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## The role of human capital creation as a driver for economic growth in China

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### **Abstract**

The purpose of this paper is to provide a general background to the nature of the Chinese economy and the public policy framework in which it operates. Within this framework, there has been the creation of considerable demand for higher education in China, not just by industry but also by students. It is expected that this growth will continue into the future.

### **Introduction**

Over a period of 30 years, the Chinese economy has been transformed absolutely and standards of living have risen to an astonishing degree (Brandt, Hsieh & Zhu, 2005). The reform of the Chinese economy over 30 years involved a substantial opening up of the Chinese economy, as well as a growing diversity of companies within China. Altogether, this helped to create an enormous demand for a variety of different labour market skills. This in turn led to a massive growth in demand for the expansion of the education sector, including higher education.

The purpose of this paper is therefore to provide a general background to the nature of the Chinese economy and the public policy framework in which it operates. The paper is structured as follows. In the next section, a general background on the character of the Chinese economy is provided. This is followed by a historical section, a section on the main types of enterprises in China, a section on the role of foreign direct investment in China, the main drivers of economic growth and the importance of human capital and education. In the final section, some conclusions are made.

## General background

In July 2014, China's population was estimated to be 1.355 billion, making it the largest country in the world. In 2013, it was estimated that just less than 35 percent of its population was engaged in agriculture, compared to 30 percent in industry and 36 percent in services (World Bank, 2014). Despite this still heavy concentration of labour in agriculture, this sector only produces around ten percent of the country's GDP compared to 43 percent for industry and 48 percent for the services sector (Table 1; Central Intelligence Agency, 2015; World Bank, 2014).

Table 1: Macroeconomic data of China and other countries, 2014

	GDP per capita PPP \$US	GDP \$US billion	Population	Median Age	Agriculture %	Industry %	Services %
Algeria	14,300	552.6	38,813,722	27.2	8.6	48.3	43.1
Australia	46,600	1100.0	22,507,617	38.3	3.7	28.9	67.4
Azerbaijan	17,900	168.4	9,686,210	30.1	5.7	61.2	33.2
Belarus	18,200	172.3	9,608,058	39.4	7.3	37.0	55.7
Belize	8,100	2.9	340,844	21.8	13.1	16.0	70.9
Brazil	15,200	3073.0	202,656,788	30.7	5.8	23.8	70.4
Canada	44,500	1579.0	34,834,841	41.7	1.7	28.2	70.1
China	12,900	17630.0	1,355,692,576	36.7	9.2	42.6	48.2
Columbia	13,500	642.7	46,245,297	28.9	6.1	37.3	56.6
EU	38,300	17590.0	511,434,812	n/a	1.8	25.2	73.0
Fiji	8,200	7.3	903,207	27.9	12.7	18.2	69.1
Hong Kong	55,200	400.6	7,122,688	n/a	0.1	6.6	93.3
India	5,800	7277.0	1,236,344,631	27.0	17.9	24.2	57.9
Indonesia	10,200	2554.0	253,609,643	29.2	14.2	45.5	40.3
Japan	37,700	4750.0	127,103,388	46.1	1.2	24.5	74.3
Kazakhstan	24,100	420.6	17,948,816	29.7	4.9	29.5	65.6
Malaysia	24,500	746.8	30,073,353	27.7	9.3	34.7	56.0
Mexico	17,900	2143.0	120,286,655	27.3	3.5	36.4	60.1
New Zealand	35,000	158.7	4,401,916	37.6	3.8	26.6	69.6
Panama	20,300	76.9	3,608,431	28.3	2.9	14.1	83.0
Peru	12,000	376.7	30,147,935	27.0	7.1	36.7	56.2

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Philippines	7,000	693.7	107,668,231	23.5	11.3	31.2	57.4
Romania	19,400	388.0	21,729,871	39.8	5.4	27.3	67.3
Russia	24,800	3568.0	142,470,272	38.9	4.0	36.3	59.7
Singapore	81,300	445.2	5,567,301	33.8	0.0	25.0	75.0
S Africa	12,700	683.1	48,375,645	25.7	2.4	28.5	69.1
Suriname	16,700	9.2	573,311	28.6	8.6	37.3	54.1
Taiwan	43,600	1022.0	23,359,928	39.2	1.9	34.1	64.1
Thailand	14,400	987.5	67,741,401	36.2	11.6	32.6	55.8
Tunisia	11,400	125.1	10,937,521	31.4	8.7	29.0	62.3
Turkey	19,600	1515.0	81,619,392	29.6	8.2	26.9	64.9
Turkmenistan	15,500	82.3	5,171,943	26.6	13.2	49.3	37.4
Ukraine	8,200	373.1	44,291,413	40.6	12.1	29.0	58.8
Uruguay	20,500	70.2	3,332,972	34.3	7.5	20.4	72.1
UK	37,700	2420.0	63,742,977	40.4	0.6	20.6	78.8
USA	54,800	17460.0	318,892,103	37.6	1.6	20.7	77.7
Venezuela	17,900	545.7	28,868,486	26.9	3.8	35.4	60.8

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Source: Central Intelligence Agency (2015)

The agricultural sector in China, therefore, is far diminished in importance compared to in the past, and plays a role mainly as a source of labour for the manufacturing sector. Instead China's major industries include such things as mining and ore processing, iron and steel manufacture, aluminium smelting, coal, machinery, textiles, clothing, footwear, armaments, cement, chemicals, fertilisers, electronics, automotive transport vehicles, telecommunications, and computers.

