

Traditional Chinese Medicine Educational Appropriations

An Attribution Analysis

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Abstract—Background: Due to various factors, Traditional Chinese Medicine (TCM) in mainland China has been refashioned, as with TCM education. For higher education, the appropriation of TCM education is a crucial issue. **Objective:** The purpose of this paper is to analyze the factors that influence TCM educational appropriations. **Approach:** We use an attribution analysis approach, and take one TCM university as an example to discuss related issues. **Result:** The analysis consist four parts: 1) value choice, i.e. economic development changes the pattern of public consumption which leads to the blooming of health care industries, and the social trend of traditional culture revitalization make public to pay more attention to TCM and its education; 2) legitimacy, i.e. several government policies released to advocate TCM and its education; 3) feasibility, i.e. how the external executive organizations initiate TCM education research and teaching projects; 4) as a result, TCM educational appropriation is increased. **Conclusion:** The analytical framework provides effective analysis path to understand the TCM educational appropriations, and shed light on future TCM development policies and strategies.

Keywords—TCM educational appropriations; attribution analysis; consumption pattern change; traditional culture revitalization; policy on TCM; implementation

I. INTRODUCTION

World Health Organization (WHO) reported that there are many traditional procedure-based therapies as the alternative medicine, for example, acupuncture and related techniques, chiropractic, osteopathy, manual therapies, qigong, tai-chi, yoga, naturopathy, thermal medicine and other mental, spiritual and mind-body therapies. In Asian and African countries, 60-90% of citizens use traditional medicine as their primary health care, and in developed countries, over 40% of citizens chooses alternative medicine.¹ With the globally increasing interests on the alternative medicine, the traditional medicine education is into the line of sight. In Japan, the Japanese Kampo (traditional medicine)

education was integrated into western medicine during the Meiji Restoration in the 19th century, which means the modernization of traditional medicine.² South Korea started its TKM (Traditional Korea Medicine) education great development period in 1980s and 1990s, because of the standardization education of TKM in universities.³

For thousands of years, China took Traditional Chinese Medicine (TCM) as dominant way to safeguard national health. After the Opium War between China and U.K in 1840, western medicine treatment came into China and western medical education system was established, for example, the Peking Union Medical College, which was funded by Rockefeller Foundation in 1917.⁴ From that time on, a controversy about TCM and western medicine continues until now.⁵ But in recent years, TCM has achieved great development. By the end of 2015, the TCM outpatient service accounts for 15.7% of total medical services; 41.87% of old people (over the age of 65) and 53.59% of children (0-3 years old) got TCM health management service; TCM industrial output was 86,530 million yuan (about 13,051 million U.S dollar)⁶

Nowadays, China has two parallel systems on medical education. By the year of 2016, China has founded 83 medical universities, and among them, there are 25 TCM universities, with 752,000 students.⁷ From the number of medical universities, it is indicated that western medical education got dominant position. But in recent years, TCM education was strengthened by Government, for example, China has founded 230 National TCM Clinical Research Bases, 1,280 TCM Inheritance Studios, and 130 TCM Projects were admitted as National Intangible Cultural Heritage.⁸ All these research and teaching projects need financial support. In 2016, China central government allocated 41,580 million yuan for TCM and its education, which occupies about 0.22% of total Government Budget Expenditure.⁹ Thus, a bumble of questions are raised, that is, the reason why TCM education became refashioned, and the

factors that might influence the TCM Education appropriation. To answer these questions, we take X province as an example, which is located in southwest part of China, trying to finish an attribution analysis.

