Vocational Education and Training in China

PP716: Introduction to Chinese Policy
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Introduction

Since China’s reform and opening to the global economy in 1978, its economy has grown remarkably. As China’s economy develops and expands, its demand for skilled labor increases. This policy analysis will explore China’s vocational education reforms as an attempt to address shortages of skilled labor. It will further draw comparisons to the United States’ approach to vocational education reform over the same period.

The 1996 Vocational Education Law set the standard for vocational education reforms, which continue today. Reforms to increase and expand the quality of vocational education institutions have generated some success, yet problems still remain. China faces a shortage of teachers who are qualified to teach vocational skills to their students. Moreover, vocational education opportunities for the rural population and ethnic minorities continue to fall short of the 1996 Law’s clear intention to address such inequities.

Most recently, China’s Ministry of Education (MOE) has implemented pilot projects in Tianjin, Sichuan, Chongqing, Hubei and Henan to evaluate potential policy advancements. These pilot programs have attempted to address some of the major challenges facing vocational education institutions. It is unclear how broadly such applications can be applied on a national level because these provinces represent a vast heterogeneity in terms of social, economic, and ethnic identities.

China will continue to focus on vocational education reform as it adapts to its status as an emerging international power. Vocational education’s close relationship to the economic prosperity of the country indicates that China will continue to need to make reforms to address problems that still remain. The lessons learned from the United States and other countries that have developed their vocational education systems will be valuable to China’s further reform efforts.
Vocational Education Reform in China

Vocational education in China is delivered through vocational higher education institutes, secondary skill schools, vocational high schools, and adult education. In each category there are a variety of school types. For vocational higher education institutes, there are Workers’ Colleges, Peasants’ Colleges, Institutes for Administration, Educational Colleges, Correspondence Colleges, Radio/TV Universities, and other institutions. In 2009, there were over two million students enrolled in vocational higher education institutes in China (Figure 1). Initially, graduates from vocational education institutes were not awarded degrees, which was probably due to the Chinese government’s tight control over the scale of higher education. After a series of educational system reforms, graduates from vocational education institutes are now awarded non-degree diplomas. In addition, some vocational education institutes have the capability to award a degree equivalent to a bachelor’s degree for four-year program graduates.

Vocational institutes appeared in China around 1980 as a new form of educational institution. During the transition from an entirely planned economy to a partially market-oriented economy, new industries and business boomed, which in turn demanded trained personnel to fill job positions for specialized fields. Under the centralized planning system, neither the national nor the provincial institutional systems could rapidly respond to the needs of new jobs. As a result the city governments responded to the demand by developing city vocational institutes, which represented the localization of vocational education.

“Vocationalism” and “localism” are two defining characteristics of vocational education institutes. These characteristics are reflected in their program structure and curricular system. Vocational institutes offer programs specifically designed for professional and occupational needs at intermediate and lower levels of the local job market. Practical skill training and hands-on learning are used to familiarize students with specific job requirements. Most vocational institutes in China are locally administered and financed at the city level. Institutional policies and development plans are constructed in conjunction with local social and economic needs. Vocational training schools have dynamic relations with employers, high quality training, and the flexibility to respond to rapidly changing and competitive environments.

Initially, students in vocational education were recruited locally and worked in the surrounding geographic areas after graduation. Under the centralized admission’s mechanism, vocational higher education institutes were last in line among all post secondary institutions to enroll new students. This usually meant that vocational education institutes could only recruit those students with the lowest grades. Vocational education programs generally led to lower-paying jobs, such as intermediate level skilled technician and operator positions. Local supply and
### Figure 1. Vocational Higher Education Institutes in China, 2009 Statistics

<table>
<thead>
<tr>
<th></th>
<th>Graduates 2009</th>
<th>2010 Expected Graduates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Normal</td>
</tr>
<tr>
<td>总计</td>
<td>1943893</td>
<td>865421</td>
</tr>
<tr>
<td>其中: 女</td>
<td>1018152</td>
<td>448350</td>
</tr>
<tr>
<td>一、成人高等学校</td>
<td>218398</td>
<td>40266</td>
</tr>
<tr>
<td>其中: 全脱产</td>
<td>101972</td>
<td>6948</td>
</tr>
<tr>
<td>职工高等学校</td>
<td>75769</td>
<td>1767</td>
</tr>
<tr>
<td>农民高等学校</td>
<td>1134</td>
<td>1134</td>
</tr>
<tr>
<td>管理干部学院</td>
<td>26066</td>
<td>5606</td>
</tr>
<tr>
<td>Institutes for Admin.</td>
<td>50901</td>
<td>31500</td>
</tr>
<tr>
<td>教育学院</td>
<td>63000</td>
<td>1393</td>
</tr>
<tr>
<td>Educational Colleges</td>
<td>1528</td>
<td>1528</td>
</tr>
<tr>
<td>远程函授学院</td>
<td>945920</td>
<td>512676</td>
</tr>
<tr>
<td>广播电视大学</td>
<td>505627</td>
<td>211504</td>
</tr>
<tr>
<td>总计</td>
<td>1725495</td>
<td>825155</td>
</tr>
<tr>
<td>其中: 全脱产</td>
<td>945920</td>
<td>512676</td>
</tr>
<tr>
<td>其中: 女</td>
<td>505627</td>
<td>211504</td>
</tr>
<tr>
<td>其他机构</td>
<td>1528</td>
<td>1528</td>
</tr>
<tr>
<td>其中: 女</td>
<td>1528</td>
<td>1528</td>
</tr>
</tbody>
</table>

demand were met by vocational institutes’ highly specialized programs and curricula. Economic expansion has influenced vocational education’s institutional policies and practices.