China's major exports are concentrated in computers, electrical machinery, textiles, clothing and footwear, iron and steel and a range of other manufactured products. The United States is the country's largest export market (around 20 percent), followed by Hong Kong, Japan, Korea, and Germany. As well as being the world's largest exporter, China is one of the world's most important attractors of foreign direct investment. In 2013, net inflows of foreign direct investment in China were 185 billion US dollars, compared to the world's next largest, the United States (at 114 billion US dollars) (World Bank, 2014). A substantial part of this overseas investment in China is directed to the export-orientated manufacturing sectors that see many foreign countries investing in manufacturing facilities in China.

The past twenty years of Chinese history have seen a very substantial degree of economic growth over a sustained period. From Table 2 it can be seen that growth of real GDP has been relatively high, underwritten as it has been by strong growth in manufactured exports. In more recent years, despite the downturn in manufacturing exports brought on by the global financial crisis, growth has been maintained by renewed levels of government investment in infrastructure.

Table 2: GDP and exports growth for China, average annual percentage, 1980 to 2014

Year	1980 - 1984	1985 - 1989	1990 - 1994	1995 - 1999	2000 - 2004	2005 - 2009	2010 - 2014
Real GDP	9.6	9.9	10.9	9.1	9.2	11.4	8.6
Exports	5.2	1.2	13.9	13.1	5.5	13.1	13.8

Source: World Bank (2014)

The growth and predominance of this export-orientated manufacturing sector has meant that there has been in China in the recent past a substantial growth in demand for engineering and related technical qualifications in the higher education sector. Likewise, the rapid growth of Chinese cities has meant that there has been a substantial demand for graduates in civil, transportation and communications engineering. Overall there has been a substantial increase in the standard of living in China with the average per capita income of the Chinese multiplying a number of times (see Table 3).

Table 3: GDP Per capita of China (constant 2005 international \$), 1980 to 2014

Year	Per capita GDP
1980	524
1985	814
1990	1,186
1995	1,849
2000	2,667
2005	4,115
2009	6,000
2014	7,594

Source: World Bank (2015)

In terms of understanding the forces that have encouraged the growth in demand for higher education in China, it is possible to compare the nature of the Chinese economy and society with that of other countries. Table 1 provides macroeconomic level data for both China and a range of other countries, both developed and developing. First of all, it is possible to compare China's average level of growth and income levels with that of other countries. In 2014, it was estimated that China had an average per capita GDP of \$12,900. This makes it a country with an average level of income per capita, higher than countries such as India (\$5,800) and the Philippines (\$7,000), but lower than countries such as Thailand (\$14,400), Brazil (\$15,200) and Mexico (\$17,900). China's population has a median age (at 36.7) which is higher than that of many developing countries, although lower than that of most developed countries (see for instance for the United States, Japan and the United Kingdom). As well, although the proportion of China's GDP that is generated by the agricultural sector is similar in proportion to that of other developing countries (at just under ten percent) the proportion from the industrial sector is high and from the services sector correspondingly low.

Compared to many other countries, it is the services sector of China that is relatively underdeveloped. The bulk of services in China are concentrated in retailing, transportation and communications, and as yet such things as design, marketing, logistics and financial and management services are still underdeveloped. It is in the latter fields that it is expected that the greatest

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demand for graduates will come in the near future (Organisation for Economic Cooperation and Development, 2009).

Strong growth in the economy and incomes has meant that there has been increasing numbers of people who wish to study at the higher education level. Strong growth in the economy also creates strong demand for graduates. At the same time, the strong shift of the population into the industrial sector has meant that there has been a strong demand for engineering and related skills. The growth of the services sector in the future will probably tend to extend this demand for higher education graduates further but also will encourage a change in the composition of higher education towards business, IT and related qualifications.

The strong growth in incomes in China and demand for graduates means that it is expanding in size at a more rapid rate than in most developing countries. This has raised some concerns about the quality and employability of graduates. A shortage of well-trained graduates could hinder the growth of the Chinese economy and prevent it from developing more sophisticated industries, according to a report by consultants McKinsey (Farrell & Grant, 2005). According to McKinsey, China produces about 600,000 new engineers every year, nine times as many as the United States; however, of the pool of 1.6 million young engineers in the country, only about 160,000 have the practical and language skills to work for a multinational according to the report. This means that despite strong growth in the number of graduates there is a general lack of practical skills and poor English-speaking amongst graduates which the report states will make it hard for China to develop service-based industries. Compared to many countries, therefore, the Chinese higher education sector faces some difficulties associated with too rapid expansion.

It is in this context of rising participation rates, higher income levels and stronger demand for graduates that the private higher education sector in China has emerged. At the same time the rapid growth of both the higher education sector in general and the private higher education sector has meant that the government has had to respond by fine-tuning its regulatory approach to the sector. In understanding the impact of regulation on the growth of private higher education, it is important to have a clear understanding of the manner in which the overall higher

education sector expanded in China in recent years. In order to do that, it is important to see how the attitudes of policymakers towards the private sector, more generally, have changed over the past 30 years. The structure and character of the Chinese economy and its relationship to the government sector is very much a product of past trends.