II. ATTRIBUTION ANALYSIS OF TCM EDUCATIONAL APPROPRIATIONS

The changing situation of medical education in X province. We take X province as an example, for it has two types of medical university, including Y Medical University (YMU) as a western medicine school and X University of TCM (XTCM) as a TCM school. Considering the founding year, school size and development history, they are quite comparable. YMU was founded in 1956, and has 15,318 students.¹⁰ X University of TCM (XTCM), founded in 1960, has 10,726 students.¹¹ Both of these two universities are supported by X Provincial Education Department. "Table I" reveals the basic information of these two universities. It seems that YMU has a better development, especially the number of National Research Projects. The number of graduate students of XTCM also indicates that its research ability need to be improved, given that improving one university's research ability needs much more financial support and takes long time.¹²

TABLE I. BASIC INFORMATION OF XTCM&YMU

Items	XTCM	YMU
Year of Establishment	1960	1956
No. of Undergraduate	9,736	12,057
No. of Graduate	990	2,811
No. of Faculty	831	1,598
No. of National Research Project (last 5 years)	100	316
No. of Affiliated Hospital	15	15
1% ESI Discipline	0	1(Clinical Medicine)
No. of National & Provincial Research Bases	49	44

^a Note: XTCM=X University of Traditional Chinese Medicine; YMU=Y Medical University. Information are retrieved from these two university's official website by the end of 2016.

"Table II" shows the growth rate of XTCM and YMU from 2012 to 2016. In these five years, compared with YMU, XTCM got several tremendous growing in number of graduate students, faculties, and national research projects, all these indicate the research ability was greatly enhanced. Note that "Table I" shows that the number of national and provincial research bases are even more than YMU. In addition, XTCM launched several foreign cooperation and exchange programs with more than 30 countries and regions in the world, and YMU only had about 20 international programs.

TABLE II. GROWTH RATE OF XTCM & YMU (FROM 2012-2016, IN PERCENTAGE)

Items	XTCM	YMU
No. of Undergraduate	1.07%	2.07%
No. of Graduate	43.06%	23.07%
No. of Faculty	21.04%	1.46%
No. of National Research Project (last 5 years)	88.68%	8.59%
No. of Affiliated Hospital	15.38%	36.36%

^b Note: XTCM, X University of Traditional Chinese Medicine; YMU, Y Medical University. Information is retrieved from these two university's official website by the end of 2016.

It seems that XTCM is stepping into a fast lane for development, and the financial support plays a key role in the TCM development process. To analyze this situation, we consider the following factors in an integrated model in "Fig. 1" Over all, the economic development and social trend plays a footstone role. Then, the Chinese government made several policies to advocate TCM education, and founded executive organizations, carried out implementation projects as the implement approach. Finally, all these external factors lead to the increase of TCM educational appropriations.

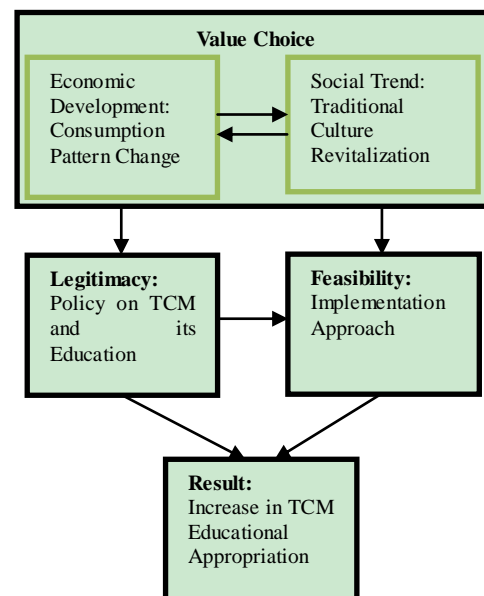


Fig. 1. An integrated model about TCM educational appropriation.

A. Value Choice: Economic Development and Social Trend Make TCM Education to be Increasingly Addressed.

After almost 40 years economic reform (initiated in 1978), the mainland China has become the second largest economic entity in the world.¹³ China's values shifted from appreciating western culture to reevaluating traditional culture.¹⁴

If we retrospect this springhead from the history, modern China was invaded by several countries from 1840 to 1945, and China's cultural confidence was destroyed then. The "May 4th Movement" in 1919 was initiated by intellectual elites and supported by whole Chinese people. "Science and Democracy" was the main appeal, as with complete westernization, and this movement was regarded as the Chinese "renaissance".¹⁵ As one label of traditional culture, TCM and its education was under criticism until P.R. China was founded (in 1949).⁶ Even though they kept TCM education, public still turned their healthy problem to western medicine, so that TCM education was in an awkward position.