Since the late 1990s, Chinese higher education has become more widely available to more people (Figure 1). A total of over two million students were enrolled in vocational education institutes in China in 2009. An expansion of this magnitude has led to larger institutions and the emergence of new higher education institutions. Globalization has placed more demands on vocational education training (VET). Since the late 1970s, higher education in China has undergone several reforms in order to match the demand for national economic development. Institutions of higher learning have new vocational and occupational demands and standards of training advocated by business and industry.  

After 2000, the focus on vocational education development shifted from expansion to quality improvement. Since 2002, the MOE of the PRC held three national conferences on the “production, learning, research combination and cooperation”. Thereafter, higher vocational education adopted “service-aimed, employment-oriented, production-learning-research combined” as its basic principle. In this period, there were two issues in dispute, both concerning the mechanism and level of education that vocational education should provide. One issue was whether the current three-year program should be reduced to two-years. The second issue was whether vocational higher education institutes should offer a four-year program like other regular higher education institutes offer.

Since 2004, the new focus of higher vocational education has changed to curriculum and instructional model reform. The goals of vocational education should be realized through its curriculum. Even higher weight has been placed on practical training, which transcends the limitations of subject-based curricula.

**Government’s Role in Vocational Education Reform**

Chinese governments and their educational agencies play critical roles in shaping higher education institutions’ behavior. The Chinese government is involved in almost every step of decision-making including funding and developing programs, hiring teachers, and setting student admissions criteria. The MOE in China has authority to implement national policy for education to achieve the modernization goal and to improve national competition. The Ministry has prioritized expansion, quality and efficiency, restructuring, and regulation in its reform programs. Provincial education administrations receive central government instructions regarding how to manage the educational institutes in their provinces. Vocational higher education institutes must request approval from government administration in order to set up new academic programs. National policy changes and related implemented procedures play a crucial role in China’s vocational education development toward modernization and adaptation
to a global economy. The process of management by multiple levels of governments ensures that these institutes are kept on track.

**A Case Study: Nantong Vocational College**

A case study demonstrates the standardization of faculty qualifications, management of academic programs, and admissions standards, which are characteristic of China’s national system. Nantong Vocational College is located in Nantong, Jiangsu province. From 1983 to 2003, as the economy in Nantong grew, Nantong Vocational College’s enrollment grew twenty times (Figure 2).

**Figure 2. Nantong Vocational College Growth from 1983-2003**

<table>
<thead>
<tr>
<th>Year</th>
<th>Entrants (Graduates)</th>
<th>Departments</th>
<th>Programs</th>
<th>Double-major programs</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>394 (127)</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td>69</td>
</tr>
<tr>
<td>1993</td>
<td>1083 (274)</td>
<td>6</td>
<td>11</td>
<td>0</td>
<td>110</td>
</tr>
<tr>
<td>1998</td>
<td>2155 (535)</td>
<td>8</td>
<td>16</td>
<td>0</td>
<td>156</td>
</tr>
<tr>
<td>1999</td>
<td>2223 (722)</td>
<td>8</td>
<td>16</td>
<td>0</td>
<td>183</td>
</tr>
<tr>
<td>2000</td>
<td>2622 (832)</td>
<td>8</td>
<td>30</td>
<td>3</td>
<td>202</td>
</tr>
<tr>
<td>2001</td>
<td>4076 (601)</td>
<td>8</td>
<td>37</td>
<td>17</td>
<td>236</td>
</tr>
<tr>
<td>2002</td>
<td>5650 (720)</td>
<td>8</td>
<td>62</td>
<td>27</td>
<td>280</td>
</tr>
<tr>
<td>2003</td>
<td>6530 (948)</td>
<td>9</td>
<td>67</td>
<td>23</td>
<td>340</td>
</tr>
</tbody>
</table>

*Source: Anning Ding and John S. Levin “The Interventionary State in China and Programs and Curricula at a Chinese Vocational University”*

By 2002, Nantong Vocational College had nine departments: Mechanical Technology; Electronic Technology; Chemical Technology; Construction Technology; Textile Technology; Applied Liberal Arts; Foreign Languages; Economic Management; and Applied Arts. The college contained 62 programs, including 25 four-year double-major programs. Sharp expansion was observed in the number of students and faculty.

From Nantong Vocational College’s growth, the institutional movement trend is clear. Before 1999, the management of higher education institutions was manipulated strenuously through central government planning. Higher education institutions were not very engaged in the market, and the expansion of higher education was reported as slow and difficult. With further reforms on the national economic system since 1999, market driven forces have increased and begun to exert a more powerful influence on both institutional enrollment and local employment. Following institutional enrollment growth, significant restructuring and reform took place in programs, curricula, and the expressed purposes of training. Reforms were implemented through course delivery in the classroom and practical work on-site, such as in labs, workshops, or manufacturing plants.
For Nantong in 2003, the local economy was no longer limited to the local geographic area. There was increasing international investment, international trade and international tourism. The change in the economic structure also required the expansion of the meaning of “vocationalism” and “localism.” With the participation of external constituents in program and curricular restructuring, the connection between vocational education and the local economy was reinforced.
Central Government’s Investment in VET

This section seeks to understand why the government is investing in vocational education and training (VET) in specific ways by analyzing various pressures on the central government to invest in training and various ways to invest in training (and thus respond to pressures). As addressed in the previous section attitudes toward vocational training and ways to invest in VET have varied over the years. In the last few years, the government has focused more attention on VET and in 2009 chose VET as the next focus of education promotion. The various pressures on China to support VET begin to explain the reasons why the central government is investing at this point, such as a high and increasing demand for skilled workers. The central government’s major current investments in VET are in quality assurance and infrastructure.

