

A Study on Traditional Chinese Medicine's Entry Barriers in Western Countries Based on Porter's Five Forces Model: A Case Study of Australia

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Abstract: The purpose of this research is to study Traditional Chinese Medicine (TCM)'s entry barriers in western countries with an analysis of Porter's Five Forces Model and a case study of TCM attaining legal status in Australia. Although TCM's interaction with western countries has been more than a century, western scientists and practitioners are still suspicious of the safety and efficacy of TCM. The research found that TCM's barriers to entry are high, supplier power is rather weak and the TCM industry is large but immature. Suggestions for the government and relevant companies as well as organizations are based on major findings of this research.

Keywords: TCM, Western countries, Entry barriers

1. Introduction

This research will look into the entry barriers of Traditional Chinese Medicine (TCM) in western countries based on Porter's Five Forces Model (Porter, 1979) with a case study of TCM obtaining legal status as the western medicine therapy in Australia. The aim of this research is to give feasible and effective suggestions for TCM's better entry to western countries.

Traditional Chinese Medicine (TCM) is a style of traditional medicine informed by modern medicine but built on a foundation of more than 2,500 years of Chinese medical practice that includes various forms of herbal medicine, acupuncture, massage (tui na), exercise (qigong), and dietary therapy (National Center for Complementary and Integrative Health (NCCIH), 2013).

The term "Western world" or "Western Countries" can mean a number of different things, but generally it refers to countries in Europe, North America, Australia and other countries around the world that descended from European culture.

Although TCM has enjoyed thousands of years of history, it became known to the western world and has interacted with western medicine for just a few decades. In recent years, TCM is gaining popularity in western countries as its advantages are proved to the westerners. Yet there are still many impediments when entering the western world [1-4].

2. Analysis of TCM's Entry Barriers in Western Countries

2.1. Definition of Porter's Five Forces Model

Porter's five forces model is an analytic tool that uses five industry forces to determine the intensity of competition in an industry and its profitability level (Porter, 1979). It was originally developed by Harvard Business School's Michael E. Porter in 1979 to understand how five key competitive forces affect an industry. These five forces are competitive rivalry, threat of new entry, supplier power, buyer power, and threat of substitutes. (See Figure 1.)



Figure 1: Porter's Five Forces Model (Porter, 1979, p.86-93)

2.2. Analysis of TCM's entry barriers using Porter's Five Forces Model

Suppose a TCM clinic or organization wants to enter the western market or medical care system, it is essential to analyze whether TCM as an industry is competitive and potentially profitable enough.

2.2.1. Threat of new entry

For the existing medicine system in the western countries, TCM is a new entry. We will consider several factors to see if this threat is high or not. These factors include amount of capital required, legal barriers, government regulation, product differentiation, access to suppliers and distributors, and retaliation by existing companies.

TCM faces multiple challenges in entering Western markets. First, the capital required is substantial, not only for building facilities and acquiring equipment but also for conducting scientific research to prove the efficacy of herbal medicines, as required by regulatory bodies like the U.S. FDA.

Second, legal barriers are high. In the EU, for example, According to Council Directive 65/65/EEC, medicinal products require prior marketing approval before gaining access to the market. In almost all member States, herbal medicinal products are considered as medicinal products and are, in principle, subject to the general regulations for medicines as laid down in the various national medicine laws (Ajazuddin & Saraf, 2012). Additionally, government medical insurance influences TCM's adoption. While acupuncture is widely covered by insurance in the U.S., TCM treatments are often excluded, limiting their acceptance. Moreover, there are 46% of Chinese medicines patented (See Figure 2), which means the quality of the rest of the Chinese medicines is assessed in accordance with the western standard rather than the Chinese standard. As Lu Chuanjian, vice-president of the TCM hospital based in Guangzhou said, the Chinese government should ask the foreign countries to set standards on developing and registering Chinese patent drugs, rather than using their own standards to assess our products (Xu & Wang, 2015)[5-11].

