offer a variety of packaged goods and better quality products. More boutiques have emerged selling trendy items, fashions, and accessories.

This type of transformation is common among rural towns throughout China. The lives and conditions of city life are improving with development. Many of the inhabitants of Zhumadian are proud of the progress that their town has made, and are optimistic of what the future entails.

Li Yuan comes from a personable family of four. Both her parents work for a highway company that designs and builds city infrastructure. Her younger brother, Li Hu, is an 11<sup>th</sup> grader in high school. Her family is close-knit and supportive of the children's education.

As a young girl, Li Yuan does not remember having wanted to “be” anything. All she wanted to do was play. She didn't care about studying and wanted to just enjoy life and do as she pleased. However, when she turned 16, everything changed. Studying was suddenly the only focus of her life. During high school, the only conversations she would have with her classmates and teachers were about studying. Her teachers would tell them that studying is central at this stage of life because it is the only way to prepare for “the test” – that is, the university entrance exam, or gaokao. Li Yuan did not care to study for herself, but because everyone in her life—from her family and teachers to her friends—put so much emphasis on studying, she felt she had no choice but “hit the books” whenever she could. However, she always felt that she was studying to satisfy them, not herself. The pressure to study came from her desire to keep those around her satisfied with her behavior.

Li Yuan viewed going to university as a necessary stage of life. Her mother had been to graduate school and her father had graduated from college. For her parents and relatives, the expectation for her was clear and looked like this: get into university, graduate, get a job, get married, start a family. That was the only acceptable path and order of events. She wanted nothing more than to complete these steps and keep her family happy.

Li Yuan failed the university entrance exam the first time she took it. In her province the competition is fierce, and, according to her calculation, nearly 70-80% of the students fail on their first try. A few, she says, need even eight or nine years to finally pass. Li Yuan had no other choice but to continue trying until she passed. On her second attempt, she was admitted into Hunan Normal University, a middling institution in southern China.

Being admitted into university was the beginning of another trying stage of life for Li Yuan. On her application to college—Chinese students fill out only one application; the universities choose whom they want to admit—her chosen major was statistics, because she enjoyed the subject when she studied it in high school. However, her entrance examination score was not high enough to get her into the statistics department at Hunan Normal University. The agricultural economics department was willing to offer her a place, though, and that is why she received admittance to the institution at all. She was very disappointed because statistics was her dream subject. There was no alternative, however, so Li Yuan simply had to give up her hope of majoring in statistics and instead pursue agricultural econ. She appraises her situation frankly: “I am not very happy; I am studying a major that I don't like. There are two people in my head that are battling with each other: one tells

me, ‘you need to continue studying agriculture economics, it is an opportunity for you to continue learning so do not give up!’ while the other side continues wishing to study statistics.”

Troubles such as these are common in colleges across China, with young people studying subjects that do not interest them on account of vagaries in the university admissions process. When students apply for college they sometimes choose majors that they have no interest in because those departments may be more willing to offer them admission at a prestigious university. While studies on the issue are scarce, it is possible that these circumstances contribute to cynicism and malaise on university campuses that are not conducive to creativity and performance. The system of higher education in China may be suffering as a result.



**Cha Xuanzhu**

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Cha Xuanzhu is a 43 year old high school teacher in the Number Four High School in Huanggang County, Jilin Province. He was born not too far from there in a small village outside of town. He has been a teacher for twenty years.

Xuanzhu was raised by his father only, because his mother died of illness when he was very young. Today he is married and has one daughter in primary school.



When Xuanzhu was a boy, his dream was to learn to be a doctor. He thought that way he could help people in his village, who were very poor. Unfortunately, as for many poor Chinese students, the costs of education presented a barrier. Even though Xuanzhu had the highest grades in his class and continued to study hard, his family's economic situation was too poor to send him to university. Instead he attended one of China's many teacher colleges where students attend specifically to be trained as grade school teachers. At that time, China was in such short supply of teachers that the government paid tuition for anyone who would go to one of the teacher colleges. With the reduced cost of attending, Xuanzhu and his family thought that studying to become a teacher was a practical choice.

Xuanzhu has made many achievements in his career as an educator. He won an acclaimed teachers prize from his county (a reward mechanism that was introduced in the 1990s to cultivate quality teachers in rural areas), and has also been named “Excellent Educator” three times in the greater municipality’s annual reviews. One of his students also won a nation-wide writing competition. For these reasons, Xuanzhu is considered the backbone of the teaching community in his county.

Xuanzhu does not hesitate to share some reservations he has about the schooling system in China. He points out that people in the area value education a great deal, which he thinks is important, but he does not believe that people really know what education means or how it should be passed on.

