Differences between public and private institutions of Taiwan's HTVE system in determinants of competitiveness

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Abstract: Technological and vocational education has played a very important role in the development of Taiwan's economy. The purpose of this research is to examine the determinants of competitiveness with a focus on differences between public and private institutions in Taiwan's HTVE system. Determinants of internal and external factors were identified, and a competitiveness index was established. Results found that faculty teaching performance and completeness of curriculum design were the major determinants of internal factor. Financial support from government was the most influential determinant of public institutions in external factor, yet private institutions considered population growth rate was the most important one. Despite of top 3 institutions of both types, private universities seem possess relatively more competitive advantages than their public counterparts, and public colleges seem possess relatively more competitive advantages than their private competitors.

Key words: higher education; Taiwan; technological and vocational education; competitiveness; determinants of competitiveness

1. Introduction

Taiwan's Higher Technological and Vocational Education (HTVE) system has experienced tremendous expansion during the past two decades, the number of technological colleges/universities grow up nearly 20% in those years. In contrast to the sharp increase in the number of HTVE schools, the growth rate of population and government financial support on higher education was declining in resent years. Moreover, the rising operating costs of colleges and universities, changing student demographics, rapidly growing number of new competitors such as distant-learning and virtual institutions, rapid expansion of educational technologies, and other pressures have made more and more administrators of Taiwanese technological higher education institutions, face the reality that they need to operate their schools more efficient in order to survive or remain competitive.

Unlike the educational system in the United States, Taiwanese public universities or colleges, in general, are regarded as being much more prestigious and more favored by students than their private counterparts, and indeed,

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represent the primary enrollment choice for Taiwanese students. Therefore, private institutions are more vulnerable in an increasingly competitive environment and their administrators are more eager than their public counterparts to try new strategies for getting out of the predicament. The purposes of this study are to identify the determinants of competitiveness of public and private institutions in Taiwan's HTVE system, analyze whether there are differences in perceptions between public and private university administrators towards these determinants, and to estimate the competitive status of individual institutes through a competitiveness index.

This study profiles the higher education system in Taiwan and pressures faced by Taiwan's HTVE institutions, outlines the importance of Taiwan's HTVE and identifies the determinants in internal and external competitiveness between public and private institutions. A competitiveness index was established to estimate the competitive status of individual HTVE institutions. Empirical results indicated differences between public and private HTVE institutions' presidents' perception of determinants in internal and external competitiveness. The conclusions of this study provide a more comprehensive understanding of the complex nature in determinants of competitiveness which is valuable for education administrators to consider in their decision and policy making process.

2. Profile of higher education in Taiwan

The Taiwan's higher education system was established during the period of Japanese occupation. WU, CHEN, and WU's study (1989) showed that at the end of the World War II there was only one university, one high school, and a few colleges (equivalent to junior colleges today). During the war, the main purposes of higher education were to provide research material and high-level manpower for Japan's colonial policy, and all of these institutions emphasized research, and the size of their enrollment was very small.

In 1945, Taiwan was restored to China. After the central government of the Republic of China relocated to Taiwan in 1949, as WU, et al (1989) indicated, the Taiwan's educational system was shifted to a Chinese educational style that mainly followed the European and American models. CHEN's (1997) study has shown that between 1954 and 1972, Taiwan's system of higher education expanded rapidly, a large number of private junior colleges were established in order to train the middle-level manpower needed for the nation's economic development.

Since higher education is an effective and important mean of helping the government meet its goal of social control, centralization has been an important part of the policy concerning Taiwan's higher education. Before the mid-1980s, Taiwan's higher education was under rigid government control. In practice, even today the Ministry of Education (MOE), in cooperation with other government agencies, sets educational policy and directs planning. As YOUNG (1994) and CHEN (1997) have indicated, many important education policies originated from plans for the nation's economic development. The MOE not only approves the establishment of new higher education institutions and departments, but also controls the allocation of finances, the size of enrollment, tuition rates, the design of curricula (through the required courses), minimum graduation credits, and so on at all institutions, both public and private.