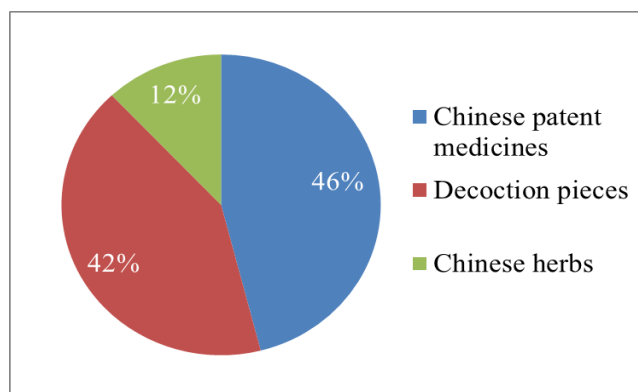


Figure 2: TCM Industry Overview (Chiu, 2016, p.3)

Third, TCM products like herbal medicines, acupuncture, and cupping differ significantly from other medical practices.

Fourth, as for access to suppliers and distributors, acupuncture has become accessible in many countries, such as the United States, Canada and Australia. As Yang said (Xu & Wang, 2015), California alone has an estimated 15,000 acupuncturists, most of them non-Asians who serve not only Chinese but also others. The National Center for Complementary and Integrative Health of the US stated in its website that acupuncture, Qi gong and Tai chi are generally considered safe, while Chinese herbal medicines are still in question, for there have been reports of Chinese herbal products being contaminated with drugs, toxins, or heavy metals or not containing the listed ingredients. Thus, Chinese herbal medicines are not as easily accessible as acupuncture and are still waiting for medical research and proof of safety evidence.

Retaliation from existing companies refers to competition of the existing medicine industry there. In western countries, besides modern western medicines, there are a number of widespread systems of complementary/ alternative medicines, including Ayurveda, Chiropractic, Homeopathy, Unani (also called Arabic medicine, drawn from the traditional systems of medicine of China) (Zhang, 2001). Since Homeopathy is practiced throughout Europe and North America, the major western countries, and integrated into the national health care system of many countries, including Mexico and the UK, it could be a potential competitor when TCM enters the western market, especially when TCM has not attained legal status and is not integrated into the national health care systems of most of the western countries. Therefore, the retaliation of homeopathy and modern western medicine is high under this circumstance.

2.2.2. Supplier power

When it comes to the supplier power, several factors are considered, including number of suppliers, suppliers' size, ability to find substitute materials, materials scarcity, and threat of integrating forward.

First, the number of suppliers and the suppliers' size of TCM in western countries are uncertain at present, but in the UK alone, there are three approved suppliers, Donica Health Ltd., Phoenix Medical Ltd., and Shulan UK Ltd. They have been accredited for supplying herbal medicine and acupuncture products for the Association of Traditional Chinese Medicine and Acupuncture UK to ensure the quality and safety of acupuncture and herbal medicine supplied by the wholesale business in the UK or elsewhere. For example, Phoenix has built a vast network of European local distributors and caters to practitioners in over 24 countries. Shulan TCM is a respected major supplier for the TCM community in Europe, supplying a vast range of top quality products and offering support to UK alternative medicine development.

Second, it is difficult to find substitute materials for TCM, so the ability to find substitute materials is weak. Some of the Chinese medicines may share similar properties, and can be interchangeable in prescription under certain conditions, but it is hard to find any other substances to take the place of Chinese herbal medicines. Meanwhile, the function of the distinctive therapies of TCM like acupuncture and cupping is irreplaceable.