Increasing Need for Investment in VET

There are many potential reasons that the government is choosing to invest in vocational education and training at this point in time. One category of reasons has to do with business and employment pressures. Currently there is high unemployment in many areas of China. This issue has been exacerbated by the international financial crisis. In addition to the variety of pressures facing the government, there are also varying pressures of having two different ministries responsible for VET at a country level: the MOE and the Ministry of Human Resources and Social Security.

Weakness in the Educational System

China has invested much in its 9-year compulsory and higher education systems, but VET, especially secondary VET, is a weakness within the education system. As these get better, there is a greater demand for continuing education, like VET – and quality VET that meets the needs of these workers. In order to have a high-quality, comprehensive education system, VET must be developed.

Skills Mismatch

Some unemployment is due to a mismatch between available jobs and available workers. A potential reason is that the skills taught in training and education courses are not what are needed in the workforce. A lack of alignment between these two areas can prevent matches between employers and potential employees. While this is a current issue, it is only expected to increase in the future. Many college graduates are having trouble finding jobs; the increase in college graduates has outpaced the growth in jobs requiring college degrees.
**Increased demand for skilled workers**

Across China there is predicted to be an increase in manufacturing jobs requiring skilled workers. Some believe that, while the labor supply still outweighs the demand,\(^{11}\) the Chinese workforce is not prepared for the predicted increase, as rural laborers are “poorly educated and have no skills.”\(^{12}\) While enterprises expect to find an ample supply of skilled laborers, much of China’s labor supply is rural laborers without much training. Even currently, while there is high unemployment, there is a shortage of qualified workers for technical and skilled job categories. A recent paper cites the ‘job opening to application’ ratio as an indicator, with ratios ranging 1-2.4:1 for technicians and skilled workers.\(^{13}\) In addition, the Chinese government is striving to transition to a knowledge economy. This transition would require that workers have ongoing training or “lifelong learning”\(^{14}\) throughout their careers rather than merely to prepare for a transition to a new career.

**Increased demand for training opportunities**

Workers are demanding additional training opportunities. There has recently been an increase in non-state, non-enterprise companies that offer skills training. Commercial VET institutions reached 21,811 nationally in 2008.\(^{15}\) Some opportunities are “self-sponsored” or selected and paid for by the employee, in order to diversify skills and/or knowledge.\(^{16}\) At the same time, VET is perceived to be of low quality and is associated with a “second-class image”.\(^{17}\) As this perception changes, demand can be expected to increase.

**Citizens’ expectations**

In addition to business pressures, there are political pressures for China to provide vocational education and training. For many years workers were “assigned by the state to enterprises that were obliged to give them jobs.”\(^{18}\) Because of this tradition, workers have an expectation of being provided a job. This expectation of citizens does not go away because the jobs are not available; there is still pressure on the state to help in these areas. Furthermore, state enterprise underwent a mass restructure and layoff during the late 1990s; this adds to the sense of entitlement for workers affected by this change.

In addition, workers lack job search skills because they have not had to look for a job before. (In many countries, including the United States, developing job search skills training is a key component of VET.) In addition to adding to political pressures for vocational training, the tradition of providing jobs affects the vocational skills of the workers. Because most were provided jobs, they lack job search skills.
**Unbalanced education**

China’s general education system and adult education system have greatly improved, but they have done so in an imbalanced way across geographies and populations. Adult education, which is a wider classification than just VET, is unbalanced across regions that are economically developed, sub-developed, and under-developed. In addition, primary education has varied greatly across the country, which results in workers with varying levels of education. Vocational training is needed in areas with weaker primary education to build the skills of workers.

**Types of Investment**

The Chinese government invests heavily in adult education. In 2006, RMB17.431 billion yuan was invested in adult education.\(^1\) National funds for education grew 11.9-20.5% annually between 1997 and 2006.\(^2\) Funds for adult education have also been increasing, at 5/7-18.6% annually over the same period (with one year of -10.5% growth), but have declined as a proportion of total funds due to the larger growth rates of the overarching national funds for education. Investment is needed to reach the goal of training 34 million skilled workers by 2015, as stated in the Ministry of Human Resources and Social Security’s 2010 blueprint.

Adult education includes VET, and it is important to understand the type of investment being made specifically in this area. Multiple types of investment strategies are described below. It is important to understand the relative magnitude of the investment in these programs and the timing of the programs. While that data is not readily available, in terms of specific numbers, news articles indicate that current investment is in infrastructure, and it represents a significant amount of investment. Other strategies seem to have required smaller investments and have been occurring over the last few years.

Given the administrative structure of the vocational programs, the central government does not provide much influence over the local implementation of programs. The local educational authorities develop plans to implement VET in the context of local conditions, in addition to writing training curricula, hiring teachers, and evaluating programs and students. The government provides guidance and financial support, as seen in the types of investment described here. More information about what the central and local governments fund is included in the discussion of Pilot Areas.