“People think education is necessary to get a good job,” he points out, “but there is more to education than that. Today, the system is bent on passing the exams, not delivering the whole picture.” Xuanzhu also notes what he sees as a flaw in how people perceive education. “The only concern of the parents and students is to pass the exam and get good grades. They ignore the true purpose of education which is learning the fundamentals of being a good and useful person. All the kids want is to pass the test and get into a university, they don’t actually care about what they are being taught.”

In order to teach his students more than simply “the facts,” Xuanzhu tries to create an environment in the classroom that is conducive to broader learning. He challenges his students to reason and reflect. He believes that there is no systematic formula to problem solving, which he worries is what Chinese students are retaining. “Students believe what is written in books is correct, rather than challenging the fact with a different opinion.” He fears that they are limited by their resources in the text rather than creating an opportunity to challenge them. Therefore, it is his goal as an educator to set free their minds and encourage them to think independently.

Many educators in and outside of China share Cha Xuanzhu’s concerns. Transforming China’s education system away from a model where rote memorization dominates to one that encourages multiple paths to success and achievement will do much to address these concerns, and may help the nation foster a more creative and productive workforce.

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**Rao Yi**

Professor Rao Yi is 50 years old and was born in Jiangsu Province, one of China's wealthiest regions. He began his career in academia in the United States, where he was a member of the faculty at Washington University in St. Louis before he joined Northwestern University in Chicago to study neuroscience. Dr. Rao's work in neurobiology, contributions that are helping scientists better understand cellular development and the treatment of neural injuries and tumors, have won him many awards and fellowships.



After seven years at Northwestern, Dr. Rao decided to return to China, where he was appointed Dean of the Life Sciences department at Peking University, one of the top Chinese Universities. There, in addition to continuing his research, Dr. Rao has dedicated himself to teaching in a way that will help create better Chinese scholars.

Although Dr. Rao believes that it will be many years before China is ready to compete with developed countries in terms of technological innovations, he believes that China can start to compete with the United States in terms of teaching today. He says that in order to force his students to think creatively, his tests don't ask questions that have a single answer. Rather he wants his student to think about the question and decide for themselves how they feel about the topic and then defend their answers with research or theory. He believes that this helps his students overcome the belief that teachers and parents have all the answers, a strong theme in Chinese culture.

Dr. Rao believes that although the amount of research coming from China is growing very quickly, the amount of the highest quality research is still rather low. For now, he believes that bringing the American-trained Chinese scholars back to China will help raise the standards. Dr. Rao believes that in as few as 20 years, the majority of Chinese students will choose to stay in China, because the Chinese universities will be mature enough to provide the best training.

# **Innovation and University Photos**



**Working in a factory rather than on the farm greatly increases the value of labor.**



**Bridges, highways, dams, and ports are all forms of capital that China has been building in large numbers.**



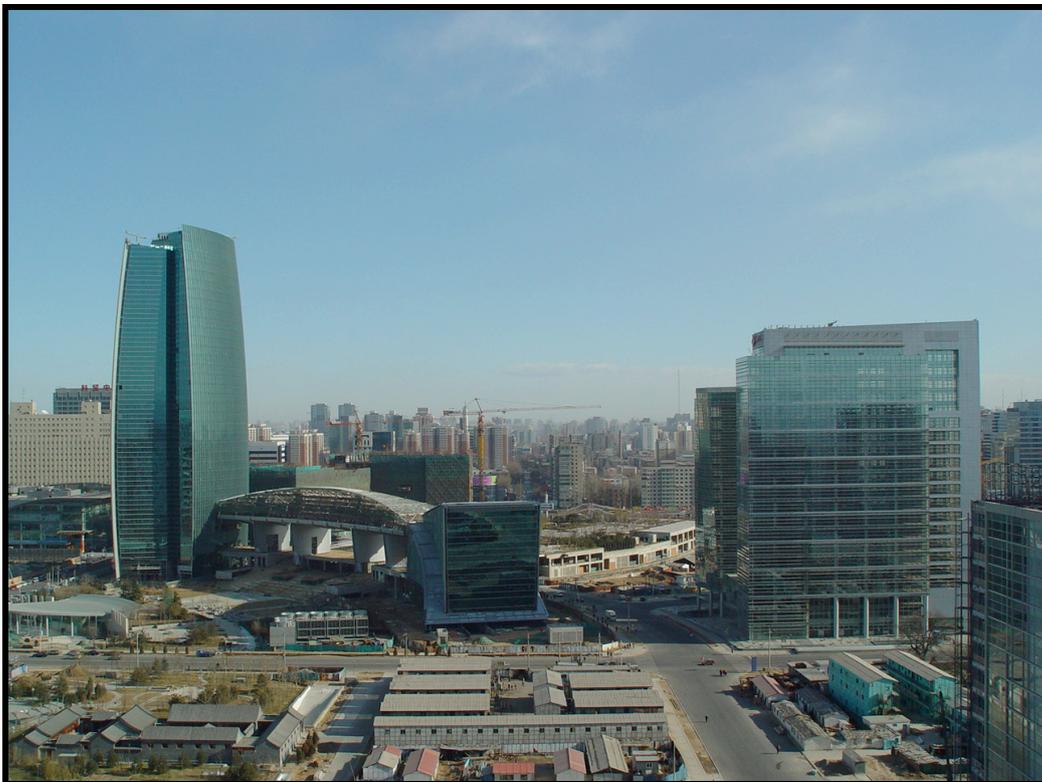
**Bridges, highways, dams, and ports are all forms of capital that China has been building in large numbers.**



