The Path of Application-oriented Transformation of Local Undergraduate Colleges and Universities under the Supply-side Reform

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Abstract. With the promotion of supply-side reform in various industries throughout the country, the upgrading and replacement of industrial structure urgently need a large number of high-quality talents. Local undergraduate colleges and universities, as the supply-side of talents, should keep pace with the pace of reform, find their own orientation, clarify the training objectives of application-oriented talents, take the market as the guide, deepen the integration of industry and education, carry out school-enterprise cooperation, strengthen the construction of teaching staff, actively carry out international exchanges and cooperation, and complete the transformation to application-oriented colleges and universities.

Introduction

Since the reform and opening up 40 years ago, China's rapid economic development depends on the dual gravity of demand side and supply side. In recent years, the "troika" of exports, investment and consumption to stimulate the demand side has become increasingly weak and the economic growth rate has slowed down. With the increase of household income but the decline of corporate profit margin and the increase of consumption but the decline of investment, the structural imbalance between supply and demand of China's economy has emerged, and the continued stimulation of the demand side cannot achieve significant effects. Therefore, the Chinese government put forward the supply-side structural reform in 2015 and hoped to adjust the supply structure, promote industrial upgrading, speed up the shift of China's economy to enter the fast lane again start based on the production and supply side.

The supply-side factors include labor force, land, capital, system and technological innovation, among which the first factor is labor force.

In terms of the number of labor force, our country has abundant labor force at present, but the demographic dividend will gradually disappear in the coming decades and enter an aging society. According to the statistics of the World Bank, in 2010, China's working-age population accounted for 74.5% of the total population, which was significantly higher than the world average of 66.4%. In the same period, the proportion of American workers was 66.8%, Japan was 63.8%, and India was 64.5%. However, according to the prediction of the United Nations, the proportion of working-age population in China will decrease rapidly after reaching the peak in 2010. By 2040, the working-age population in China will decrease by 90 million, and the proportion will fall to 65%, which will be lower than the world average for a long time.

From the perspective of the quality of labor force, the population with higher education in China is growing faster, but there is still a certain gap compared with developed countries. In 2000, the population with higher education in China was 44.2 million, and by 2010, it had grown to 118 million, with an average annual growth rate of 10.36%. In 2000, China's higher education population accounted for 3.54% of the total population, and increased to 8.88% in 2010, compared with 31.76% in 2000 and 36.31% in 2010 in the United States. Although the proportion of the higher education population in China has been increasing in recent years, the gap between China and the developed countries such as the United States is still very obvious.
The improvement of labor quality is the core driving force of supply-side structural reform. In the process of reform, the employment situation is becoming more and more complex and severe due to the reduction of excess capacity, which results in some workers being laid off and the underemployment of enterprises under the downward pressure of the economy. Under this background, the structural contradiction of higher education is more prominent, the tendency of homogenization of higher education is serious, the employment difficulties of graduates and the low quality of employment have not been effectively alleviated, the application-oriented, compound and innovative personnel training mechanism which is in short supply of production services has not yet been fully established, and the structure and quality of personnel training are not yet adapted to the requirements of economic restructuring and industrial upgrading. As the main position of talent cultivation, it is of great practical significance to explore the path of application-oriented transformation of local undergraduate colleges and universities from the perspective of supply-side reform in order to solve the structural imbalance.

Define the Orientation of Local Undergraduate Universities and the Training Objectives of Application-oriented Undergraduate Talents

Local undergraduate colleges and universities were once in an awkward situation. In terms of academic research ability, they were not as good as national comprehensive key universities, professional practice ability and local higher vocational colleges. With regard to the practical ability of specialty, they were not as good as local higher vocational colleges and universities. According to statistics, 1,055 non-211 local undergraduate colleges and universities in China have been confronted with the living predicament of low employment rate, low professional counterpart rate and low employment quality for several years due to the school orientation that is not different from that of key universities. In 2015, the Ministry of Education, together with the National Development and Reform Commission and the Ministry of Finance, put forward the "Guiding Opinions on Guiding Some Local Undergraduate Universities to Change into Applied Universities", which pointed out the direction for the development of local undergraduate colleges and universities.

