Article

Taiwan Universities: Where to Go?

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Abstract: The dramatic expansion of Taiwan universities/colleges from about 100 to 160 from the late 1980s has encountered problems due to social and global changes. What should Taiwan universities move toward and how? This research relies on secondary data to explore the issues Taiwan universities currently face—a low birth rate and global competition. The decreasing number of incoming students will result in a lower registration rate and less tuition revenue, which will make some universities struggle to survive. Hence, government policies, proposed by the Ministry of Education, have been implemented to assist Taiwan universities to adjust to external changes. The Innovative Transformation Policy, adopted in 2015, consists of strategies for university–industry cooperation, university mergers, university closures, and a re-shaping of the university paradigm. This policy has begun to be implemented and its initial outcome will be continually evaluated. In accordance with the Innovative Transformation Policy, this study encourages Taiwan universities to improve governance, set prominent unique characteristics of development, and enhance global competitiveness.

Keywords: higher education; Taiwan university; enrollment; globalization

1. Introduction

In Taiwan, encouraged by the philosophy of neo-liberalism and the expansion of universities, higher education was requested to provide more educational opportunities to the general public from the late 1980s. With the massification and popularity of higher education, university governance, teaching excellence, and students' learning quality have also become matters of sincere concern. The increasing development of political democracy, economic liberty, and social diversity has contributed to the changing context for Taiwan universities. First, the movement from an authoritarian to democratic regime in Taiwan has also induced the development of campus democracy, in which faculty and student engagement in university governance has gained its importance [1,2]. Second, a liberalized economy has brought debate on the desirable degree of government intervention in university governance and the appropriate balance between public and private universities. Facing the challenges of economic globalization, Taiwan's higher education sector has attempted to improve its competitiveness to attract more international students. Currently, there are 159 universities and colleges, 47 public and 112 private. Public universities have long benefited from more grants, better reputations, and less enrollment pressure; on the other hand, private universities bear higher burdens in terms of student enrollment and financial operation. The issues of how to compete in the global higher education market and how to compete with counterparts, whether public or private, have become salient for Taiwan universities. Third, a diverse society has shaped an open and diverse society and campuses [2]. In Taiwanese society, the birth rate has dramatically dropped, and most universities are encountering downward enrollment pressure, especially since 2016. Consequently, the wide expansion of universities in the late 1980s has led to a series of unexpected consequences,

such as excessive admissions, a decline in quality, an oversupply of university graduates, disparities between public and private universities, and possible university mergers or closures [2,3].

2. Literature

Higher education, following the trends of emergent knowledge economies, has been deployed in the search for economic competitiveness and social development. King, Marginson and Naidoo's work for example explores worldwide convergences and divergences in national higher education systems resulting from increased global cooperation and competition [4]. The contributors examined higher education experiences in India, China, Hong Kong, the United States, Canada, Vietnam, Mexico, South Korea, and Argentina to detail the strategies, practices, and governance mechanisms developed by international and regional organizations, national governments, and by higher education institutions themselves. They have analyzed local responses to dominant global templates of higher education with a "Glonacal" framework, concluding that it is important to promote global, national, and local interactions and cooperation to enhance competitiveness in higher education in terms of knowledge generation, social equity, economic development, and the public good.

Drawing on case studies of universities in China, the United States, Hungary, and Argentina, Rhoads and Szelényi have argued that universities, increasingly involved in international engagements, should be mindful of the possibilities for faculty and student involvement in the production, management, and application of knowledge, and how this in turn allows for an extended engagement by the citizenry that reflects serious considerations of the global context [5].

Bassett and Maldonado-Maldonado have discussed some of the global drives behind higher education policy, including a full array of influential organizations such as the World Bank, United Nations Educational, Scientific and Cultural Organization (UNESCO), Organization for Economic Co-operation and Development (OECD), World Trade Organization (WTO), bilateral aid agencies, and major private foundations [6]. The significance of these organizations is especially pronounced in the developing world, where the expansion of higher education is happening in conjunction with the broadening influences of globalization. These international organizations represent the interests of the developed world and subsequently have an impact on the developing world. Their activities drive and shape the global agenda for higher education, from the international to the regional levels. The authors importantly note the ethical issues that emerge when international organizations intervene in national policy-making processes.