### **A history of reform of the Chinese economy**

The Communist Party of China came to power in the revolution of 1949. In 1949, China's economy suffered from the debilitating effects of decades of conflict. At the end of the war with Japan in 1945, Soviet troops had dismantled about half the machinery in the country's major industrial areas of the northeast and shipped it to the Soviet Union. Transportation, communication, and power systems had been destroyed or had deteriorated because of lack of maintenance. Agriculture was disrupted, and food production was far below its pre-war level (Chow, 1993).

The chief goal of the government in the years 1949 to 1952 was simply to restore the economy to normal conditions. This did, however, involve a substantial degree of state interventionism. The banking system was nationalised and centralised under the People's Bank of China. Commerce was regulated by the establishment of state trading companies, which competed with private traders in purchasing goods from producers and selling them to consumers or enterprises. Large scale privately owned enterprises were gradually brought under government control.

In agriculture, a major change in landownership was carried out. Under a nationwide land reform programme, titles to about 45 percent of the arable land were redistributed from landlords and more prosperous farmers to the 60 to 70 percent of farm families that previously owned little or no land. Once land reform was completed in an area, farmers were encouraged to cooperate in some phases of production through the formation of small mutual aid teams of six or seven households each.

Once the Communist Party had consolidated its grip on power, it could begin to attempt to transform the Chinese economy to match its vision of state control. China's post-revolution economic policies can be divided into three distinct phases. Between 1952 and 1965, there was state-led planning

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and a push towards industrialisation with a strong emphasis on building up the heavy industrial sector of the economy. Between 1965 and 1978, economic development was disrupted by the Cultural Revolution which impeded economic development to a substantial degree. After 1978, market-orientated reforms occurred, initially in a small sector of the economy but progressively spreading to a successively larger part of the economy. Chinese economic development over the longer term, therefore, has been characterised by a number of changes in emphasis, the most important being the post-1978 change in orientation from a Communist style drive to one that is more market-based and open to international trade (Chow, 1993).

Throughout the post-revolution period, the Chinese Government has formulated its overall attitudes to development in the form of five-year plans. These successive plans have tended to emphasis different characteristics of development.

The first five plans were mainly aimed at building up China's infrastructure and upgrading the agricultural and industrial base. Subsequently the main emphasis has been with developing economic reforms to improve China's international competitiveness. At the milestone Third Plenum of the National Party Congress's 11th Central Committee, which opened on 22 December 1978, the party leaders decided to undertake a programme of gradual but fundamental reform of the economic system. This Committee introduced the first steps on the road to reform.

They concluded that the previous version of the centrally planned economy had failed to produce efficient economic growth and had caused China to fall far behind, not only the industrialised nations of the West, but also the new industrial powers of Asia such as Japan, South Korea, Singapore, Taiwan, and Hong Kong. The purpose of the reform programme was not to abandon to political control, but to consolidate it by substantially increasing the role of market mechanisms in the system and by reducing government planning and direct control. The first half-decade from the end of 1978 saw policy changes in the economy in the direction of the greater use of markets and free enterprise in the countryside. The new policies were designed to strengthen the authority of managers and



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economic decision-makers of industrial units at the expense of party officials, stressed material incentives for workers, and called for expansion of the research and education systems. Foreign trade was increased, and exchanges of students and “foreign experts” with developed countries were encouraged.

Since 1978, the Chinese economy has undergone a major transformation. It has moved decisively away from the old centrally planned command economy and, after twenty years of systemic reforms, has become a semi-market economy. Reforms have progressively introduced (albeit with setbacks at times) two major changes in the economic system: transfer of decision-making powers to the producers, and introduction, to varying degrees, of the laws and institutions of the market. Debates on economic development have moved far beyond the narrow ideological parameters of the 1970s and 1980s. Big issues are now not so much ideological as logistical. The crisis in Beijing in 1989 led to further changes in Chinese development, but did not alter the overall policy of reform and modernisation. By 1981 the reformers had gained control decisively and began to create the Sixth Five-Year Plan. Subsequent plans continued the trend.

In response to the Global Financial Crisis, the Chinese Government launched its Economic Stimulus Plan to specifically deal with the Global financial crisis of 2008–2009. The crisis meant that there was a reduction in global demand for China’s manufactured export goods. This in turn led to a reduction in economic growth. In order to maintain growth levels at pre-crisis levels, the government undertook a range of measures. These measures included increasing the stock of affordable housing, easing credit restrictions for mortgage and small and medium sized enterprises, lowering taxes such as those on real estate sales and commodities, and more state investment into infrastructure development, such as the rail network, roads and ports. Together these measures were successful at maintaining growth levels but only by accumulating substantial levels of government debt.

### **An economy transformed**

The post-1979 economic reforms have had a dramatic effect on the size of the Chinese economy. By 2006, the Chinese economy had become the second largest in the world and one of the world's largest exporters. The magnitude of foreign investment and trade also increased considerably. Foreign direct investment increased from an average of about US\$ 2 billion per year during the 1980s to more than US\$ 100 billion in the 1990s (Chuang & Hsu, 2004; Table 4). This foreign direct investment was largely directed to the export-orientated manufacturing industries. As a consequence both foreign investment and exports are clustered within the same provinces mainly the coastal ones.