Higher education is divided into junior college education, undergraduate education and postgraduate education, in which junior college education mainly cultivates technical talents and emphasizes technical application and practical ability, while postgraduate education mainly trains academic talents and emphasizes theoretical research ability. As a bridge between them, application-oriented talents need to cultivate the ability to transform theory into technology. This requires application-oriented talents to have theoretical knowledge and practical ability, as well as innovative ability, so as to use the theoretical knowledge learned to creatively solve practical problems. Meanwhile, application-oriented talents should have the characteristics of research-oriented talents and technology-oriented talents, and integrate their academic and professional, theoretical and applied, innovative and skilled characteristics. This poses a severe challenge to the development of application-oriented transformation and personnel training in local undergraduate colleges and universities.

Predict the Supply and Demand of Talents and Actively Adjust the Talents Training Plan Based on Market Analysis

In order to transform to an application-oriented university, colleges and universities should first change their thinking; introduce the concept of economics into the faculty building, specialty setting and teaching planning; keep abreast of the changes of national economic policies; study the development trend of the market and industry; predict the changes of supply and demand in the talent market, and adjust the talent training plan and plan in time.

The number of college graduates in China hit a record high of 8.2 million in 2018 according to the information released by the Ministry of Education. With the promotion of the national supply-side reform, the traditional industries with excess capacity such as steel and petroleum are in urgent need of high-end talents in product transformation and enterprise upgrading. The demand for
graduates from strategic emerging industries such as network communication, intelligent equipment, Internet of Things, new energy and new materials is also growing rapidly.

According to the professional early warning analysis of the "Employment Report of Chinese College Students in 2018" issued by the MyCos Institute, the red card warning majors of undergraduate employment in 2018 include: painting, chemistry, fine arts, music performance, radio and television director, biological science. The above majors belong to the high unemployment risk majors with large unemployment and low employment rate, salary and employment satisfaction. Green card warning majors include: information security, software engineering, network engineering, Internet of Things, digital media technology, communication engineering, digital media art. The above majors belong to the demand growth majors with small unemployment and high employment rate, salary and employment satisfaction. The reasons for red and yellow card warning majors may be either the oversupply of supply or the inadequate quality of training, which is one of the reasons why university graduates cannot find jobs and enterprises cannot recruit talents.

Application-oriented colleges and universities can actively adjust subject and specialty settings according to professional early warning analysis, improve the quality of personnel training, and enhance the sensitivity and responsiveness of personnel training to the quality and quantity of social needs, so as to better establish a professional structure suitable to social needs. At the same time, they can also speed up the construction of competitive clusters of application-oriented disciplines by optimizing and adjusting the professional structure, build professional basis for deepening the integration of industry and education, cancel or stop recruiting some specialties with small social demand, and add new application-oriented specialties with large social demand, build application-oriented professional clusters by establishing projects to realize the connection between professional chain and industrial chain, curriculum content and vocational standards, teaching and production process.

Further Deepen the Integration of Industry and Education, School-enterprise Cooperation, and Create More Opportunities for Students to Contact with Practical Learning

General Secretary Xi Jin-ping emphasized in the report of the Nineteenth National Congress of the Communist Party of China: "We should improve the vocational education and training system, deepen the integration of industry and education, school-enterprise cooperation." Local universities, enterprises and institutions should conform to the general trend of national supply-side reform, continue to carry out in-depth integration of production and education, and make innovations in cooperation mode to solve the imbalance of talent supply and demand structure.

At present, the main problem of school-enterprise cooperation is the lack of a win-win mode and superficial form of cooperation. Therefore, how to deepen is an urgent problem to be solved. The traditional way of school-enterprise cooperation is that students go to enterprises to participate in practice before graduation, but if we further develop school-enterprise cooperation and let enterprises participate in the training of talents in Colleges and universities, it will lack the motivation of interests. Unlike schools, enterprises have neither formed the concept of cooperative education nor assumed the obligation to educate people for society. The ultimate goal of participating in school-enterprise cooperation is to make profits. Enterprises can obtain cheap labor by providing internship positions for students. At the same time, they can save the cost of recruitment to select and sign high-quality graduates in advance. However, if the students have any safety problems during the internship, or make business mistakes and cause economic losses, the risks are often borne by enterprises, and there is a lack of coordination and win-win intermediary between schools and enterprises.