**Bridges, highways, dams, and ports are all forms of capital that China has been building in large numbers.**



**Bridges, highways, dams, and ports are all forms of capital that China has been building in large numbers.**



**This is Zhongguancun, a neighborhood in Beijing that is China's answer to Silicon Valley in California, a major hub of information technology innovation in the United States.**

# **Inequality Backgrounder**

By

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And

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## **Inequality Backgrounder**

Consider two Chinese children born on the same day in the year 2000. Li Mei is born to a poor farming family in a village in the remote arid countryside of northwest China. Her parents are uneducated; her mother farms and her father is a laborer in a distant city who returns home for two weeks per year during Spring Festival. Wang Jun is born to an upper middle class family in prosperous coastal city of Suzhou. Both his parents earned college degrees and are successful academics.

On the day of their birth, Li Mei and Wang Jun are not responsible for the conditions of their birth: their gender, the place of their birth—urban or rural—or the income-earning potential or educational level of their parents. Evidence suggests, however, that it is exactly those factors that will have a major impact on their lives as they grow up. In other words, the course of their lives was determined to a certain extent the day they were born.

So what is the likely path through life these two will follow? Mei Li will likely be much poorer than Wang Jun for all her life. She will probably have worse nutrition growing up, and will be less likely to finish as many levels of schooling. Wang Jun can expect to live longer and gain a college education. He will likely earn more and have better access to healthcare. On account of these inequalities, the opportunities these two children face to reach their full potential are vastly different from the moment they are born and through no fault of their own.

Many people perceive disparities in life chances such those described above to be fundamentally unjust. But it is also true that such disparities can frequently lead to wasted human potential and missed development opportunities. That is why in this backgrounder we analyze the relationship between economic inequality and development.

In this Unit we aim to address the following key questions:

- What is economic inequality?
- Why does it persist?
- How can economic inequality be “inefficient?”
- What are some of the major determinants of economic inequality in China today?
- What role does economic growth play in perceptions of inequality in China?
- What are the possible consequences of continued severe inequality in China?

### **Inequality and Economic Development**

Economic inequality refers to the unequal distribution of wealth and assets across society. Inequality is often perceived to be unfair, but it can also pose a major challenge to a country’s sustainable economic development. This is because inequality can be economically inefficient. So-called “market failures” in developing nations, particularly in areas like insurance, credit, and human capital, result in decisions about resource allocations that are not only governed by a concern for returns, but also influenced by wealth and power (Ross-Larson). For example, a bright student may not be able to graduate high school due to financial constraints, even though he or she has the capacity to excel scholastically. At the same time, wealthier

but less qualified peers might go to college and receive degrees without hindrance. Why? Perhaps their parents had the money to pay for tutors, private afterschool classes, or multiple retakes of the SAT. Perhaps one of their parents did not need to work, and could stay home and help with homework. Whatever the reason, opportunities in education have gone to less qualified students because of a factor that is unrelated to education and its returns: financial constraints. This constitutes a market failure. Market failures generate inefficiencies – in this case, the most qualified mind is not receiving a deserving amount of education.

In an ideal market, everyone competing for a certain good would be able to do so on “equal footing.” Resources like education would go to those who are most apt to take advantage of them. In reality, however, markets are almost always imperfect -- particularly in developing countries. When markets are imperfect, the distribution of wealth and power can affect the allocation of resources and opportunities. High levels of inequality often create conditions that favor the interests of some people over those of others. As we saw in the above example, this generates inefficiencies because those that receive resources may not be the most suitable in utilizing them. It also means that groups with less influence are less likely to be able to contribute their talents to the economy.

Social, cultural and political factors also contribute to market failures. For example, if someone does not speak the primary language of a society, they are often at a disadvantage when seeking a job. That means that one’s mother language, something unrelated to that individual’s overall competency, works to prevent that person from acquiring the job. It is possible that a less qualified person who does speak the primary language may get the job instead. Once again, this constitutes a failure in the market. Other factors such as ethnic background or religious beliefs can serve to distort markets also. If market distortions affect a group that shares something in common, such as a particular language, ethnicity, or religion, members of that group can be considered economically marginalized.