However, economic development and social trend make TCM education refashioned.

First, economic development changed the pattern of consumption. With the increase of per capital income, the Engel coefficient in mainland China dropped down year by

year. In 2008, Engel coefficient was 40.8%, and in 2016 was 35.95%, during the consumption structure upgrading process, health care expenditure accounted for 7% in 2016.¹⁶ Compared with the survival consumption pattern in the past, Chinese people are now pursuing enjoyment-centric consumption and high life standard.¹⁷ TCM treatment is regarded as “Preventive Treatment”, which is one of the best way to keep health, especially acupuncture, massage, and herbal medicine. This leads to the increasing requirement of professional TCM practitioners, which is counted for TCM education.^{18, 19} Hence, TCM education is supported by public, which is related to their vital interests.

Second, social trend in the revival of traditional culture has benefit TCM education. The year of 2010 could be deemed as traditional cultural renaissance year, when China’s GDP surpass Japan and public became more and more confident about traditional culture.²⁰ Meanwhile, TCM education got more attention than before, as public reevaluate their traditional custom and heritage. There are several reasons: the development of economy, moral cultivation for whole society, keeping national character in Globalization, etc.²¹ Furthermore, the social trend also impacts consumption model. Since the public started to appreciate traditional culture, consumers’ preference turned to some traditional products and service, as one of the most well-known symbol of Chinese culture, TCM and its education was refashioned. Therefore, value choice was made: because of the economy blooming and revival trend of traditional culture, TCM and its education was increasingly addressed.

As one of the most popular tourism destinations in China, X has an excellent ecological environment. Given that pollution is not well controlled in China, this is quite attractive. The local government of X noticed that health industry, especially TCM would be next economic growth point.²² Hence, TCM education in X has received more attention than before.

B. Legitimacy: Governmental Policies Advocate TCM and Its Education

It is suggested that in recent years, Chinese central government and local provincial government noticed that TCM and its education could be a good way for traditional cultural renaissance, given that TCM is the carrier of traditional Chinese culture;²³ meanwhile, the common prosperity of citizens appealed to reevaluate the function of TCM for keeping healthy status.²⁴ As a result, the State Administration of Traditional Chinese Medicine of P.R. China released several policies in order to promote the development of TCM and its education, and X provincial government also released several supporting policies.

The central government policies about TCM and its education are as follows:

- *Regulations on the Protection of Traditional Chinese Herbal Medicine.*²⁵ This regulation aimed to improve the herbal medicine quality, and required TCM universities to develop criteria for management reference.