Beginning in 1973, the expansion of higher education was suddenly stopped due to the manpower development plan adopted by the government that suggested that the annual growth rate of enrollment be lowered to 5% or less (CHANG, 1993). Adoption of this plan, in turn, led to an educational policy that denied the approval

of applications for the establishment of new private higher educational institutions. Such a restrictive policy lasted for more than a decade and was lifted in 1985.

Since 1987, and the revocation of martial law, the Taiwan's government has implemented various programs and policies to promote equality in education. One of the policies was to speed up the expansion of higher education in order to provide more educational opportunities for senior high school graduates and to improve the level of the intelligence of the citizens of Taiwan (WENG, 1999). The number of universities and independent colleges tripled from 1990 to 2006 (46 institutions and 147 institutions, respectively). The ratio of the number of private institutions to that of public ones also doubled (from 77% to 183%) during those years. It is obvious that the expansion of Taiwan's higher education was closely related to the fact that many private colleges and universities were granted their accredited status during the past decade. Most of the colleges and universities, especially private institutions, have fewer than 10,000 students (LIANG, 2001).

In Taiwan, higher education institutions have been classified, according to their specific function, into one of the two systems: A general university system, and a technological and vocational university system. Each system has its own authorities, characteristics and specific educational goals, curriculum designs, and policies and practices concerning student guidance.

The general university system, which is under the jurisdiction of the Department of Higher Education, MOE, is focused on academic research, undergraduate teaching, extension programs and social service. This system consists of general universities, general independent colleges, and teacher training universities and colleges. Taiwanese traditionally view the general university system as an "orthodox educational system" and place a higher value on it in comparison with the technological one. Parents and teachers generally encourage a student to enter the general university system if he/she is qualified.

The technological and vocational university system, which is under the jurisdiction of the Department of Technological and Vocational Education, MOE, emphasizes technological education and research in order to ensure the continued sufficiency of manpower to meet the nation's demands. This system consists of universities of technology, colleges of technology and junior colleges. Graduates of each category can sit for related national examinations in order to work in government agencies. They can also sit for national certification examinations to get related professional licenses (Department of Technological and Vocational Education, n.d.)

Colleges and universities of technology are either government-run (public) or private-run. Presidential candidates at a public institution are first selected by the school's presidential committee and then forwarded to the Ministry of Education for further selection and appointment. Candidates at private institutions are selected by their boards of trustees with the approval and appointment of the MOE. Public institutions receive 80% of their annual budgets from the government and search for the remaining 20% of funding by themselves. The major income of private colleges and universities comes from tuition. Government subsidies to the private sector are limited. Inevitably, in private institutions student tuition fees are higher (about double) than those of public institutions (CHEN, 1997; MOE, 2002a).

Generally, students prefer technological universities to technological colleges due to the higher prestige of the former. Also, in descending order of prestige, Wyatt (2002) has indicated that the Taiwan's technological educational institutions are classified as: national (public), provincial (public), private, and military and police (public).

In 2006, excluding the junior colleges of technology, there were 77 universities and colleges of HTVE system in Taiwan, including 17 public institutions and 60 private institutions. The level, types and locations of HTVE institutes were shown in Table 1.

Table 1 HTVE institutions statistics of Taiwan (2007)

Level and types of institutes	Northern area	Central area	Southern area	Eastern area	Off-shore island	Total
Public university of technology	2	3	4	0	1	10
Private university of technology	9	5	11	0	0	25
Public college of technology	3	1	2	0	1	7
Private college of technology	16	7	9	3	0	35
Total	30	16	26	3	2	77

Source: Department of Technological and Vocational Education, Ministry of Education, Taiwan, 2007.

3. Pressures faced by Taiwan's technological and vocational higher education

Along with the political reform beginning in 1986, higher education in Taiwan has experienced enormous challenges due to radical political and social transformations. Problems that have led to the increasing market competition in Taiwan's technological and vocational colleges/universities are discussed as follows.