Not only are marginalized groups unable to contribute their talents to society on an equitable basis, unfulfilled expectations about opportunity or quality of life may induce them to demonstrate their unhappiness or drop out of society. Under conditions of extreme or sustained marginalization, members of one or more groups may feel the benefits of regular society are too far out of reach. As a consequence, they may turn to crime, disobedience, violence or other “deviant” behavior in order to earn a livelihood or attempt to affect deeper political or social change. The violence, instability, or crime commonly associated with deviance is a costly burden for a society to bear because each one generates their own inefficiencies. Governments or other actors have to spend resources to contain deviant behavior so that it does not negatively impact the economic environment elsewhere. However, spending on containment – in the form of police or other means of coercion, for example – can be wasteful because that spending does not necessarily go to places where the highest return can be gained, such as creating new jobs, for example, or improving the education system. For this reason, responsible governments try to keep deviance to a minimum by engendering a “level playing field” in society; that is, a socioeconomic environment that most, if not all, members feel they can invest in and benefit from. The frequency of violence and struggle within societies around the world reveal the challenges that governments face in bringing about such an environment.

## **Inequality in China**

Since the government first implemented economic reforms in 1978, China has benefited from unprecedented economic growth. Since then, the country's record of ten percent annual GDP growth remains unmatched by any other developed or developing nation. As we have learned in units one through three, with this growth has come enormous positive change—millions have been lifted out of poverty, and people are able to earn higher wages, consume more, and generally enjoy elevated standards of living.

Yet China's rapid growth has also been accompanied by increasingly large income disparities. China's GINI coefficient—a statistic which measures inequality of income distribution, with 0 as absolute equality and 100 as absolute inequality—has doubled from 21.5 in 1984 to 41.5 in 2007 (Ying, Human Development Report 2009). By this measure, China is now among the most unequal nations on earth.

This inequality appears in many ways. A college-aged person is up to thirty five times more likely to enroll in a university if they grew up in a city rather than a poor rural area. Malnutrition is rampant across huge swathes of the country, while obesity is a problem in others. Luxury and opulence abound (there are more luxury cars sold in China than anywhere else in the world) alongside grinding poverty (the primary transportation in some poor, remote areas is still donkey, camel or bullock).

How does this inequality come about? To some extent, increasing disparities can be expected. Inequality almost always accompanies growth and development. As an economy grows there will always be some who accumulate a larger share of limited resources than others. The vast differences among individual endowments—wealth, connections, opportunities—coupled with factors like hard work and luck, ensures that some individuals will prosper more than others.

As we have discussed above in the context of the rest of the world, inequality can be exacerbated on account of imperfect or failing markets. Ideally, if there are good markets (for, say, insurance or credit), where you were born, your gender or your ethnicity should not bear on economic opportunity available to you. When markets are competitive, opportunity should simply go to the most qualified. Markets in China are still far from ideal, though they are developing fast.

## **Determinants of Inequality in China**

When the system restricts upward mobility, frequently there are specific reasons why some people are born with a lot of wealth or connections and other people are not. That is, there are many “determinants of inequality.” The goal of this section is to illustrate some of the most significant determinants of inequality in China today. It is by no means an exhaustive list, but it can shed light on some of the important dynamics that have allowed some individuals in China to prosper more than others.

### *Urban versus rural*

One of the most obvious divides in China is the one that separates the urban experience from the rural. As we have seen in earlier units, the majority of economic opportunity in China is concentrated in urban areas, in particular the big cities along the eastern seaboard. By contrast, many who live in the vast rural interior still struggle to get by. Urban disposable income is estimated to be three times that of rural areas, and continued poverty in the country is mostly a rural phenomenon (Gustafsson). Living conditions vary widely across urban and rural areas, so much so that living in either can be like living in different countries entirely. It is easy, for example, to ride the fastest train in the world in the morning; and before noon as the train leaves the city's boundaries watch a farmer lead a donkey cart loaded with newly harvested potatoes. Ramshackle brick homes with tin roofs often sit in the shade of soaring skyscrapers made of the most modern glass and steel. According to certain measures of development and quality of life, prosperous urban regions like Shanghai and Beijing would rank close to European countries like the United Kingdom or Switzerland. However, poorer, less urbanized regions like Guizhou and Tibet rank closer to impoverished countries like Bangladesh and Swaziland (Gustafsson). Some experts have even posited that the rural-urban income discrepancy in China is the largest in the world (Lin), and survey work suggests that China's own government deems income disparity to be the country's most serious problem (Whyte).