Obviously, globalization has had a profound effect on educational systems in developed and developing nations. Dworkin and Tobe address the neoliberal push, a powerful component of globalization, which increases pressures for accountability and conformity within educational systems. The nature of the trust relationships between schools, school personnel, and the larger society have been altered by accountability mandates [7]. Moreover, under the impress of globalization, universities around the world have endeavored to create salient elements of development and strengthen capacity building in the international knowledge network [8]. Localization, at the same time, requires colleges and universities to handle local problems by taking advantage of their physical, financial, and intellectual capital to facilitate economic development, provide social services and technical assistance, and to create opportunities for applied research [9]. Mok (2000) adds the point that Taiwan universities have transformed under the global tide of privatization and decentralization. The Taiwan Government has reformed its higher education system in response to the changing socio-economic-political context within local-global environments, with a particular focus on provision, regulation, and financing. The impact of globalization on universities is reflected in policies and strategies of quality assurance, performance evaluation, financial auditing, corporate management, and market competition [10,11].

Following the rapid expansion of universities and colleges, Taiwan's higher education system has evolved from an elite system to a universal one with a consequent increasing number of university graduates. As a result, graduates suffer from fierce competition for employment with uncertain wage prospects, and face a low rate of return after investing time and money in higher education [12]. While the number of higher education institutions has increased rapidly, the declining birth rate will sharply decrease the number of incoming students and tuition revenue, and many universities will encounter difficulties in surviving.

Meanwhile, the quality assurance (QA) and quality enhancement (QE) of higher education have drawn great attention [13]. The foundation of Higher Education Evaluation and Accreditation Council of Taiwan (HEEACT) was established jointly by the Ministry of Education and all the higher education institutions in Taiwan on 26 December 2005. Since 2006, HEEACT has conducted higher education quality assurance evaluations to promote quality education and research in universities. The objectives of the evaluation aim to [14]:

(1) Understand the mechanism and practice of each program in ensuring their student learning outcomes.
(2) Judge and recommend the accreditation status and validation period of programs of universities in their evaluation mechanism for implementing student-learning outcomes.
(3) Facilitate the quality improvement mechanism of programs.
(4) Assist programs to develop their own educational characteristics, moving toward excellence; help in-service Master's degree programs to develop their own features and strengths to meet the needs of the business world.
(5) Provide the government with the evaluation results for reference in mapping out future higher education policy.

The first round of evaluations was completed in 2009, and the second round, which particularly emphasizes student learning outcomes, has begun. Some universities have been responsible for self-evaluation as their application of governance performance has been confirmed and approved by the Ministry of Education. The evaluation and accreditation processes not only shape university governance in teaching, research, and service, but also direct government policies assisting universities facing fewer incoming students and global competition in higher education.

Taiwan's East-Asian counterpart, Japan, has faced similar issues. The number of 18 year olds was 2.05 million in 1992, but only 1.2 million in 2012, while the number of universities increased from 523 in 1992 to 783 in 2012 [15]. Since 2000, some universities have announced a halt to enrollment increases and almost half of the private universities have struggled to obtain sufficient enrollment. The economies of achieving university scale within a globally competitive framework influence executive perceptions on establishing globally recognized status in research and teaching. The Japanese government's policy to internationalize domestic universities has not shown much progress according to the opinions of many university executives. Most Japanese universities emphasize serving local needs in research and teaching. University managers were provided similar amounts of resources to pursue external research in 2005 and again in 2012. Comparative data suggest that much less was accomplished with the second round of funding when compared with the first when the outcome measures where improvements in their universities' globally recognized status. [16]. In general, both Taiwan and Japan are encountering fewer incoming students and globalization.

3. Analysis

Taiwan universities have been affected by a multitude of global, local, and social changes, and have been learning to respond and adjust to external changes [17]. These have particularly come from the decreasing number of incoming students, due to a declining birth rate, and the pervasive, inevitable trends of contemporary globalization. Low registration rates with the resulting decreased tuition revenues are severe challenges currently facing Taiwan higher education. These factors have

pushed the government to enact the Innovative Transformation Policy to assist Taiwan universities in encountering these externally derived changes. The strategies of university-industry cooperation, university mergers, closures and a re-shaping of the university paradigm are/will be implemented to handle the problems. The research reported on in the next sections relies on secondary data, including statistical data, official documents, surveys, and previous research results, to explore the contextual factors and the issues Taiwan universities currently encounter.