Table 4: Foreign direct investment in China, (US \$million), 1979 to 2013

Year	Actual
1979-82 cumulative	1,767
1983	916
1984	1,419
1985	1,959
1986	2,244
1987	2,647
1988	3,739
1989	3,773
1990	3,755
1991	4,666
1992	11,292
1993	27,514
1994	31,787
1995	33,849
1996	41,000
1997	41,674
1998	41,117
1999	36,978
2000	37,483
2001	37,357
2002	46,789
2003	47,229
2004	53,131

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2005	67,821
2006	56,934
2007	121,418
2008	114,792
2009	87,168
2010	185,750
2011	231,652
2012	175,250
2013	184,972

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Source: Lardy 1996, World Bank (1996-2014)

Looking forward to the future, there is an expectation that the Chinese economy will continue to grow. The World Bank forecasts that by 2020 the Chinese economy will overtake that of the United States as the world's largest, although it is also true that China's leaders will have to grapple with a host of future problems before this potential can be realised. These problems include the growing regional and income inequalities that have been created since 1979, the persistence of unemployment in some parts of the country, official corruption and the consequent loss of public faith in government institutions, and the need to find alternatives to the enterprise-based healthcare and welfare systems. The latter problem will be particularly acute as the Chinese population is aging steadily and by 2020 a substantial part of the population will be over 65.

The Chinese economy today is made up of a range of different types of enterprises which all, mainly, derive their origins from the early reform years. These enterprises tend to be either, in origin, having grown out of the small scale enterprise that were formed from rural communes and villages, from the larger-scale state-owned enterprises, or originated as individual-owned companies. Many of these different types of firms subsequently entered into joint arrangements with foreign companies and in recent times foreign companies have operated as sole enterprises as restrictions on their operations have eased (Chuang & Hsu, 2004).

To begin with how this affected the rural sector of China. One interesting aspect of the economic reforms in China has been the degree to which they initiated a burst of individual entrepreneurship. This manifested itself in a proliferation of township and village enterprises which in turn created a

remarkable transformation of the Chinese rural economy. Indeed, it was surprising even to the architects of China's reforms, including Deng Xiaoping himself, who is reported to have remarked that they "appeared out of nowhere". Their importance to China's economy is shown by the fact that in 1996 township and village enterprises accounted for 35 percent of total industrial output (*China's township enterprises key to economic growth*, 1997). In addition, they have maintained an annual, average growth rate of more than 20 percent over the past two decades, compared with the overall industrial growth rate of 13 percent. By the end of 1996, they employed 135 million people and around 29 percent of China's total rural labour force (Cai, Wang & Du, 2002).

After the original success of reform of the rural economy, China's leaders turned their attention to the industrial sector in the early 1980s. There was no successful precedent, let alone a blueprint, for the transformation of such a large country from a command economy to one of a "socialist market economy". Observers have described the resulting Chinese approach to economic reform as being one of "gradualism", while Deng Xiaoping referred to it as "crossing the river by feeling for the stones". It has meant that there has been a fair degree of experimenting with various methods, the mixing and matching of different policies, and at times retreats from bold reform measures if they proved to be ineffectual or politically too difficult. This approach contrasts sharply with the "shock therapy" used in many of the former communist countries of Eastern Europe. But while there have been substantial reforms in China's state-owned enterprises, they remain inefficient and an obstacle to economic development. As recognised at the Fifteenth Congress of the Chinese Communist Party in September 1997, dealing with problems of the state-owned enterprises would be one of the biggest challenges for the Chinese leadership over the following few years (Cai, Wang & Du, 2002).

Since 1984, there has been an attempt to grant a much greater degree of autonomy to the state-owned enterprises. The Factory Director Regulations of 1986 were the first in a series of new laws and regulations that aimed to grant business autonomy to the state-owned enterprises. The Factory Director Responsibility System, as the new organisational structure became known, designated the manager as the legal representative of the state-owned enterprise. It gave the manager the power to make all decisions

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concerning business operations, thus weakening the influence of various levels of state bureaucracy. Nevertheless, the manager was still appointed by “competent authorities in charge of the enterprise”, that is, by the government ministry or department which exercised administrative control. The autonomy enjoyed by the manager was also limited by the provisions under the new regulations, which required the approval of “competent authorities” for many important decisions.

To increase the business autonomy of state enterprises, the State-Owned Enterprise Law was adopted by the First Session of the Seventh National People’s Congress in April 1988. It provided the legal framework for the enlargement of the powers of enterprise by redefining relations among the Party, the state and enterprises. One of the stated objectives of the Law was to specify the obligations of the enterprises and to define and protect their legitimate rights. The functions and powers assigned to the enterprise manager included the ability to make decisions on production, pricing, investment, use of reserve funds, personnel management, etc. Most of these rights however, are still subject to State Council “regulations” or “stipulations”, thus again putting limits on the real autonomy enjoyed by these enterprises. The Law also provides that the manager must act together with the management committee of the enterprise, which is composed of the secretary of the Chinese Communist Party committee, the head of the official trade union, and the secretary of the Communist Youth League in the enterprise.

In 1992, the State Council issued the Autonomous Management Rights Regulations, which described in greater detail the management rights provided under the State-Owned Enterprise Law. Enterprises were made accountable for their own profits and losses. The regulations also described in specific terms the conditions for property rights transactions, and clarified the legal responsibilities of the companies and their government supervisory departments. To ensure greater enterprise autonomy, anyone who obstructed a factory manager or other management personnel in the execution of their duties could be punished by law. Even government departments infringing on enterprise rights could be subject to disciplinary action.