Some factors that contribute to rural/urban inequality are expected derivatives of economic development. As unit three (cities) points out, investments from abroad and the fruits of industrialization and trade tend to accumulate in urban areas. And as we saw in unit one (poverty) many rural areas of the country do not directly benefit from these processes, and have little prospect of developing beyond a certain basic level. Interestingly these disparities attract rural people into cities and thus provide a "push" for migration, a key part of the development process.

But other dynamics that widen the urban rural divide occur as a result of policies that favor development of urban areas, sometimes even at the expense of rural areas and their residents. We have seen the effects of some of these policies. Schools in rural areas typically receive less support than those in cities. The quality of other services, such as healthcare and housing, is lower in rural areas where government investments often remain lacking. These disparities are compounded by the household registration system. This system classifies China's citizens as either rural or urban residents and allocates public services according to their classification. If you were born in a rural village, for example, you would only be able to attend public school or get affordable healthcare in that area. In this way, you become "tied" to your home area.

If services were equally good in rural and urban areas, one's registration status would not necessarily matter (or it would matter less). Unfortunately, public goods and services, such as state subsidized healthcare, education, or insurance, are almost uniformly better in urban areas. For all of these reasons, those registered as urban residents typically enjoy a higher standard of living.

### *Gender*

China has made important strides in providing economic opportunity for both men and women. During the Mao era in China (1949 – 1976) both men and women

were expected to work. This attitude persisted after China initiated market reforms in 1978, and as a result there is greater economic opportunity for women in China than in many other developing countries. Over the past several decades, women in China have benefitted from improved access to finance, higher legal protections and more accommodating labor practices—all factors that typically underpin an individual's degree of economic opportunity. Indeed, the fact that women have enjoyed such opportunity is an important factor in the vibrancy of China's economic growth.

Yet gender remains an important factor in limiting economic opportunity among women. Like almost any nation on earth, social attitudes and customs in China discriminate against women in ways that curtail their full participation in the economy. Discrimination puts women at a disadvantage in the workforce, and ensures their talents are underutilized. The consequences of this discrimination are varied. For example, women's participation in the formal labor force remains well below that of men. Women are less likely to work off the farm, where returns are higher. Women are also paid less on average than their male counterparts, and men continue to dominate in sectors with higher wage-earning potential, such as technology and finance. Women are less likely to control household resources, or occupy decision making positions in business and government (EIU).

Less economic opportunity can compound other problems for women in China's society. Lower income employment often has the effect of making women unequal partners in marriage. As a result they can be overworked in the household and have less access to family income. These conditions may also lead to adverse consequences for children, as it is well established that when women control resources in the family, they spend more on children and other expenditures that increase current and future family welfare. Both in and outside of the home, economically disadvantaged women are particularly vulnerable to exploitation, abuse and violence. These factors severely constrain women's role in China's economy and society. (case study: Shu Lihua)

That women have participated so actively in China's economy in the past thirty years has been a genuine boon to the country's growth. Expanding economic opportunities for women would continue to have a positive effect on economic productivity, as well as achieve better livelihood and security for women across the country.

### *Ethnicity*

China is comprised of 56 ethnic groups, with the Han majority making up about 90% of the total population. 116 ethnic minority "autonomous areas" are interspersed throughout the country, the majority of which align geographically with China's most impoverished regions. Over the centuries, many of China's ethnic minorities have come to inhabit areas that are not conducive to rapid economic growth, such as the high plains of the Tibetan Plateau, arid expanses of the far northwest, or mountainous forests of the southwest. High density farming is difficult in these landlocked regions, as is travel and communication. In part due to these factors, industry has been slow to develop or penetrate these areas. Today, the dearth of economic activity has had many of the same consequences typical of remote areas populated by majority Han people: lower than average standards of living, levels of education, and economic opportunity. The sheer distance between these areas and

urban centers also means that it is less feasible to migrate in search of work—a major force in economic development.

Language and cultural differences also serve to further compound the economic dislocation of minority peoples in China. Many ethnic minorities speak their own languages instead of Mandarin Chinese, the country's official language. The language barrier hinders academic achievement among minority children when school curricula emphasize mastery of Mandarin. Working age minorities may also find it difficult to move to a new city in search of opportunity when they cannot speak the dominant language. Distinct cultural values and traditions among minorities can also serve to inhibit easy integration into economically thriving regions that are populated with majority Han people, whose own customs might appear foreign or exclusive (case study: Mr. Ma).

Economic dislocation contributes to various other challenges that minorities face in more fully integrating into Chinese society. Minority children are far more likely to drop out of school than their Han counterparts. Access to adequate healthcare and social security in non-Han areas remains relatively circumscribed. Ethnic minorities are underrepresented in many important areas of modern Chinese life, such as college enrollment, business administration, and government (case study: Dawa Zhuoma).