3.1. Low Birth Rate and Decreasing Registration Rate

Birth rate is defined as the number births per 1000 population (birth/1000). Figure 1 shows a decreasing birth rate of 17.24/1000 in 1988 to 7.21/1000 in 2000. Cultural factors play a significant role in some aspects of this changing birth rate. For example, in Asian society since, those who are born in the year of the Tiger are forbidden from participation in certain joyful occasions, some women would avoid having babies in these years (1998 and 2010), thereby accounting for the low birth rate in these years. By contrast, those born in the year of the Dragon are a blessing; therefore, the birth rates were higher in 2000 and 2012. Overall, however, a variety of factors have contributed to a declining birth rate. Young couples in Taiwan can expect low salaries, but high living expenses with regards to housing, education, and maintaining a satisfactory standard of living, and some have even come to promote the concept of DINK (double income no kid) as an acceptable lifestyle. The declining birth rate has wide-reaching consequences. For instance, President Ma Ying-Jeou even once stated that the low birth rate is an issue of national security, and those at all levels of government have tried to offer financial incentives and tax exemptions for young couples to increase their willingness to raise children [18].
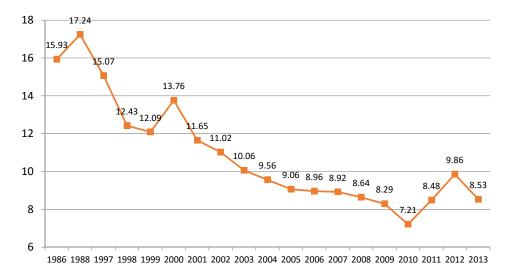

Figure 1. Taiwan's Birth Rate 1986–2013. Source: Ministry of Interior, 2015 [18].

Table 1 and Figure 2 present the actual and estimated number of entering freshmen from 2009 to 2030. High, middle and low estimations all show that student numbers will drop from 272 thousand in 2014 to around 250 thousand in 2016, and finally to 200 thousand in 2021. By then, overall tuition revenues for universities will be reduced by 30 billion dollars, while the demand for faculty members will also be reduced by 10 thousand [19]. An interesting observation is that the estimated number of freshmen will drop significantly in 2016, reflecting the reduced number of births in the 1998 year of the Tiger. The decreasing number of freshmen provides a challenge for Taiwan universities. One alternative has been to emphasize recruiting more international students from the global education market [20].

Table 1. Actual and Estimated Number of Freshmen 2009–2030.

Year	Freshman		
2009	263,153		
2010	268,733		
2011	275,616		
2012	277,756		
2013	271,108		
2014	272,027		
Estimation	High	Middle	Low
2015	278,516	273,197	270,309
2016	258,911	253,989	251,316
2017	243,339	238,725	236,219
2018	256,658	251,777	249,127
2019	247,573	242,873	240,321
2020	219,633	215,484	213,231
2021	208,372	204,446	202,313
2022	195,167	191,500	189,509
2023	190,205	186,638	184,701
2024	184,068	180,622	178,750
2025	181,534	178,138	176,294
2026	180,919	177,535	175,697
2027	176,134	172,844	171,058
2028	161,537	158,536	156,906
2029	168,326	165,191	163,489
2030	196,219	192,534	190,533

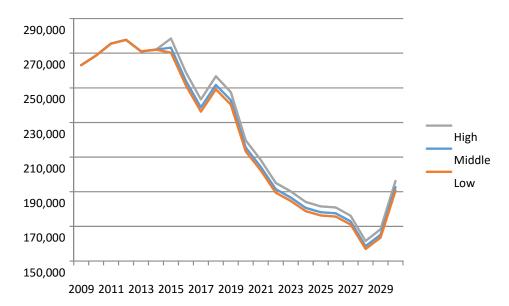Unit: Person. Source: Ministry of Education, 2015 [20].

Figure 2. Actual and Estimated Freshmen 2009–2030. Source: Ministry of Education, 2015 [20].

Within their current structures, higher education institutions (HEIs) are, of course, highly student dependent and thus the projected decline in such numbers poses severe challenges. For the 2013 academic year, the enrollment quota was 324 thousand, but the actual enrollment was 259 thousand leaving a vacancy of 65 thousand. The average registration rate was 79.8%. Tables 2–5 present the registration rates for undergraduate, master and doctoral programs in the north, middle, south, east, and off-shore island regions of Taiwan (it can be noted that the west side of Taiwan is divided into the north, middle, and south regions). Of note is first that the undergraduate registration rate is above 90%

in each region, and second, that public universities have a higher average registration rate than private universities. Moreover, universities in the middle region tend to have a slightly higher registration rate.

Table 2. University undergraduate registration rate for the 2014 academic year.

Region	Universities	Average %	Private %	Public %
North	35	91.26	86.94	95.55
Middle	13	93.42	91.59	95.35
South	17	90.90	83.10	95.35
East	5	93.35	88.78	96.16
Off-shore islands	1	90.30	None	90.30
Total	71			

Source: Ministry of Education, 2015 [20].

Table 3 presents the registration rate for Mater's programs in 2014. Again, public universities have a higher average registration rate than private universities.