**Infrastructure**

The government is investing in infrastructure for VET, which includes buildings and teacher tools for programs. The Chairman of the China Vocational Education Association cites slow
infrastructure construction as one of the top reasons VET is the weakest part of the education system.21

Financial Supports

The government is investing in VET by providing subsidies to groups of workers who have trouble finding employment to attend training programs.22 Targeted populations include registered unemployed people, rural migrants, and rural laborers. The government created the Special Vocational Training Program in 2009 to assist those affected by the financial crisis. It aimed to affect 15 million people in two years.23 The government is also incentivizing the development of “training bases” at a variety of schools, such as senior technical workers schools, technicians’ colleges, and vocational colleges and universities.

Ensuring quality

The government can play a centralized role in generally “ensuring quality” of the VET programs across the country. As many different agencies are involved in delivering training, the central government can coordinate across the organizations to make sure the training being delivered is effective. In addition, the government intends to make sure the training meets the requirements of positions workers are intended to fill.24

Additional Measures to Improve VET

In 2006 there were 220,000 enterprise-based training centers, which are sponsored by employers or trade associations.25 In order to improve the skill levels of workers, the Chinese government is also calling upon enterprises to become more involved in vocational training.26 It expects enterprises to provide and encourage VET for their workers. Efforts include simple initiatives like providing skills training to workers to more complicated, structural initiatives like establishing an apprentice system for highly skilled technicians to train apprentice workers.27

The government is also working to create new collaborative programs between enterprises and schools. The School-Enterprise Cooperative Development of Skilled and Talented People brings together the government, schools, and enterprises to address these issues together.28 In addition the government is incorporating trade unions, the Communist Youth League, women’s federation, and social organizations in the delivery of VET.29
Rural Migration and VET

Since 1984 the Chinese economy has experienced a shift from agriculture to industries such as manufacturing. As a result of this shift, China has experienced a resource misallocation, with a labor surplus of agricultural workers and labor shortages in industrial sectors, where China is experiencing the most growth. Vocational training has been called upon as a solution of realigning the labor market and training workers in industries that are experiencing shortages.

Rural to Urban Migration

Multiple factors have led to an increase in rural migration to cities in China. First, as a result of a changing marketplace and developing technologies, there has been a dramatic decrease in the number of agricultural jobs available, most of which are located in rural areas. In 1994, the total labor supply was 619.5 million, of which 441.5 million worked in rural areas, mostly in agriculture (Figure 3)\(^{30}\). From 1980-1994, state-owned enterprises and collectives in urban areas provided the majority of jobs and were experiencing high labor shortages. As a result of the labor imbalance, many rural workers were traveling to urban areas for employment opportunities.

Jobs in urban areas continue to be appealing because they often provide more benefits than rural jobs. Urban workers are often provided with more mandatory benefits, and employers have less latitude in determining wages, which are regulated by the state.\(^{31}\)

Figure 3. Labor Supply and Demand, Selected Years, 1980-94

<table>
<thead>
<tr>
<th>Category</th>
<th>Millions of people</th>
<th>Annual growth rates (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total labor supply</td>
<td>429.0</td>
<td>501.3</td>
</tr>
<tr>
<td>Total labor demand</td>
<td>423.6</td>
<td>498.7</td>
</tr>
<tr>
<td>Urban labor force</td>
<td>105.3</td>
<td>128.1</td>
</tr>
<tr>
<td>State-owned enterprises</td>
<td>80.2</td>
<td>89.9</td>
</tr>
<tr>
<td>Collectives</td>
<td>24.3</td>
<td>33.2</td>
</tr>
<tr>
<td>Private</td>
<td>n.a.</td>
<td>0.4</td>
</tr>
<tr>
<td>Self-employed</td>
<td>0.8</td>
<td>4.5</td>
</tr>
<tr>
<td>Rural labor force</td>
<td>318.4</td>
<td>370.7</td>
</tr>
<tr>
<td>Agriculture</td>
<td>283.3</td>
<td>303.5</td>
</tr>
<tr>
<td>Other</td>
<td>35.0</td>
<td>67.1</td>
</tr>
<tr>
<td>Unemployed (urban)</td>
<td>5.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Unemployment rate (percent)</td>
<td>4.9</td>
<td>1.9</td>
</tr>
</tbody>
</table>

\(^{30}\) Not applicable.

Addressing Challenges in Migration

There is a surplus of approximately 18 million rural laborers who move to the cities for employment. The majority of rural migrants find that they do not have the education, training, or resources to obtain jobs in the cities. Legally, rural residents cannot take a job in an urban area without a work permit and cannot access state benefits without a residency permit. The government as well as non-government organizations (NGOs) and civilian-run organizations have created numerous programs to counter this influx and train migrants to be better equipped for gainful employment.

Training in High-Demand Fields

In an attempt to fill labor shortages in industrial and service sectors, the government shifted resources from agriculture toward vocational training in high-demand areas, particularly in finance, administration, and economics (Figure 4). This is one of many attempts by the government to train agricultural workers in more sought-after industries.