Without the influence and wherewithal that typically accompanies economic success, it will be difficult for minority areas to emerge from their marginalized status. Crafting policies that compensate for the imbalances caused by geography, culture, and discrimination that have kept minorities at the margins of Chinese economic life remains a challenging but important task for the country's policymakers.

### **Growth and perceptions of inequality**

Reading about failed markets and determinants of inequality in China can make conditions there seem rather unjust. Here is what might surprise you: studies suggest that most Chinese people do not perceive their society to be unfair (Whyte). How can this be when the manifestations of inequality can seem so obvious? Mud villages versus skyscrapers, ox carts versus bullet trains, opulence and extravagance versus privation and mal nutrition? These stark contrasts are apparent to even the casual observer. How can the average Chinese citizen not conclude that their society is lopsided and unfair?

The answer lies in large part in growth. Over the course of their lifetimes the vast majority of Chinese people have seen enormous improvement in their standards of living. How much have your living conditions fluctuated over the past ten years? Perhaps some, but in most cases not an enormous amount. Yet the changes that most Chinese have witnessed are so profound that often the fundamental conditions of their lives have transformed. Malnutrition still haunts millions of Chinese, but thirty years ago so would starvation. Annual incomes for the rural poor may appear modest, but they would represent a true bounty for most Chinese who were struggling through their lives at much lower income levels in the late 1970s. Access to health, education, and opportunity, once only available to a tiny elite fraction of society, has spread

across the country. This access may be uneven but it is far more than what most Chinese were used to a generation ago. It is true that today a poor person from the countryside may never own an expensive European car or live in a trendy urban condominium like the urban nouveau riche, but chances are they have a higher level of education, health, comfort, and prosperity – even if it is modest prosperity – than their parents could have dreamed of. At least this is what they perceive, and these perceptions are the basis of their expectations and beliefs about the seriousness of inequalities. That is what ten percent GDP growth can achieve for a society: sustained improvement in living standards for the large majority of citizens.

### **Inequality, education, and the future**

The next question is, how can a country maintain growth so that people can enjoy continued improvements? That is where the consequences of intractable inequality can begin to bite. Of all the public goods that accrue unequally across Chinese society, one stands out above all others: education. Unequal access to high-quality education has a heavy impact on disadvantaged youth in across China. Without education, life will almost certainly be characterized by drudgery and privation. What is more, if an individual does not get an education, his or her children will be unlikely to get an education. This initiates or perpetuates an intergenerational cycle of under-education and poverty.

Low educational achievement among disadvantaged communities across rural China means that the talents of millions of young minds remain underutilized. Severe and persistent inequality in the education system can leave millions of marginalized citizens unequipped to contribute fruitfully to the economy. We have learned that as China continues to develop, its economy will demand higher skilled workers. But with quality education out of reach for many marginalized groups, ensuring that high numbers of capable minds continue to enter the workforce will remain a challenge. This inefficiency in the labor market can impede growth, and might even be leading parts of the nation towards social instability if not properly addressed. After all, if economic growth is compromised, the various inequities in China's society could pull into sharper focus for everyday citizens. The resentment and aberrant social behavior commonly associated with low economic opportunity could easily grow as a consequence.

As with most countries, the roots of China's social and economic inequalities run deep. Realizing a more equitable society will require large and meaningful investment in key areas like education. Institutions and policies that promote a level playing field—where all members of society have similar chances to become socially active, politically influential, and economically productive—are likely to contribute to sustainable growth and development. Although it is true that China faces some challenges in reducing inequality, it should be noted that the country's situation is not unique. Many other nations have faced similar obstacles. Some, such as Taiwan and South Korea, have overcome them successfully, transforming into more equitable, developed, high-income economies. Others, such as Brazil, Mexico and Egypt, still struggle to sustain growth rates, and as a consequence they have had to weather economic stagnancy and flare ups of violence. It remains to be seen whether China, which has exceeded every economic expectation for decades, will join the ranks of the first group or the second.



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# **Inequality Case Studies**



**Mr. Ma and his father**

Mr. Ma is 26 years old and lives in Hangzhou, a large, prosperous city on China's coast. There he runs a small noodle restaurant with four employees. Ma is a member of one of China's 55 officially recognized ethnic minorities. Where most Chinese speak Mandarin and do not avidly practice a religion, Ma and his family are devout Muslims and speak a Central Asian language called Salar.



Originally, Ma is from Xunhua, a small county in Qinghai Province. His parents and some family members still live in Xunhua. They do what members of his family have done for generations: farm the land. Farming is difficult in Xunhua, though, because it is dry and mountainous. Many younger people in the community have moved away from the area to find work in the more developed areas of China. That is what brought Ma to Hangzhou.