Third, Since TCM originated in China and most of its medicines come from herbs, plants, minerals or animals which are indigenous locally, so the materials are not easily accessible in western countries. China has the world's most abundant natural medicine resource. A national Chinese herbal medicine resources research of the 1980s showed that China has 12,807 of different species of traditional Chinese medicine resources, 11,146 species of medicinal plants, 1581 kinds of medicinal animals, and 80 kinds of medicinal minerals (Li & Li 2013). In the system of Chinese medicines, the same kind of herb can

grow in a number of regions in China, but it has slight differences in efficacy, because of different climate and geographic conditions. The treatment of some diseases has to use the herbal medicine grown in a specific region, so that it can have the best efficacy. Unexpectedly, foreign-made Chinese herbal medicines produced by overseas pharmaceutical companies have become a new favorite among Chinese consumers. Zhao Chaoting, a TCM expert at Xinqiao Hospital affiliated to the Third Military Medical University, said that foreign companies import TCM materials from China, process them, give the medicines a foreign name and they became Kampo formulations (Ouyang, 2016). This implies that the supply of TCM raw materials is from China.

Fourth, forward integration is a business strategy that involves a form of vertical integration whereby business activities are expanded to include control of the direct distribution or supply of a company's products. It happens when a company wants to realize economies of scale and increase its industry market share. In China, herbs and medical extracts are the major TCM export product categories, accounting for about 80% of the total export volume, while Chinese medicines take up less than 20% in 2010. There are a large number of companies engaged in the export of TCM from China, but generally at a small scale and are insufficient in science and technology innovation. Thus, their competitiveness is rather weak in the international market (Li and Li, 2013). Standard industries develop in five steps in the supply chain: raw materials, intermediate goods, manufacturing, marketing and sales, and after-sale service. Most of the Chinese TCM companies remain in the first step, if they want to realize economies of scale and increase its market share, the suppliers of TCM have the threat of forward integration. Therefore, the threat of integrating forward is strong[12-17].

2.2.3. Buyer power

Buyer power is measured by number of buyers, size of buyers, buyers' cost of switching suppliers, price sensitivity and threat of integrating backward.

First, the number and the size of buyers in the western market could have not been reported, but statistics of global export market share of TCM can be a reference for the size of buyers. As shown in Figure 3 below, the Asian market is TCM's major importer, accounting for 63% of the global market share, while the western countries, including countries in Oceania, North America, Latin America and Europe, take up 26%. In Table 1, there are only three western countries ranking top 10 of the Chinese medicines export market in 2012, while eight Asian countries rank in top 10. These figures indicate that the size of buyers of Chinese medicines in the western market is comparatively small, especially compared with the Asian market.

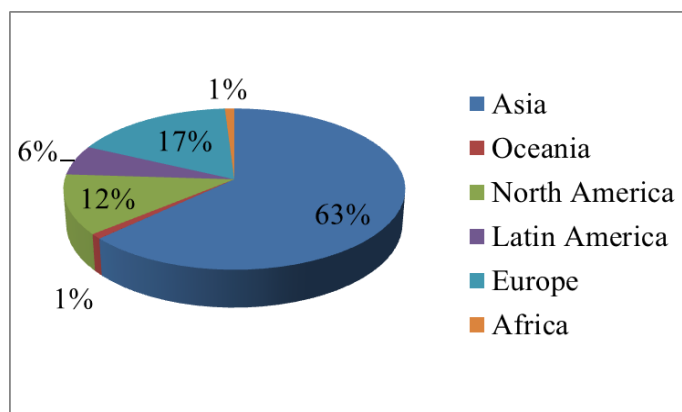


Figure 3: 2001-2012 TCM Export World Market Share (%) (Wei, 2015, p.30)

Table 1: 2012 The Top 10 Chinese Medicine Export Market (Unit: Million USD) (Wei, 2015, p.30)

Ranking	Nationality (Region)	Export volume
1	Japan	39333.71
2	Hong Kong (China)	29932.5
3	The U.S.	27961.77
4	South Korea	12994.83
5	Vietnam	8318.19
6	Germany	7993.19
7	India	5600.43
8	Malaysia	5462.28
9	Singapore	5410.42
10	France	5369.19

Second, as mentioned in the last section, though there are limited approved suppliers in the European market, some overseas pharmaceutical companies are able to supply TCM not only for its people, but also Chinese customers, indicating buyers have less cost of switching suppliers.