- *Regulations on the Protection and Management of Wild Medicinal Material.*²⁶ This regulation aimed to protect wild herbal plants and wild animal because some prescription of TCM prefers to use them.
- *Notice About Business Issues Related to TCM Tuina.*²⁷ The government tried to normalize TCM business activities. This notice not only regulated *Tuina* (TCM massage) commercial market, but also had effect to help TCM graduates get employed.²⁸
- *Notice on Strengthening Rural TCM Clinical Physician.* (The State Administration of Traditional Chinese Medicine of P.R. China, 2006) In this regulation, government allowed rural TCM physicians collect herbal medicine by themselves, in order to reduce the cost of treatment.
- *Regulations on Qualifications and Examinations for Traditional Mentoring and Experts.*³⁰ Because mentorship is still an important part of TCM education, there are urgent requirement in qualifications for non-academic experts. In some scholars’ perspectives, mentorship is authorized by government, and TCM education reform begin to focus on “real” tradition.³¹
- *Regulations on traditional Chinese Medicine Clinics.*³² Clinics operated by traditional TCM practitioners was permitted.
- *Supplemental Regulations on the Registration of Traditional Chinese Medicine.*³³ Government tried to standardize and normalize patent medicine.
- *TCM Continuing Education Regulations (2006), General Practitioner Post Training Management Method of TCM (2007), & Methods of Standardized Training of TCM Resident Doctors (2014).*³⁴ All these regulations were trying to promote and normalize TCM education.
- *Strategic Planning for the Development of Traditional Chinese Medicine from 2016 to 2030.*³⁵ The State Council of P.R. China announced this plan in order to make macro-adjustment of TCM development. In regard to the practical needs and the trends of the development of TCM in the future, the development goals of Chinese medicine and its priorities in the next 15 years are confirmed, and comprehensive safeguards and organizational measures are developed in this outline.³⁶
- *Law of the People’s Republic of China on TCM.* The State Administration of Traditional Chinese Medicine of P.R. China (2016) as the most important “regulation”, this law would ensure and promote TCM and its education.

On one side, X local government carried out central government policies; on the other side, X provincial government also released several supporting policies as follows: 1) X TCM Development Plan from 2015 to 2020, Health and Family Planning Commission of X Province

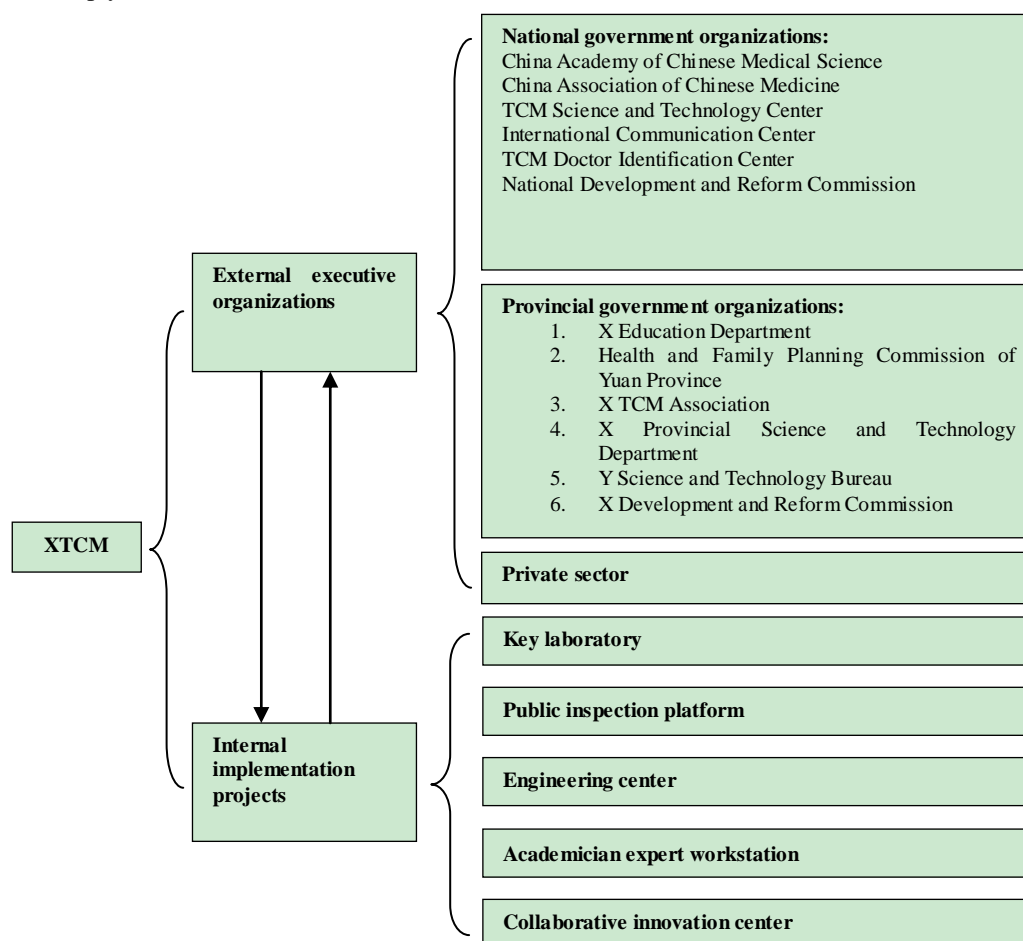
(2015) which is based on the local rich herbal medicine resources and distinctive health tourism industry; 2) X Action Plan for TCM from 2014 to 2020,³⁹ & The TCM Regulations of X,⁴⁰ these two policies are connected with national strategy and related to regional features, for X province is rich in herbal medicine resources, which occupied about 51.4% of total herbal output in China.⁴¹ Thus, all these government policies are advocating TCM development, and XTCM, as the only TCM higher education institution in X, deserved to be invested.