When he was young, Ma only went to school through the fourth grade. At that time, the school in his hometown was very low quality, and his family did not see much reason for keeping him in school when he could help with family chores instead. At age 14 his parents sent him to work in a restaurant in Hangzhou to earn extra money for the family. They sent him to that city because other people from

Xunhua had gone there before and knew the ways of life there. When Ma arrived in Hangzhou he worked with relatives at a noodle restaurant.

After ten years of this work, Ma gathered the experience and capital necessary to open his own noodle shop. He also married and had two children. Both of his children live with his parents back in Xunhua. They do not live with him in Hangzhou because, as the children of a migrant worker, it is difficult for them to attend school in the city. Ma only returns to Xunhua every few years because he is busy and it is expensive to return home. Although his life is difficult, the comforts and income levels he is used to, while modest, are more than what his parents could have dreamed about while growing up in the 1960s.

Ma hopes that by working hard now, he can create a better future for his children. In recent years, the schools in Xunhua have improved a great deal. While they are not as good as city schools, they are far better now than they were when he was a child. It is likely that his children will stay in school longer than he did. A small number of young people from his village in Xunhua have even gone to college. If Ma continues to earn enough money in Hangzhou and his children excel in school, they may have a chance to go to college, too.

In addition to the financial barriers that prevent people like Mr. Ma from sending their children to school, there is a linguistic barrier as well. Because Mr. Ma's children's first language is Salar, they struggle to learn Mandarin Chinese. By the time a child from Xunhua is 12 years old, it is likely that his or her Mandarin capability is far less than average. This is a major obstacle for children as they progress through school.

Mr. Ma also notes that, as a practicing Muslim, he eats halal food. This poses another obstacle for him and his children's success. They cannot eat in the same eateries and restaurants as other Chinese people because most Chinese eat pork, which observant Muslims are forbidden to do. Though at first it may seem trivial, Mr. Ma will tell you that not being able to regularly eat with the majority Han people means that it is more difficult for him to cultivate friendships and connections with people in Hangzhou that do not share his background. This means that in trying to advance in society, Mr. Ma is at a disadvantage when compared to members of the majority ethnicity.

Linguistic, cultural, and religious distinctions between the majority Han people and China's minorities often serves to place minorities at a disadvantage vis-à-vis their Han Chinese counterparts when it comes to benefitting from China's growth.



**Shu Lihua**

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Shu Lihua is 24 years old and comes from poor county in the dusty hills of northern Shaanxi Province. Her parents are both farmers who earn of about 3000RMB per year growing wheat and raising goats.

Lihua was a precocious child, often speaking her mind and quick to learn new things. She was an eager hand at home as well, and from an early age helped her parents feed and tend to the animals. When she was seven her parents put her into primary school. From her earliest years in school Lihua excelled at her studies and her teachers liked her.



By the second year of junior high, however, Lihua's parents made a decision. Lihua would have to quit school so that the family resources could be spent supporting her younger brother's schooling. This decision devastated Lihua, who was hoping to test into high school and continue on as far as she could. Even her teachers called her parents on her behalf. There was very little that could be done, however. Her parents would have preferred that she stay in school, but when faced with the choice of only keeping one child in school they chose their son. In their eyes, Lihua was likely to get married at a relatively early point in the future. Once married, she would move in with her in-laws and become part of their family. She might soon be raising children rather than working and earning a better income. In this way,

spending scarce resources on her education did not make financial sense to her parents. Their son, on the other hand, could perhaps find a good job if he stayed in school. In China, where the social welfare system for the rural elderly is almost non-existent, often parents depend on their children to support them as they age. Under these circumstances, Lihua's parents figured that their son would be a better investment for the stability and welfare of the family as a whole.

Lihua's parents are not mean-spirited; they were simply making what they perceived to be the most economical choice for the family. Circumstances such as these abound in poor areas of China, and quite often girls' education suffers disproportionately as a result.

After leaving school, Lihua went to work in the county town as a waitress at a small eatery. She did not like this work and spent many days dreaming about how her life would have been better had she stayed in school. All the same she worked diligently and continued sending a fraction of her earnings back home. After a couple of years in town working odd service jobs Lihua leveraged her network of friends, relatives and coworkers to land a better job as a clerk at a county hotel. This work was much easier than her previous jobs and paid a little more. Meanwhile, she married a young man she met a few months earlier.

Recently the couple had their first child, a girl. Lihua has promised herself that she will do anything to keep her daughter in school.



**Dawa Zhuoma**

Dawa Zhuoma is 23 years old and lives in Qamdo Prefecture in the Tibet Autonomous Region. The prefecture is 98 percent ethnically Tibetan. Dawa Zhuoma grew up on the high grasslands of the Tibetan Plateau with her nomadic, yak-herding family. Until recently she lived in a black yak-hair tent that could easily be moved when the family moved to different pastures. Her family once had over two hundred yaks. Even though these yaks had no tags or other artificial markers, by the time she was in her teens, she could recognize each of them well enough to distinguish them from the yaks of other families. Dawa Zhuoma never went to school. Her family survived by selling yak milk, cheese, butter, and yogurt. With the proceeds of these sales they bought barley flour and vegetables to eat.