3.1 The imbalance between enrollment and institutional growth

Table 2 Number of Higher Education (HE) Institutions, High School (HS) Graduates per HE Institution, percentage of High School graduates entering advanced levels, and crude birth rate in Taiwan in 1998-2006

Academic year	HE institutions[a]			HS graduates[b] per HE institution (1000 students)	% of HS graduates entering advanced levels[b]	Crude birth rate[c] (per 1,000 population)
	Public	Private	Total			
1998	43	41	84	2.90	39.48	12.43
1999	46	59	105	2.36	43.54	12.89
2000	49	78	127	2.00	50.55	13.76
2001	50	85	135	1.84	54.07	11.65
2002	50	89	139	1.77	56.36	11.02
2003	51	91	142	1.68	69.02	10.06
2004	51	94	145	1.51	74.35	9.56
2005	51	94	145	1.53	81.19	9.06
2006	52	95	147	1.56	80.76	8.96

Sources: [a] Ministry of Education (2008a). Indicators of educational statistics of the Taiwan: Summary of schools at all level. Taipei: Ministry of Education; [b] Ministry of Education (2008b). Number of graduates at all levels. Retrieved February 7, 2008 from http://www.edu.tw/EDU_WEB/EDU_MGT/STATISTICS/EDU7220001/data/serial/b.xls?open; [c] The Directorate General of Budget, Accounting and Statistics, Executive Yuan (Taiwan). Retrieved February 7, 2008 from http://sowf.moi.gov.tw/stat/month/m1-02.xls.

Over the past two decades, Taiwan's colleges and universities have grown very rapidly. As Table 2 shows, between 1998 and 2006, 63 new institutions entered the higher education market; 9 public institutions and 54 private institutions. Within this increased number of higher education institutions are many more private institutions than public ones. Adding to the market competitive pressure, the number of high school graduates (including senior high school and senior vocational school graduates) per individual higher education institution has decreased sharply, from about 2,900 graduates per higher educational institution in 1998 to a sharp drop to about 1,560 graduates per institution in 2006. Based on the number of high school graduates entering advanced levels, the shortage of students both in quantity and quality is obvious. Underachieving high school graduates,

who did not have a chance to attend college or university in the past, will now, be welcomed by these schools with open arms. Moreover, the decline in birth rate indicates that there will be a more severe scarcity of students in the future.

3.2 The impact of globalization on higher education

Recently, Taiwanese education administrators are also concerned about the impact of globalization. A greater number of Taiwanese students pursuing educational opportunities abroad have led to an even greater scarcity of students (Mok, 2000). CHANG, CHEN and HUANG (2005) have recently indicated another problem for Taiwan's higher education: since Taiwan had successively become members of WTO in 2003, which means Taiwan has to open to the world the educational markets which has long been protected. Taiwanese students now have more opportunities to pursue academic degrees abroad, which severely increase the Taiwan's education market competition.

3.3 The scarcity of financial resources for higher education

As mentioned in an earlier section, the number of higher education institutions in Taiwan tripled during the past decade. However, as shown in Table 3, government financial support for higher education did not increase proportionally, which is due to the Taiwan's government encountering financial constraints (Mok, 2000). In order to reduce the financial pressure on the government to support higher education, the Ministry of Education has adopted a university fund system, which provides more flexibility for public colleges and universities to use revenues from student tuition fees, research grants, and university-business community cooperative projects. The trade off of the new benefit is that the government is now responsible for only 80% of the total budget of public universities, while public universities must take responsibility for the remaining 20% of their funding (Mok, 2000; SHAN & CHANG, 2000). *The White Paper on Higher Education* (Ministry of Education, 2001) also indicated that Taiwan's government has begun to allocate more resources to previously relatively neglected sectors such as pre-school education, elementary and secondary education, aboriginal education and special education for the disadvantaged, thus adding even more constraints on the resources for the support of higher education.