The purpose and effectiveness of governmental policies are making sure that TCM education to be regulated. First, the relationship between TCM and commercial operation indicates that, as the large number of TCM health care institutions in the free market, standardizing the practice of TCM will ensure its reputation. Second, it is about the relationship between TCM and clinical standard. TCM is based on yin-yang and wu-xing (five elements) philosophy, advocating overall analysis and personalized medical treatment which is not popular for modern science.⁴² In order to make TCM in line with modern medical norms, policies standardize the TCM practitioners' clinical norms. Finally, the relationship of TCM between its education suggests that, TCM deeply relies on its education, because

the higher education institutes are the main role of R&D. Thereafter, the external executive organizations and internal implementation projects are carried out by TCM universities, and regulated by government policies.

C. Feasibility: Multiple Department Collaboration and Diversified Sources of Funding

Based on consumers' demand and revival trend of traditional culture, governmental policies also advocate different type of research and teaching programs (see the specific content of the regulations, *Strategic Planning for the Development of Traditional Chinese Medicine from 2016 to 2030 & X Action Plan for TCM from 2014 to 2020*, etc.). Revitalizing TCM education is related to public and private sectors, therefore, the implementation path and executive mechanism are crucial. Generally, we divide three types of executive mechanisms and five kinds of implementation projects. For executive mechanisms, according to funding type, there are national government organizations, provincial government organizations, and private sector. For implementation projects, there are key laboratory, public inspection platform, engineering center, academician expert workstation, and collaborative innovation center in "Fig. 2".



^c Note: data are retrieved from State Administration of Traditional Chinese Medicine of the People's Republic of China, Government Budget Expenditure of Public Health, China Statistical Yearbook of Chinese Medicine, 2016: D1-6. <http://www.satcm.gov.cn/2015tjzb/全国中医药统计摘编/atog/2016/d1-6.htm>.

Fig. 2. Executive organizations and implementation projects of the funding system.

For several years, Chinese scholars discussed the management of TCM, from theory to practice.⁴³ Under the guidance of national and local government policies, external executive organizations start to launch several research and teaching projects which are internal implementation projects. TCM education has distinguished multiple department collaboration feature, that is, several government departments, school and even private sector joined together for one research and teaching project, hence the TCM education is promoted by whole society. "Table III" shows the source of TCM R&D revenue. Government, private sector and production income are three main sources; although the statistical report did not explain what "other" mean, it is implied that TCM educational appropriations are on the diversified funding way.