Figure 4. Secondary Vocational Schools: Intake and Enrollment, by Field of Study, 1990 and 1994

<table>
<thead>
<tr>
<th>Field</th>
<th>1990 Intake</th>
<th>1990 Total enrollment</th>
<th>1994 Intake</th>
<th>1994 Total enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry</td>
<td>295,492</td>
<td>746,200</td>
<td>437,784</td>
<td>1,043,027</td>
</tr>
<tr>
<td>Maintenance and repair</td>
<td>135,647</td>
<td>308,787</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Agriculture and forestry</td>
<td>251,082</td>
<td>523,033</td>
<td>154,896</td>
<td>394,018</td>
</tr>
<tr>
<td>Health</td>
<td>48,307</td>
<td>149,859</td>
<td>101,590</td>
<td>255,715</td>
</tr>
<tr>
<td>Finance, economics, administration</td>
<td>126,676</td>
<td>323,232</td>
<td>401,923</td>
<td>909,406</td>
</tr>
<tr>
<td>Politics and law</td>
<td>4,553</td>
<td>10,498</td>
<td>16,088</td>
<td>29,096</td>
</tr>
<tr>
<td>Teacher training and humanities</td>
<td>89,170</td>
<td>214,740</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Other</td>
<td>87,443</td>
<td>194,926</td>
<td>355,280</td>
<td>794,166</td>
</tr>
<tr>
<td>Total</td>
<td>1,038,350</td>
<td>2,471,275</td>
<td>1,467,726</td>
<td>3,425,583</td>
</tr>
</tbody>
</table>

n.a. Not available.

Note: Maintenance and repair and teacher training humanities are not separately recorded in 1994.

Source: State Education Commission (various years).
Strengthening Adult Literacy

The influx of rural migrants into cities has put a severe strain on urban resources. The government has attempted to address rural absorption by developing township and village enterprises and restricting rural to urban migration of untrained workers. This has taken the form of adult literacy programs run by county, townships and village schools. In 2006, rural based schools provided literacy education to over 1,646,100 farmers. The figure below (Figure 5) provides a breakdown of the different local entities and the number each has educated through its farmer literacy programs.

Figure 5. Adult Education in Rural Areas of China in 2006 (Rounded to nearest whole number)

<table>
<thead>
<tr>
<th>Name</th>
<th>Schools</th>
<th>Graduates in 10,000</th>
<th>Enrollment in 10,000</th>
<th>Full-time teachers in 10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers colleges</td>
<td>3</td>
<td>0.18</td>
<td>0.21</td>
<td>0.02</td>
</tr>
<tr>
<td>Rural adult cultural and technical schools</td>
<td>Total</td>
<td>150,955</td>
<td>4,251</td>
<td>3,842</td>
</tr>
<tr>
<td></td>
<td>County-run schools</td>
<td>1,426</td>
<td>132</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>Township-run schools</td>
<td>22,064</td>
<td>1,979</td>
<td>1,692</td>
</tr>
<tr>
<td></td>
<td>Village-run schools</td>
<td>124,002</td>
<td>2,314</td>
<td>1,929</td>
</tr>
<tr>
<td>Secondary schools for farmers</td>
<td>1,480</td>
<td>73</td>
<td>44</td>
<td>1</td>
</tr>
<tr>
<td>Primary schools for teachers</td>
<td>Total</td>
<td>54,417</td>
<td>273</td>
<td>263</td>
</tr>
<tr>
<td></td>
<td>Primary classes</td>
<td>14,020</td>
<td>109</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>Literacy classes</td>
<td>40,397</td>
<td>165</td>
<td>167</td>
</tr>
</tbody>
</table>


High-tech Agricultural Training

For those rural laborers who choose to stay in agriculture, the government has provided applied technical training in agriculture to make farmers more competitive in the world market. This includes green certification training and entrepreneurship training, which combine classroom instruction with training in the field.

Small Business Creation

One way of preventing migration is by building local economies in rural areas. The government has emphasized small business creation among rural inhabitants. Since 2007, the government
has provided start-up business training to over two million rural and urban laborers, with particular attention to the unemployed, youth, and rural immigrant workers. Building small businesses not only improves local economies but also produces entities that have lower market risks. Training has taken the form of “one-stop shops” that train students in policies, technology, and funding for starting up a small business.

**Third Sector Contributions**

Outside of government, non-government organizations (NGOs) or civilian-run organizations and enterprise-training centers have arisen to address the labor shortage. NGOs have primarily focused on providing individuals with the resources to obtain professional qualifications and professional certificates, and are often funded by overseas organizations. One organization is highlighted in Figure 6. Enterprise-training centers, on the other hand, are sponsored by trade associations that primarily train their own workers. Enterprise-training institutions have experienced the most growth, having established over 220,000 centers across China. (}
Figure 6. Spotlight on Civil-Run Training Center

Spotlight on Civil-Run Training Center: Practical Skills Training Center for Rural Women
Dadongliu Village, Xiaotangshan Township in Changping District

<table>
<thead>
<tr>
<th>Supervision:</th>
<th>Beijing Cultural Development Center for Rural Women</th>
</tr>
</thead>
</table>

**Mission:** “To provide short-term training that will enable rural women from poor families to learn practical skills as well as to build their general abilities. This will ultimately enable them to improve their social and economic development and participate fully in society.”

**Courses taught:** Short courses in services (1-3 months) such as computer training, sewing, waitressing, hairdressing or beautician services. There are also courses in training rural teachers, starting your own business, raising livestock and participating in village politics.