Table 3 indicates that the government expenditure on education in terms of GNP (Gross National Product) has declined in recent years for public higher education institutions, a decrease from 5.3% in 1996 to 4.1% in 2006 (MOE, 2008c). As for the private higher education institutions, the government expenditure on education in terms of GNP has shown a small increase from 1.2% in 1996 to 1.5% in 2006 (MOE, 2008c). However, by noting the increase in the number of these institutions, it is obvious that government's financial support for each institution has declined in recent years, especially for private higher education institutions (a decline from 0.04% of GNP in 1996 to 0.016% of GNP in 2006).

The technological education institutions, in comparison with their general education counterparts, received less financial support from the government. According to *Indicators of Educational Statistics of the Republic of China: Educational Expenditure per Student* (MOE, 2008c), junior college educational expenditure per student per year was only half as much as their college and university counterparts. The reduction of government financial support puts more pressure on Taiwan's institutions of higher education. They struggle to find other ways to get more educational resources and funds and they use their limited resources more effectively in order to lessen the threat to their survival.

Table 3 Number of Taiwan's Higher Education Institutions (HE Institutions) and the percentage of GNP allocated to higher education in 1981-2002

Academic year	HE institutions[a]			% of educational expenditure to GNP[b]	
	Total	Public	Private	Public	Private
1981	27	14	13	3.6	0.8
1985	28	15	13	4.0	0.9
1990	46	26	20	4.7	1.0
1995	60	34	26	5.2	1.2
1996	67	37	30	5.3	1.2
1997	78	41	37	5.0	1.4
1998	84	43	41	4.8	1.3
1999	105	46	59	4.8	1.4
2000	127	49	78	4.2	1.3
2001	135	50	85	4.4	1.6
2002	139	50	89	4.3	1.6
2003	142	51	91	4.3	1.6
2004	145	51	94	4.2	1.6
2005	145	51	94	4.2	1.6
2006	147	52	95	4.1	1.5

Sources: [a] Ministry of Education (Taipei: Ministry of Education, 2008a); [b] Ministry of Education (Taipei: Ministry of Education, 2008c).

3.4 The imbalance in educational resources between public and private institutions

As mentioned in the previous section, the private colleges and universities are only partially financed by government funds. There are more of them, but they consume less of the national educational expenditure than their public counterparts (see Table 3). Private institutions' student tuition fees are higher than (about doubled) those of public institutions. It is no wonder that CHEN (1997) found that most students prefer public colleges and universities to private ones because the former usually have better faculty qualifications, lower tuition rates, and more financial support and government funds. It would be logical to assume that private institutions are more vulnerable in an increasingly competitive environment and their administrators are more eager than their public counterparts to try new strategies for getting out of the predicament.

All of the above problems have made more and more administrators of Taiwanese technological higher education institutions face the reality that they need to operate their schools more efficient in order to survive or remain competitive.

4. Data and methods of analysis

4.1 Determinants of competitiveness and competitiveness index of Taiwan's HTVE institutions

Recently, universities are expected to become product making and the final goal is to contribute to the international competitiveness of the national economy. In facing the changing environment of modern higher education, universities become more and more like an enterprise in input and output (Häyrinen-Alestalo & Peltola, 2006). Institutions with less competitiveness tend to fail remaining in the higher education market.

In order to develop a competitiveness index for each of the HTVE institutions, a two-part Likert-type questionnaire was constructed. Each section of the questionnaire measured one of the two constructs under study:

institution's internal competitiveness (12 items) and institution's external competitiveness (12 items). The items in each section were identified first through a review of previous research followed by interviews with six administrators. Two composite scores were created to represent each university president's perceived institutions' internal competitiveness and institutions' external competitiveness.

Determinants of internal factor including administration functions, completeness of curriculum design, faculty teaching performance, faculty research performance, quality of school facilities (YUAN, HUANG & WU, 2006), enrollment rate (Cheslock, 2005), and others needed to be identified. Determinants of external factor including growth rate of population, per capita income (YUAN, HUANG & WU, 2006), parental education level (LIU, CHOU & LIU, 2006), educational regulation by government, government financial support (Canton & Jong, 2005), and others need to be identified. Relationship between determinants of competitiveness and competitive level are shown in Figure 1.