Despite the enactment of new laws and regulations, enterprise autonomy remains limited by administrative interference. Most enterprises do not have full authority in investment decisions, hiring and firing of employees, wage fixing and imports and exports. A 1994 World Bank survey involving 156 state-owned enterprises in five cities found that "more than 90 percent of the state-owned enterprises surveyed indicated that they were fully autonomous in production, sales and selection of suppliers". However, more than 60 percent indicated that they faced significant constraints with respect to the rights to trade, disposal of assets, and mergers (World Bank, 1997). Moreover, in the appointment and dismissal of senior managers, the Party still has a strong voice.

As an extension of the reform measures to increase enterprise autonomy, the government created a legislative framework to transform the state-owned enterprises into modern corporations. The Company Law of 1993 (which came into effect in July 1994) was seen as the most important legal development in the drive to establish state-owned enterprises as separate legal entities. The Company Law does not apply to state-owned enterprises only, but they did stand to benefit more by having their rights and obligations clearly defined. It was also hoped that as modern corporations they would be more accountable for their performance than enterprises that continued to operate under the control of government departments.

There were 7.34 million industrial enterprises in China by the end of 1995. Of these, 118,000 were state-owned enterprises, 1.48 million were urban and rural collectives (including township and village enterprises), 5.7 million were individually-owned enterprises (with less than seven employees each) and 63,000 "other" enterprises. The last category includes private firms with more than seven employees, joint ventures and wholly foreign-owned enterprises. In terms of shares in the country's gross value of industrial output for 1995, state-owned enterprises accounted for 34 percent, urban and rural collectives 37 percent, individually-owned enterprises 13 percent, and "others" 17 percent. The corresponding figures for 1992 were that state-owned enterprises produced 48.4 percent, urban and rural collectives 38.2 percent, individually-owned enterprises 6.8 percent, and "others" 6.6 percent (Goldstein, 1997). Thus, while urban and rural collectives managed to increase their share slightly, individually-owned enterprises doubled their share and "other" enterprises nearly

trebled their share in three years. The state-owned enterprises' share, by contrast, has dropped very substantially.

Such a rapid change indicates the problems faced by the state-owned enterprises. While they account for over one-half of the country's total industrial assets, two-thirds of urban employment and nearly three-quarters of investment, their profits have declined from six percent of the gross domestic product in the late 1980s to below one percent by the third quarter of 1996. According to World Bank estimates, in 1996 about 50 percent of industrial state-owned enterprises incurred net losses, amounting to 1.3 percent of GDP (World Bank, 1997). Moreover, a large portion of industrial capacity is lying idle. The Third National Industrial Census, conducted in 1995, revealed that the factory capacity utilisation rates for almost half of the 900 major products surveyed were on average below 60 percent (Brandt, Hsieh & Zhu, 2005).

In the centrally planned command economy which prevailed before the reforms, virtually all resources were allocated by the state and no significant markets existed for goods or services. Officials, with direct or indirect authority over the allocation of resources, could gain limited private and professional benefits by trading these powers in an economy marked by shortages. But since factory managers and lower-level officials had little authority to alter government plans for production and distribution, the scope for illegal transfers of resources and products for personal gain was extremely limited. Moreover, private business activity was forbidden and foreign companies were not allowed to operate in China. The foreign trade system was highly centralised and the total volume of China's trade with the outside world was insignificant. In short, the economic system, while inefficient, and was not conducive to large-scale corruption. The reform process has changed this. In 1995, Transparency International, an anti-corruption organisation, rated China as the second most corrupt country in the world, after Indonesia (Transparency International, 1995).

Along with the internal reform of the Chinese economy, one of the major drivers of change was the opening up of the country to foreign investment. Since 1979, foreign direct investment in China has grown steadily and today large numbers of foreign firms operate in China.

### **Foreign trade and investment**

Foreign direct investment in China has been important since the reform period began in 1979 (Berthelemy & Demurger, 2000) and was a part of the policy of opening up the Chinese economy. It was particularly important in enabling the introduction of new technologies to the Chinese economy and for enabling a period of catch-up growth. Foreign direct investment in China increased steadily after 1979 and increased even further after 1992 over a wide range of industries. By the late 1990s, China was one of the world's largest receivers of foreign direct investment (Tian, Lin & Lo, 2004).

Opening up the Chinese economy to the world has been a crucial part of the process of reform, to the extent that it is enshrined in the Chinese Communist Party Constitution as part of the Party's basic line. This was a marked change from the very restrictive approach, which applied in the pre-reform era. During the 1950s, China's foreign economic relations were largely confined to the Soviet Union and Eastern European countries, which provided much-needed economic and technological support. In the 1960s, after the split with the Soviet Union, China's isolation increased. Although from the early 1970s China began to expand trading relations with Western countries and Japan, it was not until after the death of Mao Zedong in 1976 that foreign trade and investment grew rapidly. In 1978 Hua Guofeng's Ten-Year Plan included plans for the large-scale importation of foreign goods and technology, but these were soon abandoned as ill-conceived and impractical. After 1978, the Chinese leadership developed a different strategy of giving greater importance to foreign investment and international trade in the process of economic development (Chuang & Hsu, 2004).