Third, buyers' price sensitivity fluctuates with different national medical care systems and medical insurance policies in different countries. For example, in America, the government medical insurance plans to cover the expense of acupuncture, to attract more people. In this case, the cost of having acupuncture is comparatively low with national medical insurance, so the price sensitivity of buyers is low. On the contrary, Chinese medicines are not included in the medical insurance plans, so the cost of having this kind of medicines is high, and buyers are highly likely to switch to other medicines that the insurance policy can cover. In other words, buyers are sensitive to the price of TCM which is not covered by the insurance.

Fourth, integration backwards means to back up a company with supply chains for itself, dedicated to efficiency improvement and costs saving. When a company is able to own its supply chain, it has the ability to lower the cost of manufacturing and raise the profits. On the side of buyers, this is the threat of integrating backwards. As mentioned in the previous section, foreign companies import TCM materials from China, process them, give the medicines a foreign name. It shows that TCM manufacturers do not own the supply chains, and they need to import raw materials from China where most of the Chinese herbs originate from. Therefore, there is less threat of backward integration.

In conclusion, buyer power is evaluated as medium, because of less cost of switching suppliers, the buyer's price sensitivity of TCM depending on national medical systems and insurance policies in different countries and less threat of integration backwards. But the size of buyers in western countries is comparatively small which offsets the buyer's power. Therefore, it is evaluated as medium.

2.2.4. Threat of substitutes

Evaluation of threat of substitutes considers number of substitutes, performance of substitutes and cost of changing.

As mentioned in the first section of this part, there are five substitutes for TCM: Ayurveda, Chiropractic, Homeopathy, Unani and allopathic medicine. Each of them is serving specific regions of the world, carrying geographical characteristics.

But the performance of substitutes of TCM varies in different countries. Take the medical service in the UK as an example. The National Health Service (NHS) in the U.K. has existed for more than 60 years since 1948. But this kind of medical system has many drawbacks. For instance, the quality of public medical service cannot be guaranteed, and a patient is even not allowed to see a specialty doctor without the permission of his family physician. People complain a lot about this medical system. During the period, Chinese medicine, acupuncture, moxibustion, Chinese herbs, and other complementary and alternative medicine have not been restrained by the U.K. government. Acupuncture and moxibustion have witnessed development for more than 40 years, and Chinese medicine clinics have also increased rapidly from 1980s till now (Shen, 2013). In consequence, TCM, including acupuncture, moxibustion and Chinese herbs, acts as a complement to NHS and offers a substitute to NHS. However, in the US, the 10 most common complementary/ alternative medicine (CAM) therapies among adults does not include TCM, which means the performance of other CAM is better than TCM (See Figure 4). Therefore, it is difficult to measure the performance of substitutes for TCM, since situations are different in various western countries.

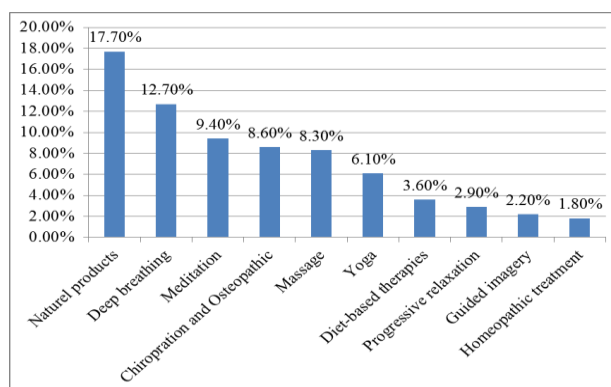


Figure 4: 10 Most Common CAM Therapies among Adults - 2007 (Barnes, et al. 2008, p.1)

Third, it costs less to transfer to TCM, compared with western medicine as it does not involve medical surgery and it emphasizes balance mind and body by using different therapy, like Qi gong and Tai chi. More importantly, patients are not easy to relapse and the patient can enjoy long-term health, because TCM not only treats a patient's disease, but also helps him cultivate a healthy lifestyle. Moreover, compared with other complementary/ alternative medicine, like Ayurveda which also uses herbal medicines, the cost of transferring is less, too.