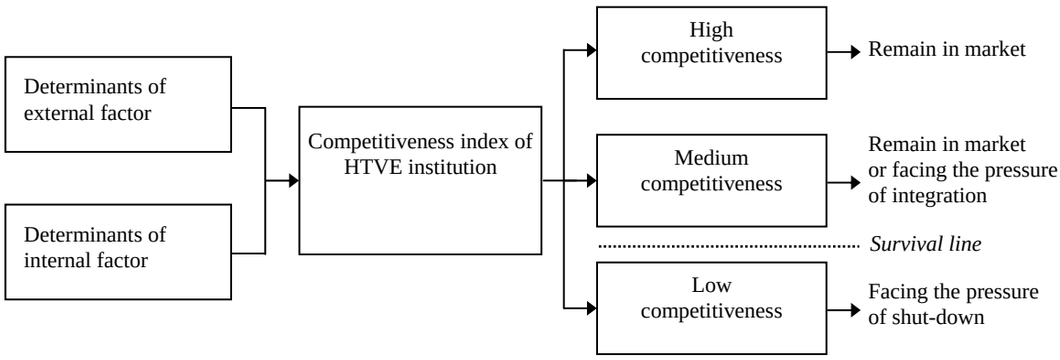

Figure 1 Factors of competitiveness and competitive level

In order to construct perceived competitiveness index for each of the Taiwan's HTVE institution, respondents were also asked to select five internal competitiveness determinants that are most important in considering of their competition with other institutions. A score of 10 (most important), 8, 6, 4, 2, was assigned to each selection. Competitiveness index were developed by composing different weights with respect to the importance of determinants of internal factor. The weights of competitiveness index were depending on the priority of importance responded by presidents of HTVE institutions. The index is showed as below:

$$C = \frac{\sum \alpha_i X_i}{\sum \alpha_i} \quad , \quad i = 1, 2, \cdots, 12 \qquad [1]$$

where X_i represents the most influence determinants of internal factor and the value of each is between 1 and 5. The weight of each determinant of internal factor is α_i , and the sum of all α_i was equal to 1.

The range of competitiveness index value is between 1 and 5, and the status of competitiveness is divided into high, medium and low competitive, according to that index value. The relationship between competitiveness index value and competitive status is showed as:

$$\begin{cases} \textit{high competitive} & 3.5 \le C \\ \textit{medium competitive} & 3.0 \le C < 3.5 \\ \textit{low competitive} & C < 3.0 \end{cases} \quad [2]$$

Therefore, this study assumed institutions with competitiveness index value above 3.5 would have more possibility to remain in the market of higher education. Institutions with competitiveness index value between 3.0 and 3.5 would remain in the market or (but) facing the pressure of integration. Any institutions that with competitiveness index value under 3.0, which below the survival line, might have a high risk of cast out the market.

4.2 Data

Most of the policies of higher education institutions had been initiated by the upper administrative level (Bradford, 2001; Rosevear, 1999). In Taiwan, presidents of higher education institutes play a major role of the policy-making decisions, especially in private institutes. Quantitative data of this study were collected through a national-wide survey, and used for analyzing the determinants of competitiveness and competitiveness index in Taiwan's HTVE system. The population of the study consisted of presidents of all accredited colleges/universities of technology.

In 2006, there were 77 colleges and universities of HTVE system in Taiwan, including 17 public and 60 private institutions. A questionnaire was established and mailed to all 77 presidents of these institutes. The inquired time of the questionnaire was between Jan. 1 to Mar. 31, 2007, and the response rate was 61.67% (see Table 4).

Table 4 Summary statistics by returned questionnaires and response rate

Level and types of institutes	Public		Private		Total	
	N	%	N	%	N	%
University of technology	7	70.00	16	64.00	23	65.71
College of technology	3	42.86	21	60.00	24	57.14
Total	10	58.82	37	61.64	47	61.67

The response institutions were divided into three economic scale levels in accordance with their students' number: small scale institution (student number<5,000), medium scale institution (student number between 5,000 −10,000) and large scale institution (student number>10,000), with the proportion of 35.09%, 43.86%, and 21.05 respectively (see Table 5).