Dawa Zhuoma was married when she was 16 to the eldest son of a family from a neighboring tent group, or village. She moved in with his family and soon had two children.

After the children were born, Dawa Zhuoma and her husband decided to sell their yaks. Regulations had reduced the amount of land that nomads could use to graze their animals, and the remaining pastureland was gradually reducing in quality. After a few more years Dawa Zhuoma and her husband knew the land would not be able to sustain their herd. Hoping to move into a permanent brick home on the outskirts of the nearest county town, they sold the animals and took a government subsidy.

Dawa Zhuoma, her husband, his parents and her two children moved into the home last year. It is likely that in the history of her lineage she is the first to live a sedentary lifestyle. There are benefits to this new way of life: consumer items are much easier to purchase, fresh fruit and vegetables are easier to come by, and day-to-day tasks are simpler. The government stipend that her family receives helps make ends meet.

But there is a real question as to what Dawa Zhuoma's family can do to support itself now that the yaks are gone. She is illiterate, and she does not speak, read, or understand Chinese. Neither do her parents-in-law. Her husband knows a little Chinese but only in the local dialect. Her children are learning it in school, but they are still very young. The family cannot migrate anywhere farther afield—to a city in eastern China, for example, as so many poor Chinese have done—because they do not know anyone out there, they do not speak the language, they do not know the customs, and they have no money to get started with. Dawa Zhuoma's family has no history of doing business; neither does anyone's she knows. She has never been anywhere other than the grasslands of her youth and the county town. Her husband went to a neighboring county town once. The provincial capital is a twenty hour bus ride away. Even if her family could manage to get there, what would they do? How would they live?

There is nothing wrong with Dawa Zhuoma—she is a hard and disciplined worker. Her life on the grassland was composed of a long series of arduous tasks that she completed, day after day, without complaint. Her husband is also a good worker. But those skills have no application in life outside of the grassland. In this way she shares the challenges of many marginalized groups in China that do not have the background or capital necessary to invest in or properly contribute to China's economic development.

Dawa Zhuoma and her husband know that there is hope in keeping their two children in school. The primary school in the county town is rudimentary, but there the kids can learn some practical knowledge that will help them when they grow up. Dawa Zhuoma worries, though, that if the family cannot find a way to earn money, they will have to take the children out of school in a few years to have them earn an income. That is what might be required to simply keep food on the table. The future for Dawa Zhuoma and her family is uncertain, but they have little choice but to persevere.

# **Inequality Photos**



**Compare a condominium of China's new affluent class...**



**...to the home of rural poor.**



**Disparities in wealth are often highly visible, -- this donkey cart on the streets of Beijing is a good example.**



**Women are underrepresented in positions of power, from the household all the way to high ranks fo government, as pictured above.**

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- <sup>i</sup> World Development Report in Poverty – Overview – 2000-2001, Pg 1
- <sup>ii</sup> World Development Report on poverty, 2000-2001, pg 1
- <sup>iii</sup> World Development Report on poverty, 2000-2001, pg 1
- <sup>iv</sup> World Development Report on poverty, 2000-2001, pg 3
- <sup>v</sup> World Development Report on poverty, 2000-2001, pg 3
- <sup>vi</sup> Expenditures on education and health care and poverty in rural China – Bjorn Gustafsson, Li Shi Pg 293
- <sup>vii</sup> China – overcoming rural poverty – pg 41
- <sup>viii</sup> China – overcoming rural poverty, pg 39
- <sup>ix</sup> Reforms, Investment, and Poverty in Rural China – Fan, Zhang, and Zhang (pg 412)
- <sup>x</sup> The Effect of Primary School Mergers on Academic Performance of Students in Rural China – Liu, Zhang, Luo, Rozelle, pg 1
- <sup>xi</sup> Reforms, Investment, and Poverty in Rural China – Fan, Zhang, and Zhang (pg 400)

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<http://siteresources.worldbank.org/INTEAPREGTOPURBDEV/Resources/Ex-Summary-Urbanization-Dynamics.pdf> (world bank)

<sup>xv</sup> [http://www.cfr.org/publication/12943/chinas\\_internal\\_migrants.html](http://www.cfr.org/publication/12943/chinas_internal_migrants.html)

<sup>xvi</sup> [http://www.cfr.org/publication/12943/chinas\\_internal\\_migrants.html](http://www.cfr.org/publication/12943/chinas_internal_migrants.html)

<sup>xvii</sup> <http://www.un.org.cn/public/resource/UNDAF-2011-2015-en.pdf>