This requires the local government to give full play to the overall planning function, build a platform, and take local colleges and universities as the common stage of many industry subjects in the region, including the government, so as to change the bystander role of employing enterprises. They can take the way of government project approval, encourage enterprises to participate in
colleges and universities, support enterprises to participate in the whole process of talent training, and gradually establish a new education system which is planned by the government, led by the industry, undertaken by enterprises and supported by universities. At the same time, they can take the way of government project approval, encourage enterprises to participate in colleges and universities, support enterprises to participate in the whole process of talent training, and gradually establish a new education system which is planned by the government, led by the industry, undertaken by enterprises and supported by universities, encourage schools to cooperate with enterprises to develop courses, build training bases, build teacher teams, carry out technology research and development, and insist on connecting the application-oriented technology research and teaching of local colleges and universities with the development of local industries and market cultivation based on the rules of the school studies what the industry develops and schools teach what markets need. Application-oriented colleges and universities should cooperate with social capital, technology and resources according to their own characteristics, establish a multi-party collaborative innovation platform with sufficient specialty, leading teachers and students, serving and educating people, docking the market, and improve the performance distribution, utilization, disposal and revenue management system that is conducive to mobilizing the enthusiasm of school-enterprise cooperation among school-enterprise personnel.

**It is the Supply-side Reform of Application-oriented Colleges and Universities to Build a "Double-qualified Teachers" Team**

If students are compared to the products of school education pipeline, then teachers are the hands to build students and the supply side of higher education. The cultivation of application-oriented talents cannot be separated from teachers who have both teaching ability and practical experience.

On the one hand, colleges and universities can employ enterprise tutors to participate in teaching and practical activities; on the other hand, they can encourage university teachers to enter enterprise practice, participate in front-line work in professional fields, and enrich practical experience.

The internship and practical ability training for undergraduates can be carried out under the double tutorial system, which is composed of in-school tutors and enterprise tutors. In-school tutors are responsible for the cultivation of basic theories, professional knowledge and practical ability during the school period, while out-of-school tutors are responsible for the cultivation of professional skills, engineering application and practical ability. The selection and employment of enterprise tutors adhere to the principle of "selecting and employing on demand and focusing on application" to conduct a comprehensive investigation of the applicants' morality, ability, diligence and achievements, cultivate their own stable "double-qualified" teaching staff, and promote the cultivation of applied talents. At the same time, schools should select teachers who have not only higher professional quality and ability, but also rich practical experience, such as social professional experience, qualifications or abilities related to their major, and teaching and research ability of "integration of theory and practice", and give special allowances to "double-qualified" teachers.

**Implement the "Going Out" Strategy and Strengthen the Exchange and Cooperation with Foreign Application-oriented Colleges and Universities**

How to provide internationalized education for students in application-oriented colleges and universities is a global problem. At present, application-oriented colleges and universities are the mainstream of higher education in the world. There are many successful experiences in foreign universities that we can learn from. Attaching importance to and strengthening cooperation and exchanges with application-oriented colleges and universities in developed countries can help us avoid detours and cultivate internationalized application-oriented talents.

For example, Stefan Stein, president of Business and Information Technology School, is a banker. In his work, he has been concerned about the financing of small and medium-sized enterprises, risk management and banking regulations and other specific issues. Since he became president, he has been working to increase opportunities for students and businesses to contact, and even let...
entrepreneurs become school teachers, because they know best what kind of talents enterprises need. These entrepreneurial teachers will enable students to participate in the actual combat of enterprises. For example, let students design an operation plan to enter the new market area, etc. This kind of teaching practice, which allows students to participate in real market activities directly, can help students to better grasp the knowledge and skills that they really need in their future work. In addition, distance education cooperation with other universities in the world is also a teaching innovation. Students can participate in international discussions in real time in the classroom through online video and co-organizing lectures and seminars with other schools. Through international exchange courses, students will be brought out of the campus to create more opportunities for students to increase their understanding and feelings of world culture.

As an application-oriented university based on information engineering, International Technological University (ITU) has made bold innovations in its faculty. Teachers in the school are basically professionals with doctoral degrees, and they also have their own technology companies. These teachers bring real-time information technology into the classroom in a timely manner. In addition, students here also work part-time in companies in their related professional fields, 3/4 of them have internships in multinational technology companies such as Apple Inc. and Google.

As educators, we cannot accurately judge the future development trend of the world, but we also need to cultivate students' self-learning ability and independent thinking ability for lifelong learning. Since Moore's law was proposed, it has been repeatedly confirmed by the reality that the development of technology is more and more amazing, and we can't even predict what the development of technology will be in ten years. As the Chinese proverb goes, it is better to teach a man to fish than to give him a fish. Application-oriented colleges and universities need to teach students the most basic knowledge, principles and methods, and train students' ability to transform theory into technology, so that students can update their skills and keep up with the pace of the times in their work practice.

References