To summarize, the threat of substitutes is high, as there are a number of substitutes for TCM, and the performance of substitutes varies in different countries. The cost of transferring to TCM is low compared with western medicine, but there is no significant difference in transferring to other herbal medicines.

2.2.5. Rivalry among existing competitors

Rivalry among existing competitors is measured by number of competitors, product differentiation, industry growth rate and size, cost of leaving an industry, customer loyalty and threat of horizontal integration.

First, the number of TCM's competitors, as previous sections mentioned, is five, including Ayurveda, Chiropractic, Homeopathy, Unani and allopathic medicine.

Second, TCM's unique therapies make its products distinctive from the other types of medicines, such as acupuncture, cupping and herbal medicines.

Third, consider the industry growth rate and size of TCM. According to IBIS World's Traditional Chinese Medicine Manufacturing market research report, revenue for the Traditional Chinese Medicine Manufacturing industry has been increasing at an average annualized rate of 15.2% over the five years to 2016. In 2016, the industry is expected to generate \$30.7 billion, up 8.6% from 2015. There are about 1,306 industry enterprises employing 159,924 workers with a total payroll of \$1.5 billion. (IBIS World, 2016, p.1) This implies that the TCM industry is large. This indicates that although the TCM industry is large, it is still immature.

Fourth, as mentioned, the TCM industry has a large market size. Therefore, if a firm decides to leave this industry, it would incur a huge loss.

Fifth, since we discuss TCM here as an industry rather than a company, it is hard to evaluate customers' loyalty towards TCM in the western countries, especially when there are no sufficient statistics.

Sixth, TCM suffers a moderate threat of horizontal integration, as its competitors are studying and conducting research into TCM's therapies and herbal medicines. For instance, the US established the National Center for Complementary and Integrative Health to study TCM, part of the complementary/ alternative medicines.

From the above analysis, it approves, on the one hand, TCM's products are distinctive from their competitors, which is advantageous to TCM. On the other hand, there are five competitors against TCM and the cost of leaving the industry is high. TCM is a large but not mature industry and TCM suffers moderate threat of horizontal integration. Therefore, the rivalry among competitors is considered to be high[18-21].

3. A case study of TCM attaining legal status in Australia

Since the late 20th century, the demand for TCM has been growing steadily in developed Western nations, including Australia. Chinese immigrants first brought TCM to Australia during the gold-rush days of the 1800s (Zhu, et al, 2009).

Until the 1970s, its use was confined primarily to ethnic Chinese populations. But over years, TCM's acceptance in Australia has been enhanced (Tiquia, 1996). According to the Center for Complementary Medicine Research of the University of Western Sydney, by 1996, there were an estimated 4500 TCM practitioners in the Australian population, among them 1500 practitioners were primarily trained in TCM, the remainder incorporated TCM (particularly acupuncture) into their existing practice in professions such as Western medicine, chiropractic, physiotherapy, and nursing. At that time, it was estimated that there were at least 2.8 million people consulting TCM practitioners each year in Australia (Zhu, et al, 2009). In 2005, a study conducted by Xue and others (2007) found that over 68% of the population had used at least one form of CAM in the previous 12 months, over 20% of those using TCM.

Among all the western countries, Australia became the first western nation that approved legal status

of TCM by legislation in 2012, setting a significant example for the other western countries about how to utilize and regulate TCM in their countries. Therefore, in this part, we will analyze how TCM attained legal status in Australia and why it could succeed.