TABLE III. TCM R&D REVENUE IN 2016 (IN MILLION YUAN)

Government investment	2152.97
Private sector investment	1525.2
Production income	1238.743
Others	8447.995
Loan income	16.447
Total	11992.228

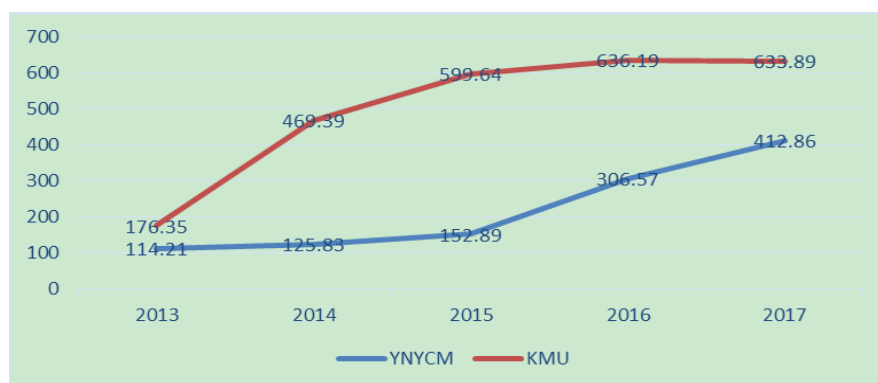
For XTCM, there are nine key laboratories, one public inspection platform, five engineering centers, eight academician expert workstations, six collaborative innovation centers, which cooperated with different academic institutions, government departments and private sectors. For example, XTCM and one local county launched a project called "Rehabilitation Center", which offers preventive treatment and nourishing of life, with the aid of XTCM's professional knowledge and skill.⁴⁴ XTCM is no longer an isolated institution, but establish several beneficial relations with many organizations. Like other higher education institutions, TCM universities start to take the social responsibilities and walk out the ivory tower. Bok

(2001) Therefore, through multiple department collaboration and diversified sources of funding, TCM education gets more financial support than before.

D. Result: Educational Appropriations Inclined to TCM Education

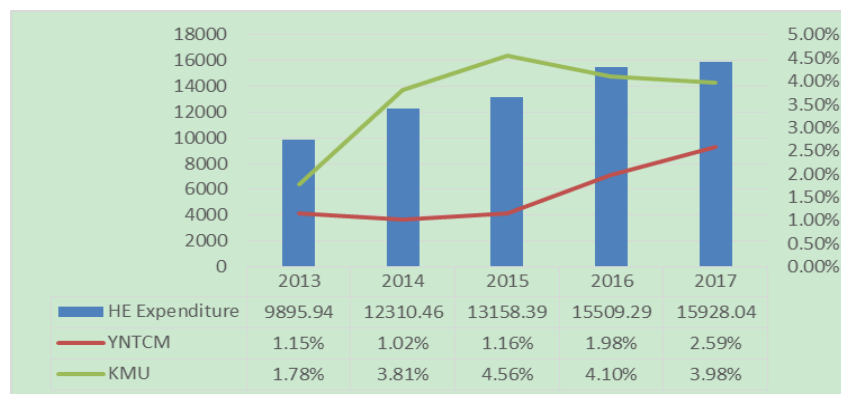
With several policies from central and provincial government was released and many research and teaching programs were launched, the TCM educational appropriations started to increase. Because of *TCM Continuing Education Regulations (2006)*, *General Practitioner Post Training Management Method of TCM (2007)*, *Methods of Standardized Training of TCM Resident Doctors (2014)* from central government, X province started to dock these regulations and allocated more fund to XTCM. In 2014 and 2015, *X Action Plan for TCM from 2014 to 2020 (2014)* and *X Development Plan of TCM from 2015 to 2020 (2015)* clarified to support XTCM as the major carrier for research, teaching and industrial incubation center.

"Fig. 3" and "Fig. 4" demonstrate X provincial higher education financial allocation for XTCM and YMU. In the past five years (2013-2017), both of their education appropriations are increased. Western medicine education expenditure was always higher than TCM education; meanwhile, from 2015 to 2017, TCM education appropriation increased faster in "Fig. 1". Note that related governmental policies were implemented around 2015, which was the turning year, implying their realization in this situation. As a matter of fact, the educational appropriations in China are basically decided by student number and research project number.⁴⁶ In 2016, The XTCM students' average expenditure is 18369.51 yuan, while YMU is 23050.66 yuan. For Per capita research expenditure, XTCM is 131,590.61 yuan, while YMU is 177,158.95 yuan. TCM education still lag behind western medicine education, but the gap is narrowing in 2017 in "Fig. 3" and "Fig. 4".