Table 5 Summary statistics by scale of institutes

Level and types of institutes	Small scale (<5,000)		Medium scale (5,000-10,000)		Large scale (>10,000)	
	N	%	N	%	N	%
Public university of technology	1	14.28	3	42.86	3	42.86
Private university of technology	1	6.25	6	37.50	9	56.25
Public college of technology	3	100.00	0	0.00	0	0.00
Private college of technology	5	23.81	16	76.19	0	0.00
Total	20	35.09	25	43.86	12	21.05

Basically, financial supports of government depend on the amount of students and performance of individual

institutes. Public institutes were nearly fully supported by government, while private one only got partial support (see Table 6 and Table 7).

Table 6 Summary statistics by government financial support (public institutes)

Level and types of institutes	Low support (<0.5 billion)		Medium support (0.5-1 billion)		High support (>1billions)	
	N	%	N	%	N	%
University of technology	1	14.29	5	71.42	1	14.29
College of technology	3	100.00	0	0.00	0	0.00
Total	4	40.00	5	50.00	1	10.00

Note: The amounts of support were measured in NTD billion.

According to Table 6, 40.00% of public HTVE institutions have annual budget less than 0.5 billion New Taiwan Dollars (NTD), 50.00% have budget between 0.5 to 1 billion NTD, and only 10.00% public institutes' annual budget exceed 1 billion NTD. Corresponding to public institutions, there were over 90.00% of private institutions received government financial support less than 100 million NTD annually (see Table 7).

Table 7 Summary statistics of samples by government financial support (private institutes)

Level and types of institutes	Low support (<50 million)		Medium support (50-100 million)		High support (>100 millions)	
	N	%	N	%	N	%
University of technology	4	30.77	7	53.85	2	15.38
College of technology	11	55.00	8	40.00	1	5.00
Total	15	45.45	15	45.45	3	9.10

Note: The amounts of support were measured in NTD million.

5. Results

Empirical results showed that Taiwan's HTVE institutions presidents' perception about determinants of internal and external competitiveness factors revealed some differences between public and private institutions. The two most influence determinants of internal competitiveness factor perceived by public HTVE institutions' presidents is "faculty teaching performance" and "completeness of curriculum design", which were just as the same as their private competitors. The most influential determinant of external factor perceived by public HTVE institutions' presidents is "government financial support", while their counterparts of private HTVE institutions perceived "population growth rate" the most influence external determinant. The secondary external determinant in both public and private HTVE institutions was "educational regulations by government".

5.1 Determinants of internal factor

Competitiveness of public and private institutions was measured by determinants of internal factor (see Table 8). The competitiveness index values were ranged from 1 to 5, represented low competitiveness (index value<3.0) to high competitiveness (index value≥3.5). These were endogenous variables of the competitiveness of HTVE institutions in Taiwan, which forms the major part of institution's competitiveness.

Table 8 Summary statistics of competitiveness by determinants of internal factor

Determinants	Public institutions		Private institutions	
	M	SD	M	SD
Administration functions	3.375	0.744	3.162	0.646
Completeness of curriculum design	3.250	0.707	3.162	0.501
Faculty teaching performance	3.400	0.744	3.243	0.495
Faculty research performance	2.750	0.707	2.784	0.750
Number of research projects and consultancy gained	3.200	0.756	2.838	0.764
Quality of school facilities	3.375	0.518	3.081	0.759
Easy-access location of campus	3.125	0.835	3.054	1.026
Enrollment rate	3.625	0.518	3.027	0.833
Achievements of alumni	2.625	0.744	2.514	0.731
Grant from government	3.250	0.707	2.622	0.721
Getting endowment	2.125	1.246	1.649	0.919
Number of students	2.250	0.886	2.622	0.924
Sample size	10		37	

5.2 Determinants of external factor

Influences of the education environment were measured by Taiwan's HTVE institution presidents' perception about external determinants, which were ranged from 1 (the least important) to 5 (the most important) (see Table 9). These were the exogenous variables of the competitiveness of HTVE institutes in Taiwan and the relatively minor part of institutions' competitiveness, in comparison with the internal competitiveness factors.