**Funding:** Domestic and international charity organizations and donations from foreign and local individuals.

**Reach:** The center has trained 4,360 students from 17 ethnic groups from 26 provinces and regions.
## Figure 7. Number of Vocational Training Institutions and Trainees in 2006

<table>
<thead>
<tr>
<th>Type</th>
<th>Training Institutions in 1,000s</th>
<th>Number of trainees in 10,000 person/times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical schools</td>
<td>2.86</td>
<td>270</td>
</tr>
<tr>
<td>Employment training centers</td>
<td>3.21</td>
<td>130</td>
</tr>
<tr>
<td>Civilian-run training centers/NGOs</td>
<td>21</td>
<td>1905</td>
</tr>
<tr>
<td>Enterprise-based training centers</td>
<td>220</td>
<td>1095</td>
</tr>
<tr>
<td>Total</td>
<td>49.07</td>
<td>3400</td>
</tr>
</tbody>
</table>

VET Teacher Shortage

The emphasis on vocational education and training (VET) to address the rise in economic activity in China has created a discernable problem. Since the 1980s, there has been a shortage of teachers in VET institutions, which has resulted in disparities in the quality of education received. While the 1996 Vocational Education Law requires that 20 percent of the annual education budget be allocated to VET, this commitment is rarely met. There are estimates that, as of 2004, roughly seven percent of education funding goes to VET. This creates a budgetary shortfall for VET institutions, thereby directly affecting the amount and quality of teachers institutions are able to hire.

The ratio of students to teachers in VET was 24.54 to 1 in 2008. Figure 8 indicates the trend in teacher attainment since 1980, with approximately 850,400 teachers hired in 2008. There has been some progress made in increasing the number of teachers since the early 2000s. However, the increase has not been able to offset the demand for teachers. The shortage of teachers is a direct result of a number of forces working together. Specifically, they have resulted from an increase in student enrollment, teacher attrition, and teacher retirement, as well as persistently low wages for teachers.

Figure 8. Change in total amount of VET teachers, 1980-2008 (measured in 10,000 persons)

Source: Ministry of Education of the People’s Republic of China & Xu, Shuo and Wang, Jianchu, Vocational Teacher Education and Training in China, Institute of Vocational Teacher Education of Tongji University, November 2009
**Underqualified Teachers**

The shortage has led institutions to hire teachers who do not have adequate professional training. The teachers hired are mostly young recent graduates. Lack of experience has made it difficult for teachers to impart practical vocational skills to students. It affects the students are able to obtain and undermines China’s goals of VET expansion for national economic development.

“**A new type of teaching methodology should be established in vocational schools, one that asks skilled technical workers to conduct the instruction instead of teachers with little actual experience.**”
- Cheng Fangping, expert in vocational education, China National Institute for Educational Research, December 2006

**China’s Current Solutions**

**Part-Time Teachers**

The Vocational Education Law allows for some temporary relief by permitting institutions to hire part-time teachers. Figure 9, below, shows that 14% of current VET teachers are part-time; these teachers are not accounted for in the general count of vocational teachers. However, this loophole is not a sustainable solution to the shortage of qualified teachers. While the number of part-time instructors temporary relieves the teacher shortage it is not a sustainable solution.

**Figure 9. Proportion of part-time and full-time VET teachers**

Source: Ministry of Education of the People’s Republic of China & Xu, Shuo and Wang, Jianchu, Vocational Teacher Education and Training in China, Institute of Vocational Teacher Education of Tongji University, November 2009
Teacher Education Reform

China has developed regulations for teacher education to address the lack of qualifications of teachers entering the VET system. Teachers are required to receive continuing training throughout their careers. Specifically, teachers must undergo 240 hours of classroom training every five years and work in their industry for two months every two years. The goal is to make certain that teachers have adequate and current practical experience.

To address the continuing education requirements for VET teachers, a large number of training bases have opened up. The State Ministry of Education has led the creation of these at various University centers, which have in turn partnered with corporations to meet the demand for teacher training. For example, Tongji University’s Institute of Vocational and Technical Education partners with international businesses and corporations, such as Shanghai Volkswagen, to educate aspiring VET teachers.

Lessons Learned From The United States

Similar Shortage Problem
While there have been recent attempts to increase the availability of VET, particularly in light of the recent economic recession and large increases in unemployment, the United States has faced a shortage of teachers for similar reasons as China has. Reasons include an increase in student enrollment, elimination of teacher education programs, teach attrition, and teacher retirement. Corporations have donated millions of US dollars to VET nonprofits in order to improve the job potential of members of various demographics, such as unemployed veterans.

Alternative Licensing
The National Association of State Directors of Career Technical Education Consortium proposed, in November of 2010, alternative licensing requirements to alleviate the shortage of qualified teachers. All 50 states have some type of alternative licensing arrangement as a pathway for experienced professionals to receive certification in their state. For example, in 2009 California passed a law that reduced the number of years of experience needed for a preliminary credential from five years to three years. However, such alternative arrangements have sparked intense debates as to whether they sacrifice the quality of instruction provided.
China’s Room For Improvement

China has several distinct challenges in meeting its goals of quality vocational education for students. One major, addressable challenge is the shortage of qualified teachers. While part-time teacher hires may offset some of the shortage pressures, they will not be sustainable in addressing the ongoing demand for VET. Therefore, the Ministry of Education should look at lessons learned from the United States, along with other international collaborations they have had. Below are suggestions for increasing the number of qualified teachers:

- **Effective Teacher Retention** – As rapid economic development continues to increase, so will the demand for VET. Teachers need to be retained to reduce turnover and maintain a high level of expertise in VET institutions.

- **Professional Development Opportunities** – Opportunities for professional development would enhance the experience of teachers and increase the quality of teaching in the classroom.