^d. Note: XTCM, X University of Traditional Chinese Medicine; YMU, Y Medical University

Fig. 3. Educational Appropriations of XTCM & YMU (in million yuan).



⁶ Note: HE, Higher Education; XTCM, X University of Traditional Chinese Medicine; YMU, Y Medical University

Fig. 4. HE Financial Ratio of XTCM&YMU (in million yuan & percentage).

III. CONCLUSION

TCM played a key role in ensuring public health in ancient China. Even though TCM has been in subordinate position for a long time, recently, it has revitalized, as with its education. We have analyzed attributions of TCM educational appropriations in China. We focused on the external factors, which deeply influenced the TCM educational appropriations. Given that the economic development brings about consumption pattern change, and social trend in revival of traditional culture, TCM became refashioned in recent years. Then, Chinese government released several policies to promote TCM and its education, then multiple department collaboration and implementation projects were initiated. As a result, the TCM educational appropriations was increased.

Our analytical framework revealed the deep reasons of TCM educational appropriations. Quite different from the performance funding system in other countries,⁴⁷ China's higher educational appropriations are based on the number of students and research & teaching projects.⁴⁸ Based on previous research, we made several contributions to this literature. First, the current literature has limited attention on the education of traditional medicine worldwide. As we try to investigate the factors that influence TCM educational appropriations, which in turn will have an impact on its development, we fill one of the blanks in this domain. Second, we also made some methodological progress. We analyzed TCM educational appropriations from macro to meso perspective, combined with one TCM university, and we formed up one analytical framework, from external influence to internal implementation. This method can offer a better understanding about TCM educational appropriations, both in perspective and its external validity. Third, we discovered the distribution path of TCM educational appropriations, under the influence of economic development and social trend, China had founded external executive organizations and internal implementation projects, which realized the diversification of educational funds. Through this distribution approach, we could understand and predict the developing trend of TCM education in China.

Attempting to have a foresight on this topic, we suggest that TCM education is facing some difficulties which are related to the appropriations. First of all, TCM is based on yin-yang and wu-xing philosophy, which is not recognized by modern science and technology.⁴² This ideal is under argument, which may lead to the protean social trend that finally result in the appropriation related policy making. Second, some scholars and practitioners are promoting the standardization of TCM, which means using western medicine approach to prove or support TCM theory and prescription,⁴⁹ which is contrary to the overall analysis and personalized medical treatment tradition of TCM.⁵⁰ To solve the discrepancy, some appropriations are used to testify the feasibility of standard TCM education.⁵¹ In addition, given that TCM has a close relationship with Chinese classics, the current education lacks sufficient teaching and training. There is literature reporting TCM graduates not having professional classical knowledge.⁵² It should be considered when future appropriations are proposed.

Although we made several progress, the current study also have some limitations, what could be tackled by future research. First, we did not explore the use of appropriations and we also listed difficulties related to TCM educational appropriations. In future research, we could discuss more detailed issues on this topic. Second, for the methodology part, we could adopt more ways to investigate it further, for example, using quantitative method in a micro perspective or running a longitude analysis. Because the attribution of TCM educational appropriations is quite complicated, establishing a complete analytical framework is quite necessary.

Attributions that influence TCM educational appropriations firstly started by external factors, and finally external executive organizations and internal implementation projects got intercross reaction. In our paper, Economy and social trend are fundamental factors that decide the need of TCM and that effects education; politics played a main promoting role, which include the government policies and laws, on the top-level design; then, the implement approach is based on external executive organizations and internal implementation projects; finally, all of the factors result in the change of TCM educational appropriations. Obviously, the TCM and western medicine education start their development side by side.

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