Table 9 Summary statistics of influence by determinants of external factor

Determinants	Public institutions		Private institutions	
	M	SD	M	SD
Population growth rate	2.889	0.782	3.444	0.843
Change in per capita national income	2.667	0.500	2.778	0.760
Educational regulations by government	3.111	1.054	3.250	0.874
Government financial support	3.333	0.866	3.056	0.715
Tuition subsidies by government	3.000	0.707	3.028	0.736
Recognition of mainland China's academic degree	2.778	0.833	3.222	0.832
Taiwanese general perception of HTVE	3.556	0.726	3.194	0.786
Parents' educational background	2.222	0.972	2.306	0.749
Salary gap between college graduates and high school graduates	2.889	0.782	2.556	0.735
Foreign institutes set up branch schools in Taiwan	2.111	0.601	2.667	0.926
Sample size	10		37	

5.3 Competitive status of Taiwan's HTVE institutions

Table 10 shows Taiwan's HTVE presidents' perceptions regarding their own institutions' competitive status in comparison with other HTVE institutions, schools were categorized as high competitiveness, medium competitiveness, and low competitiveness based on the calculated competitiveness index. Only 6 institutions were classified as high competitiveness, 3 of them were public universities, and the other 3 were private universities. Four institutions were classified as low competitiveness, including 1 public university and 3 private colleges. Most of the schools (35 institutions, 77.78%) were classified as medium competitiveness.

Table 10 Competitive status of Taiwan's HTVE institutions

Level and types of institutions	High competitive		Medium competitive		Low competitive	
	N	%	N	%	N	%
Public university of technology	3	60.00	1	20.00	1	20.00
Private university of technology	3	18.75	13	81.25	0	0.00
Public college of technology	0	0.00	3	100.00	0	0.00
Private college of technology	0	0.00	18	85.71	3	14.29
Total	6	13.33	35	77.78	4	8.89

Note: Data of two public universities of technology were insufficient for analysis.

6. Conclusions

According to the empirical results, the policy implications of this study conclude as follow. First, for presidents' perception regarding the 5 most influential determinants of internal competitiveness factor, the top 2 and the 5th determinants: "faculty teaching performance", "completeness of curriculum design" and "administration functions" were consistent between public and private institutions. The 3rd and 4th determinants were differ between public and private schools; public institutions' presidents perceived "faculty research performance" and "number of research projects and consultancy gained" were influential, and their counterparts perceived "quality of school facilities" and "easy-access location of campus" as influential. Presidents' perception about the most influential determinants of external competitiveness factor varied widely. "Government financial support" was perceived as the most influential determinant for public institutions, yet private institutions' president considered "population growth rate" the most important.

Second, both public and private institutions' presidents perceived their schools as less competitive in "getting endowment", "number of students" and "achievements of alumni". Whereas, private institutions' presidents considered "gaining government financial support" was another weak part in their internal competitiveness.

Third, private universities of technology, in general, seem to possess more competitive advantages than their public counterparts. On the contrary, public colleges of technology seem to possess more competitive advantages than their private competitors.

Fourth, some respondents of this study indicated that Taiwan's Ministry of Education, in cooperation with other government agencies, sets too many restrictive education policies and regulations, which will hinder rather than promote the developments of higher education institutions, especially for private schools. The MOE not only approves the establishment of new higher education institutions and departments, but also controls the allocation of finances, land acquisition for expansion of campus , the size of enrollment, tuition rates, the design of curricula (through the required courses), minimum graduation credits, and so on at all institutions, both public and private. Recently, the modified higher education evaluation system comes into operation, which imposes more restriction on universities and colleges to meet the qualification. These restrictions basically decrease the competitiveness of well-run institutes. Less restrictions of government regulation on HTVE system might induce more efficiency.

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(Edited by Lily and Lee)