- **Fully Funding VET** – An increase in funding for VET to the levels specified by law could increase teacher salaries, thereby reducing teacher attrition and attracting more qualified teachers into VET.

- **Increase Effective University Partnerships** – The Ministry of Education has established a number of degree seeking and continuing education training programs for VET teachers at various universities. These institutes should be expanded to address the growing need for continuing education credits for VET teachers.
China’s Five Vocational Education Reform Pilot Areas: Results and Questions

Following the 1996 Vocational Education Law, China’s Ministry of Education (MOE), is pursuing its mandate to vigorously pursue the development of vocational education throughout the country. The MOE decided, in time honored Chinese tradition, to experiment with vocational education reforms in “pilot areas” through contracting with provinces and municipalities. Initially, only Tianjin contracted with the MOE in 2005 to be a vocational education pilot area. Sichuan, Chongqing, Hubei, and Henan agreed to do the same in 2008.

National vocational education pilot areas are unique development mechanisms because they have autonomy in designing programs, while agreeing to achieve a common set of general goals:

1. The development of institutions, policies, and clear lines of institutional authority within the local government regarding the reform and development of vocational education;
2. Capacity and enrollment expansion of vocational education facilities;
3. Increased and more stable funding arrangements for vocational education facilities;
4. Equalization of educational opportunities across socioeconomic and ethnic lines;
5. Increasing the number and quality of vocational instructors; and

The MOE’s Supervisor of Education Reform, along with experts from each of the five pilot areas, collaborate to organize and disseminate information about the pilot projects. The Supervisor collects data about the successes and failures of pilot programs, which are compiled by offices at the highest levels of provincial or municipal governments. The Supervisor then promulgates opinions about the state of vocational education reform experiments and requests that certain priorities be emphasized in future reform experiments.

These pilots are an interesting study in centralization versus localization because general control over the direction of reforms in each area rests with the local governments. This is both a boon and a detriment to China’s national vocational education reform goals. On one hand, allowing provincial governments to design reform programs to suit local comparative advantages and priorities produces a variety of innovative approaches to achieving general goals listed above. Further, the freedom to allocate resources according to specific local needs allows for closer tailoring of solutions to problems facing vocational education reform, which do not cross regional lines. On the other hand, decentralization and the use of pilot programs creates a number of complications for a national education reform initiative. Results of these pilot programs may in fact be idiosyncratic, and therefore not achievable on a national scale. Further, the significant expenditures that are being spent on a few pilot projects may not be available for more comprehensive reforms or wider experimentation with these programs. In China
specifically, decentralization of social provisions such as educational reform often means that responsibility for funding reforms rests with the local government even as the largest share of tax revenues goes to the central government.\textsuperscript{58} This can lead to significant budgetary challenges to reform implementation. This section discusses the remarkable successes of the pilot areas in achieving their common reform goals, challenges presented by pilot reform programs, and attempts to generalize them into comprehensive reforms.

**Successes of China’s Vocational Education Reform Pilot Area Program**

**Institutional and Policy Development**

The first task of a designated vocational education reform pilot area is to create, in laws and regulations, the institutional framework within which the reform will progress. These measures serve an important signaling function to officials at and below the provincial or municipal levels regarding the seriousness of the upper levels of government regarding this issue, motivating officials at all levels of local government to take reforms seriously as well. The measures must also establish clear goals and lines of institutional authority in order for reform expenditures to produce results.

Each of the pilot areas has had significant success in establishing clear rules and guidelines to motivate and guide its vocational education reform and development projects.\textsuperscript{59} Each pilot area implemented its own set of regulations (\textit{tiaoli}), and provisions (\textit{guiding}).\textsuperscript{60} Each of the provincial pilot areas (i.e., Guangxi, Henan, and Sichuan) established coordinating guidelines for its reforms, which were signed by the heads of city, county, and provincial level top officials.\textsuperscript{61}

**Expanding Capacity and Enrollment**

China’s campaign to encourage greater enrollment in vocational educational institutions has been immensely successful, with the proportion of students enrolled in secondary vocational schools going from around one quarter of the number enrolled in high schools in 2000 to an enrollment roughly equal to that of high schools in 2009.\textsuperscript{62} Pilot area programs have contributed significantly to this success in the last several years.\textsuperscript{63} In Henan, counties that reach a certain level of enrollment in rural vocational educational institutions receive RMB 1 million from the provincial government.\textsuperscript{64}
Increased Funding and More Stable Fiscal Structures

The significant increases in enrollment and capacity are evidence of increased spending on construction and training for vocational schools across the pilot areas. Spending in several of the pilot areas from 2006 through 2009 increased between two and twelve times.

In 2009 Henan province increased funding for vocational education generally by 20 percent and for secondary vocational schools alone by 10 percent. Since becoming a pilot area in 2008, Henan has built 50 county level vocational education centers, 40 secondary vocational schools, and 11 post-secondary vocational schools. Sichuan province spends 60 percent of its total education budget on rural vocational education reform and development projects. Tianjin has set aside RMB 5.5 billion for the construction of new vocational education centers within existing schools and new vocational schools as well. Guangxi province has built 150 new vocational education facilities. These massive expenditures and construction projects have had demonstrable success in increasing the institutional capacity and enrollment numbers of vocational schools in their territories.