First, the Australian government provided financial support to TCM research and maintained good cooperation with Chinese institutes. The National Institute of Complementary Medicine (NICM) established the NICM Collaborative Centre for TCM. The 2005–2007 NICM Research Audit 21 reported that there were approximately 7 million dollars used for TCM research, accounting for 22% of the complementary/ alternative research. (NICM, 2007) This has facilitated TCM's development in Australia, because it provides better understanding of TCM. NICM also signed a 5-year Memorandum of Understanding with the China Academy of Chinese Medical Sciences to undertake relevant TCM research activities and put the research as priority, implying the Australian government laid great emphasis on TCM research.

Second, Australia has managed TCM for decades. As stated in a document of Therapeutic Goods Administration in 2005, TCM products have been regulated in Australia since 1989 under the Therapeutic Goods Act 1989 to regulate all herbal medicines. (Therapeutic Goods Administration Australia Government, 2005) Victoria introduced an occupational licensing scheme in 2000, and the Chinese Medicine Registration Act 2000 was then passed by Chinese Medicine Registration Board of Victoria. This Act aimed to regulate entry to and practices of the profession in Victoria. (Chinese Medicine Registration Board of Victoria, 2006) This action recognized the status of TCM practitioners in Victoria, and TCM practitioners' medical practice was no longer regarded as illegal, which resulted in a good regulation and management of the TCM industry in Victoria. The licensing scheme also eliminated some unqualified TCM practitioners in Victoria, which ensured the safety of patients. Thereafter, some insurance companies were willing to provide insurance on TCM, so that patients no longer needed to undertake the whole expense of TCM treatment (Jiang, et al, 2015). More importantly, Victoria's practice in TCM regulation provided a model for other states in Australia. Therefore, Australia's rich experience in regulation of TCM lowered the legal barriers to TCM.

Table 2: ESTIMATED RESIDENT POPULATION, Australia-Top 10 countries of birth - 30 June 2015(a)(b)(c) (Australia Bureau of Statistics, 2016)

Country of birth	Persons	
	no.	% of Australian population
United Kingdom	1 207 000	5.1
New Zealand	611 400	2.6
China	481 800	2.0
India	432 700	1.8
Philippines	236 400	1.0
Vietnam	230 200	1.0
Italy	198 200	0.8
South Africa	178 700	0.8
Malaysia	156 500	0.7
Germany	125 900	0.5

(a) Estimates are preliminary - see paragraph 9 of the Explanatory Notes.
 (b) Top 10 countries of birth excluding Australia.
 (c) All population figures presented in this table are rounded. Estimates of the proportion of the Australian population are based on unrounded numbers.

Third, the retaliation of existing medicines is comparatively weak in Australia. To protect Australian indigenous cultural, Australia has integrated the medical treatment used by the aboriginal and Torres Strait island residents into the national plan, which means Australia have less resistance to TCM, compared with other western countries (Jiang, 2014). According to the statistics of the Australian

Acupuncture and Chinese Medicine Association, currently Australia has about 5000 Chinese medicine and acupuncture clinics, receiving 2.8 million visitors a year, with 80% of English native speakers (Jiang, 2014). It shows the existing medicines in Australia have less threat to TCM and TCM enjoys sound development in Australia, indicating that the retaliation of existing medicines is weak.

Fourth, there are a large numbers of China-born people in Australia. According to a document of Department of Social Services of Australian government (Australia Bureau of Statistics, 2016), the latest Census in 2011 recorded 318,969 China-born people in Australia, an increase of 54.4% from the 2006 Census.

As the Table 2 shows, China-born people are one of the largest country-of-birth groups in Australia in 2016, with 481,800 people accounting for 2% of the Australian population. It is worth noting that many people from Philippines, Vietnam and Malaysia, stand for a significant proportion, about 2.7%, are also of Chinese ancestry. It will be easier for these people to accept TCM.