The new strategy clearly included a different attitude to foreign investment, changing as it did from rejection to strong encouragement. Foreign investment was negligible in the late 1970s, but China is now the world's second largest recipient of foreign capital (after the United States), accounting for 40 percent of combined flows of foreign direct investment to all developing countries. Table 4 provides data on the growth of foreign investment into China. There was a sharp increase in foreign direct investment flows to China beginning in 1991. There were several factors responsible for this sudden increase in the 1990s, including a general increase in flows to developing countries; the explosive growth of the



Chinese economy after 1992; systematic liberalisation of China's foreign investment regime; and the increasing flow of recycled Chinese funds being invested back in China as foreign investment (Lardy, 1996). Foreign investment in China is, however, highly concentrated geographically and its sectoral distribution is very uneven. A World Bank study found that the geographical distribution of foreign direct investment in China is determined largely by gross domestic product, infrastructural development, level of general education, and coastal location. It also revealed originally foreign investment in China had been biased towards speculative types of investment, particularly the real estate sector, although later it began to move in line with the rest of world (Arayama, 2004).

Similarly to foreign investment, the approach to trade changed greatly. Formerly China did not actively seek to promote exports and imports but was an extreme example of import substitution common in developing countries in the 1950s and 1960s. Since 1978, trade was no longer viewed simply as a means of balancing shortages and surpluses, but as a way to develop the economy. By the 1990s international trade occupied a substantial share of China's gross domestic product, approaching 35 percent in 1996. China's share of world trade also grew rapidly. In 1978 China was ranked 32<sup>nd</sup> among the world's trading countries. By 1991 it had climbed to the 15<sup>th</sup> position and by 1996 to 11<sup>th</sup>. China's total exports and imports rose from US\$ 20 billion 1979 to US\$ 290 billion in 1996, with exports expanding at an average annual rate of 16 percent and imports at 15 percent. By 2015, China had become the world's largest exporter (Central Intelligence Agency, 2015).

By 1996, foreign-invested enterprises (including joint ventures and wholly foreign-owned firms) accounted for 47 percent of China's total external trade. They also employed 17 million Chinese workers. In 1985, the share of China's total exports accounted for by these companies was only 1.1 percent. In the first eight months of 197, these companies' share of foreign trade increased by 16.8 percent to over US\$100 billion or 53 percent of the national total. Their exports grew by nearly 20 percent to by 12.8 percent to US\$44.6 billion (51.3 percent of the national total) (Berthelemy & Demurger, 2000).

Openness encouraged technological change and the restructuring of China's industries to be less import-competing and self-reliant in character and more export-orientated. Foreign direct investment was important in creating in China a large, export-orientated industrial sector which in turn became a major driver of economic growth and development. Foreign direct investment has been found to have made very positive contributions to economic growth in China (Chuang & Hsu, 2004; Pomfret 1997). Tian, Lin & Lo (2004) found that provinces which had the highest levels of foreign direct investment also had a higher level of economic growth. This investment along with direct benefits also was found to create externalities in the form of technology spillovers where technologies and management methods were copied through backward and forward linkages, or took place through labour mobility.

### **Drivers of growth**

In the Chinese case, it is clear that foreign investment, the manufacturing sector and exports have played a key role in national development. Generally the main contributors to economic growth are considered to be the accumulation of labour, capital as well as investment in human capital and new technologies. At its very simplest level, one very important cause of economic growth is the simple building-up (accumulation) of the factors of production (land, labour and capital). Accumulating factors of production such as capital or labour will raise output levels over time. In terms of productivity levels, using more capital plant and equipment per worker will raise labour productivity levels. Saving and investment in new capital will raise the amount of capital used per person. This in turn will raise the level of output per person (or real per capita GDP). Over the past thirty years in China, capital has accumulated on farms, in factories and in offices. This process has added considerably to the productivity of the Chinese labour force.

Examples of capital accumulation include such things as more farm equipment and irrigation in agriculture, roads and highways, airports and motor vehicles, and computers and communications systems in banking, insurance and in other service industries. In order to finance investment in the accumulation of capital, it is necessary to have adequate savings. China

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over the past thirty years has had a very high level of savings as a proportion of GDP.

Saving and investment in new physical capital and spending on human capital can help to create economic growth. Investing in capital, which uses the same level of technology, however, cannot continue to raise output levels. Gradually diminishing returns from investing in capital will occur. Diminishing returns is the idea that continually using more of an input (say capital), while holding the amount of other inputs constant will eventually mean that output will continue to rise, but at a slower (diminishing) rate. Using more capital, therefore, may raise output, but if the level of technology is fixed then this rise will eventually slow down. Economic growth can therefore only be sustained in the long run by improvements in technology.

Technology refers to the whole process of converting raw materials and factors of production into goods and services. It refers to the management and organisational practices as well as the engineering transformation of raw materials into outputs. Technological change occurs because of the investment in research and development programmes and from the practice of trial and error. It also comes from the introduction of new technologies from other industries and overseas. In the Chinese case, the influx of foreign direct investment also brought with it a substantial transfer of new technologies.

The main factor creating long-term growth in the world today is technological progress (both through invention and technology transfer). This progress is created by innovation. Innovation is the attempt by people and companies to reduce costs and develop new products. Innovation is a term linked to technology and means any improvement in technology that creates more output with the same level of inputs.

Not only is it possible to invest in physical capital such as factories, equipment and transport equipment, it is also possible to invest in the creation of the skills and knowledge of the labour force. The second cause of economic growth, therefore, is the investment in the knowledge and skills of the labour force. This is known as human capital. Human capital can be defined as being the accumulation of skills and knowledge of

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humans above that of unskilled labour. Investment in human capital raises the productivity of people.