The pilot areas have allowed vocational schools to partner with state-owned and private enterprises, to fund themselves independently from the government (e.g., be debt funded), and even to seek partnerships with foreign enterprises. An upside of industry and foreign partnership funding models is that the partners’ expertise and institutional capacities can help the schools develop and improve their programs.

Equal opportunity and Financial Aid

A major goal of the vocational education reform and development initiative in China is to narrow the significant and growing disparities in standards of living across rural and urban, ethnic, and geographical lines through equal opportunity vocational education. To that end, pilot areas have developed financial aid programs to target their poorest and most disadvantaged residents. These have included the poorest rural residents, minority groups, military families, and those displaced by China’s damming projects. The groups targeted vary somewhat across provinces, which shows sensitivity to the specific socioeconomic hierarchies present in their territories.

Increasing the Number and Quality of Vocational Instructors

Each of the pilot areas has taken action to remedy the fundamental problem of a dearth of qualified vocational instructors. This problem is addressed in depth in the Teacher Shortage section of this report, so only a brief survey of actions in each of the pilot areas will be included.
here. Guangxi, Henan, and Chongqing have all promulgated new measures and standards for the training of vocational instructors since 2008. Other pilot areas have sought to attract vocational instructors with technical skills from within industry. Hubei established a position for technical professionals to teach part-time on two-year contracts for RMB 20 thousand per year. Fifty of these positions are opened every year. Guangxi has, since 2008, spent over RMB 30 million to educate fifteen thousand vocational instructors and to send its best instructors abroad for further education in their fields of technical expertise.

**Rural Vocational Education Development**

Rural vocational education reform has been a high priority in each of the pilot areas. Henan increased rural vocational school enrollment by offering each of its counties RMB 1 million for enrolling a specific number of new students each year. The province increased its enrollment by fifty-five thousand students per year from 2006 through 2009. Guangxi has constructed more county-level vocational schools in an effort to increase rural enrollment, and it has had these schools focus on skills related to its agricultural economy. Hubei and Chongqing have each implemented special programs to target immigrants from the Three Gorges area. In 2009 these programs provided 35 thousand immigrants training in technical skills, provided around 110 thousand with practical agricultural skills, and helped eleven thousand rejoin the workforce. Tianjin’s rural vocational education projects have focused on adult education facilities and have been so successful that the national government has designated them exemplars for national adult education reform. Sichuan province has spent 60 percent of its funding for vocational education development on rural areas.

**Problems with the Pilot Programs: Interpreting and Implementing Successes**

Problems of interpreting and implementing the successes of China’s pilot programs in vocational education reform include general problems associated with pilot programs and specific problems that arise in China.

General problems of interpreting and implementing pilot programs come from their hypothetical nature. States are able to spend as much as they like on a very few experimental programs, but they often find the successes of those programs are conditional on unusually high government investment. Further, and especially with regard to projects to reform types of social provisions such as education, there can be political pressure to implement obvious successes of these programs more generally.

Problems of pilot programs specific to China and its vocational education reform have to do with its governmental structure and incentives built into that structure. Pilot programs are a boon to
local governments who can get them, because they represent an opportunity to bring funds from the central government back to their locality. This is especially important in a fiscal setting in which 60 percent of tax revenues go to the central government and yet responsibility for social provision is increasingly placed on local governments.84

Further, China is so diverse in terms of the ethnic, cultural, and regional identities, as well as the daily needs of its population, that the government must discern between pilots’ successes that are idiosyncratic to a specific locality and which might be replicated more broadly in a national reform campaign.
Policy Recommendations for Further Reforms

The decentralization of vocational education reform responsibilities in China has produced a number of important successes, but it has been plagued at the same time by an inability for local governments to allocate sufficient resources to the reforms to meet centrally promulgated goals and guidelines.

The successes of localization are primarily due to the capacity of motivated local actors to push reforms in ways that are directly responsive to the demands of their economies. China is socially, culturally, and economically diverse across its national territory to an extent that localizing reforms has real benefits for making them effective. The successes of the pilot programs, and the difficulties of generalizing them nationally, suggest that local governments themselves should take charge of planning and implementing reforms.

Conversely, local governments are not capable, in the absence of central governmental support, to invest the significant resources required to achieve the successes that China saw in its vocational education reform pilot programs. Large central government expenditures, particularly in capital-intensive infrastructure development, must supplement the planning and implementation of vocational education reforms carried out at the local level.

At present, funding vocational education reform falls primarily to local governments as one-half of their “responsibility” to meet central guidelines for VET reform. This is reflective of the relationship between the center and localities in most forms of social welfare provision in China. The increasing localization of the burden of social welfare provision has not, however, coincided with a concomitant increase in the local share of government revenue. In fact tax reforms since 1994 have shifted the official tax revenue sharing relationship between central and local governments to approximately a 60/40 relationship, respectively. The central government must, therefore, take on the investment responsibility for funding VET reforms while keeping the responsibility for implementation within the local government.

A problem with this sort of responsibility sharing is that it risks rent-seeking behaviors by local governments, which are cash-strapped as they attempt to implement a host of other social provision obligations. Pilot programs again offer a solution to this problem in their use of written agreements between local and central governments, which lay out the terms of the investment and standards local governments must achieve to receive further investment. The benefits of such agreements are:

1. Acknowledgment and approval by the central government for local government autonomy in planning and implementing reforms.
2. Central government articulation of minimum standards for continued investment, which accords with central goals.
3. The prestige and signaling value of such an arrangement, which will ensure its prioritization in the local governments’ agendas.
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