What's more, TCM education has been well-founded in Australia. In 2007, seven TCM programs leading to TCM practice qualifications are accredited by the Australian Acupuncture and Chinese Medicine Association, the largest professional association for the TCM profession, to provide degree or diploma entry-level training courses for the profession (Australian Acupuncture and Chinese Medicine Association, 2007). Australia is the only country in the world that has set up TCM undergraduate courses in regular universities besides China (Jiang, et al. 2015). Three publicly funded Australian universities, including University of Western Sydney, University of Technology, Sydney, and RMIT University, offer degree programs in TCM (Baer, 2008). At first, the students of these universities were Chinese-born students, but now more than 80% of them are native Australians (Jiang, et al. 2015). The well-developed TCM education system in Australia provides sufficient qualified TCM practitioners there. Up till January 2016, the Australian Department of Health updated that the number of TCM practitioners registered is 4588. (Fang and Wang, 2016) Besides, there are 23 associations of TCM in Australia, most of which are founded after 1983. (Jiang, et al. 2015) Most of the associations are comprised of members of TCM practitioners from China and Southeast Asia. They are able to unite TCM professionals and resources and improve the communication between the TCM industry in Australia and the local government, leading to TCM's sound development in Australia.

4. Conclusions

4.1. Summary of major findings

From the analysis of Porter's Five Forces Model, the threat of new entry is evaluated as low, which means the TCM's entry barriers are high, due to the large amount of capital required, high legal barriers, strict government regulation, limited access to suppliers and distributors and high retaliation of existing medicines. The supplier power of TCM in western countries is considered as low, because of limited approved suppliers and weak ability to find substitute materials, but materials are not easily accessible and the threat of forward integration is strong. Buyer power is evaluated as medium, because of small size of TCM buyers, less cost of switching suppliers, the buyer's price sensitivity of TCM depending on national medical system and insurance policies in different countries and less threat of integration backwards. The threat of substitutes is high, as there are five substitutes for TCM, the performance of substitutes varies in different countries and the cost of transferring to TCM is low compared with western medicine, but there is no significant difference in transferring to other herbal medicines. The rivalry among competitors is considered to be high, because there are five competitors against TCM and TCM's products are distinctive from their competitors. TCM is a large but immature industry. The cost of leaving an industry is high and TCM suffers moderate threat of horizontal integration. Recommendations will be put forward according to the above findings.

In the case study of TCM attaining legal status in Australia, we find that compared with other western countries, Australia has lower barriers to entry, because TCM research has sufficient financial support from Australian government and the government maintains good cooperation with Chinese institutes, with rich regulation experience in TCM. Besides, the retaliation from existing medicines is weak, and there is a large group of China-born people. Meanwhile, Australia has a higher supplier power, because of well-founded TCM education system and the support of TCM associations, which provide sufficient professionals and resources.

4.2. Recommendations

First, under high barriers to entry in the western countries, the Chinese government needs to provide sufficient funds for TCM universities and institutes to modernize TCM, which means to do scientific research and provides scientific evidence for the western scientists and practitioners to prove TCM's safety and efficacy. Besides, the Food and Drugs Administration of China should patent Chinese herbal medicines and set clear and fair quality standards for Chinese medical products, so that the importers of TCM can follow the standards of China to inspect the products instead of the western medical standards. As for the companies or organizations dedicated to entering western markets, ensuring the quality of medicines and supervision of the products should be the priority of their marketing strategies.

Second, as learned from the case of Australia, Chinese TCM institutions should build and maintain good relationships and cooperation with western countries, and deliver TCM professionals to overseas markets to pave the way for TCM's development in western countries. In addition, TCM associations also play a key role in facilitating TCM's development in western countries. Therefore, the Chinese government and institutes should support the establishment of TCM associations in western countries and provide a platform for communication between the TCM industry and western governments.

Third, the supplier power can also be enhanced by encouraging Chinese TCM associations to supervise and accredit more qualified suppliers to enter the western market.

Fourth, as the TCM industry is a large but immature, especially in western countries, the Chinese government should enact laws to regulate this industry and set lower barriers for domestic companies to step into the western market.

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