One way in which human capital can raise productivity is by the use of one of the most basic skills of all, that is, reading and writing. Being able to read and write means that the labour force can learn from the experiences of others. Even today the extension of primary school education in a number of countries has made an important contribution to raising productivity. Ensuring the basic provision of education is an important part of economic growth. At the more advanced level, the development of mathematics laid the foundations for the raising of knowledge about the physical forces and chemical and biological processes of our existence.

Raising knowledge and skill levels does not simply mean raising technical skills, but also involves the development of managerial and entrepreneurial skills. These mean a person can make better use of resources. Organising and managing things better can achieve higher levels of labour productivity. More efficient and better-managed organisations can improve the flows of information, create better incentives for people and make better use of resources.

Investment in human capital takes place in schools, universities and technical training institutions as well as in the workplace. People often learn by doing the same thing many times over and when they work with people more experienced than them. This is called learning by doing. Formal education and training of the labour force can also raise productivity not just by creating a higher level of knowledge and expertise but also by helping people to be better able to make use of new technologies.

It is important to remember that these three causes of growth (physical capital, human capital and new technologies) are all related to each other. Human capital, for example, helps to create new technologies and investment in physical capital often means using new technologies. Usually a labour force that has a high level of skill and knowledge is better able to make use of new technologies.

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Whether growth can occur depends on the opportunities to make use of investment in physical capital, human capital and new technologies. The greatest scope for gains from economic growth exists for those countries that begin from a low level of economic development.

In the case of China, catch-up growth has been an important driver of economic development. Catch-up growth means transferring technologies from a leading country to those countries starting from a lower level of development. There is scope for quite big rises in economic growth if this can occur.

There has been a varied view on the relative impacts of the different contributions to Chinese growth. While some studies have found that human capital, for instance, has made a positive and significant contribution towards economic growth others have found little impact. According to Chow (1993), technological changes did not contribute towards economic growth in China between 1952 and 1980 and increases in output were due to capital formation and growth of the labour force. Between the years 1979 and 1994, in contrast, 42 percent of economic growth was due to increases in productivity (Hu & Kahn, 1997) brought about by the accumulation of human capital and technological change. Brandt, Hsieh and Zhu (2005) point out that this change continued after 1994 and that improvements in productivity in the industrial sector and export growth enabled a transfer of labour from agriculture to industry which in turn leads to a substantial restructuring of the Chinese economy.

Ezaki and Sun (1999) found in their study that those provinces with the greatest economic growth were also those that had the highest growth in capital. Sheer accumulation of capital was found to be a main driver in a number of provinces whilst in others the use of additional capital and technological change were found to be more important. Arayama and Miyoshi (2004) found that capital accumulation was the major source of economic growth in China's provinces.

Expenditure on infrastructure increased sharply after the introduction of reform. Fleisher and Chen (1997) and Demurger (2001) have shown the important of infrastructure to economic growth and development.

Investment in infrastructure, new technologies and human capital, therefore, all seem to have made an important contribution to the growth and development of the Chinese economy. It is however the role of human capital that is important, and in turn the role of higher education in the accumulation of human capital.

### **Human capital**

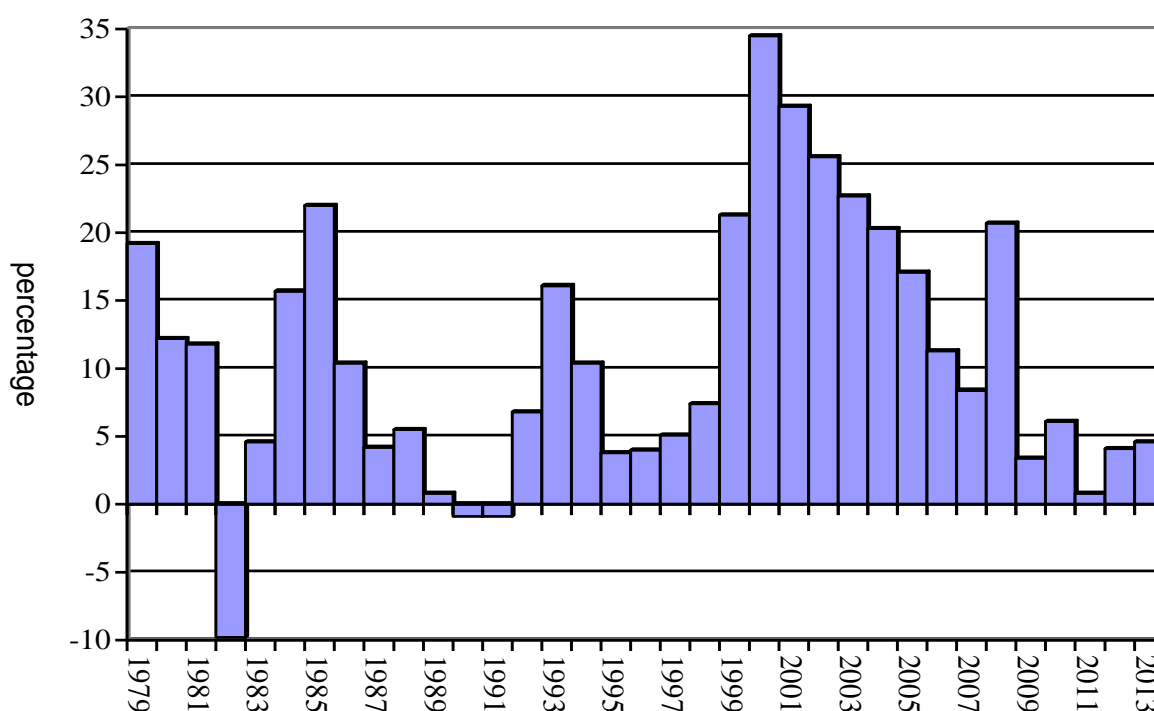
Although foreign direct investment by bringing new technology to China was, and is, a main driver of economic growth, these technologies do require new forms, and greater levels, of human capital. If foreign direct investment, R&D and international trade are important drivers of economic growth, then investments in human capital and education are important contributions to allowing this to occur.

With the opening up of China's economy and integration into the world economy, China's pool of knowledge had to be expanded rapidly in order to enable this growth to occur. Substantial investment by the Chinese government in basic education led to a higher rate of literacy which in turn encouraged the utilisation and adoption of imported technology. Investments by both the government and private individuals made important contributions to the rise of human capital in China.

A number of researchers have found a significant relationship between investment in education and economic growth. Fleisher and Chen (1997) and Chen and Fleisher (1996), for instance, found a positive relationship between university-level education and economic and productivity growth. Cai, Wang and Du (2002) found that investments in human capital lead to a higher growth in GDP. Jordaan and Blignaut (2005) came to similar conclusions. Other researchers have found more ambiguous results (Bethelmy & Demurger 2000).

Growth and development in China has, therefore, been reliant to some degree on the development and improvement of its education sector, at all levels. Although investment in education and human capital was not so important in the initial phase of China's growth, it is clear that in recent years it has been growing in importance. Figure 1 shows figures for the growth in enrolments in Chinese higher education between 1979 and 2013.

**Figure 1: Growth of enrolment numbers in regular institutions of higher education in China, 1979 to 2013**



Source: China, Ministry of Education, 1979-2013, *Education statistics for...*

Clearly growth in investments in higher education has been running at a higher rate than that of GDP. Despite this strong growth the level of participation in Chinese higher education is still lower than that of many other countries. Table 5 shows that enrolment rates in China are still below that of many other countries. It is to be expected, therefore, that growth of the Chinese higher education sector will continue for a few more years.

Table 5: Net enrolment rate; Secondary and Tertiary education, in selected countries, 2013

	Secondary	Tertiary
Australia	85.7	88.5
Azerbaijan	86.8	20.4
Belarus	96.8	92.3
Belize	74.3	25.9
<b>China</b>	<b>75.5</b>	<b>29.9</b>
Colombia	73.8	48.3

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Fiji	83.0	Na
Hong Kong (China), SAR	86.9	66.8
Indonesia	76.6	31.5
Japan	99.1	61.5
Malaysia	68.8	37.2
Mexico	67.8	29.4
Panama	76.9	43.5
Peru	76.3	40.6
Philippines	65.1	33.8
Republic of Korea	97.4	95.6
Russian Federation	74.8	76.1
Thailand	79.5	51.3
Turkey	83.3	79.3
Ukraine	87.1	79.0
United Kingdom	97.9	59.8
United States	86.9	89.0
Venezuela	74.7	52.4

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Source: UNESCO, Institute of Statistics, 2014

At the same time that the higher education sector has grown in size, its orientation has changed somewhat as well, in response to market demands. Table 6 shows a breakdown of enrolments in Chinese higher education in 1995 and 2007. The main change has been the large-scale increase in numbers enrolled in engineering, management and literature (mainly English language). As well as growing to accommodate market forces and aid further development of the Chinese economy, the higher education sector has shifted its emphasis.



Table 6: Enrolments by discipline in regular institutions of higher education in China, 1995, 2007

	Total 2007	2007 %	1995 %
Philosophy	23,012	0.08	0.11
Economics	1,441,824	5.08	8.50
Law	1,467,379	5.17	1.81
Education	1,539,296	5.42	2.30
Literature	4,121,406	14.52	7.16
History	85,380	0.30	0.95
Science	1,463,067	5.15	6.07
Engineering	8,701,187	30.65	22.85
Agriculture	506,402	1.78	2.15
Medicine	2,348,034	8.27	48.10
Management	6,692,660	23.57	0.00
Total	28,389,819	100.00	100.00

Source: China, Ministry of Education, 1985-2007

## Conclusion

China has seen a rapid growth and development in recent decades as it has been transformed from a largely self-reliant country, to becoming the world's largest exporter of manufactured goods. The heavy clusters of export, orientated manufacturing sectors based mainly in the coastal regions have driven the Chinese economy forward and substantially raised standards of living in that country.

The reform of the Chinese economy over a 30-year period has meant a substantial opening up of the Chinese economy, as well as a growing diversity of companies and industries within China. This has driven growth by encouraging an influx of foreign investment, new technologies and a powerful accumulation of capital. This growth and development in turn has led to an enormous demand for a variety of different labour market skills. To enable this growth to occur, therefore, an expansion of the education sector; including higher education has had to occur.

It is in this context of a rapidly growing and developing economy, and huge increase in investment in, and demand for, human capital that the education sector in China has developed. It has also meant that investment by the government in higher education has not been able to keep pace with demand for higher education which has enabled the private sector to establish higher education institutions in China. To a large degree, it has been the economic imperatives that have driven the growth of the private higher education sector in China as well as provided families with the income by which they can pay for higher education.

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