Table 3. University registration rate for the 2014 academic year—Master's.

Region	Universities	Average %	Private %	Public %
North	35	77.81	71.31	84.62
Middle	13	77.52	71.68	84.33
South	17	77.89	72.64	84.16
East	5	78.71	None	78.71
Off-shore islands	1	87.19	None	87.19
Total	71			

Source: Ministry of Education, 2015 [20].

Table 4 indicates that for doctoral programs, the private university average registration rate is higher than that for public universities. A possible explanation is that public universities have higher quotas that apply to almost every discipline, even those that have proven less popular for student enrollment.

Table 4. University registration rate for the 2014 academic year—Ph.D.

Region	Universities	Average %	Private %	Public %
North	35	81.11	83.87	78.98
Middle	13	82.53	83.54	80.18
South	17	82.22	87.13	80.36
East	5	87.16	None	87.16
Off-shore islands	1	None	None	None
Total	71			

Source: Ministry of Education, 2015 [20].

Tables 2–4 display comprehensive university registration rates in 2014. Table 5 exhibits the technology/vocational university/college registration rate. Private HEI registration rates vary from 51.33% to 75.92%, indicating that they face more challenges than comprehensive universities.

Table 5. The technology/vocational university/college undergraduate registration rate for the 2014 academic year.

Region	Number	Average %	Private %	Public %
North	32	72.19	67.28	84.79
Middle	14	78.28	75.92	83.71
South	23	72.89	70.10	82.50
East	4	51.33	51.33	NA
Off-shore islands	1	59.36	NA	59.36
Total	74			

Source: Ministry of Education, 2015 [20].

There is a saying that universities in Taiwan will fall down from the East to the West and from the South to the North due to unequal regional development. Table 6 shows the estimated enrollment for undergraduate, Master's and doctoral programs in 2023, and both undergraduate and doctoral programs will sharply decrease, by 32.76% and 37.4% respectively.

Table 6. University enrollment estimations for the 2016–2028 academic years.

Year	Undergraduate	Compared to Year 2013	%
2013	271,108		
2016	252,058	−19,050	−7.03%
2023	182,293	−88,815	−32.76%
2028	156,408	−114,700	−42.31%
Year	Master	Compare to Year 2013	%
2013	53,834		
2023	46,000	−7834	−14.55%
Year	Ph.D.	Compare to Year 2013	%
2013	7670		
2023	4800	−2870	−37.4%

Source: Ministry of Education, 2015 [20].

3.2. Globalization and Internationalization

Universities have been propelled into the center of the global political economy of knowledge production by a number of factors: mass education, academic capitalism, the globalization of knowledge, the democratization of communication in the era of the Internet, and the emergence of the knowledge and innovation economy. Pusser, Kempner, and Marginson argue that universities are uniquely suited for their transformative democratic potential as global public spheres, where public interaction, conversation, and deliberation take place. At a time of increased privatization, open markets, and government involvement in higher education, their work also addresses the challenges facing the university in its role as a global public sphere. In nearly every national context the pressures of globalization, neo-liberal economic restructuring, and new managerial imperatives challenge traditional norms of autonomy, academic freedom, access, and affordability [21].

In the era of contemporary globalization, the internationalization of universities has been emphasized to attract students from the global market, with a corresponding pressure for institutions to gain high academic reputations in the global competitive rankings, and to create unique brands within the global higher education community. According to Ho, Lin and Yang (2015), the internationalization of higher education can be defined as "a process of integrating an international dimension into the teaching, research, and service functions of an institution of higher education" [22]. Internationalization can be achieved through a variety of strategies, for example, encouraging students to study abroad, recruiting foreign students, increasing joint degree programs, strengthening cooperation with overseas universities, integrating international knowledge into the curriculum, and promoting the publication

of articles in international journals. With these strategies, the mobilization of international interaction and the cultivation of international human resources are foreseeable.

In Taiwan, more than 60% of international students are from Southeast Asia and the percentage is gradually increasing. A friendly Chinese learning environment, political stability, social soundness, a good quality living environment, and opportunities for scholarships contribute to favorable conditions for international students. The opportunity to improve language proficiency, including Chinese, English, and other languages, has been fundamental for dealing with the challenges of globalization. Some university departments have set linguistic thresholds for graduation. Bilingual, trilingual, or even multilingual learning has been advocated throughout Taiwan's higher education to equip students with a competitive advantage with regards to internalization and global development [23].

3.3. Ministry of Education's Policies

There is an imbalance between quantity and quality of allocation of resources in public and private universities. Current university education in Taiwan involves the demands and challenges of university governance, autonomy, and the continual improvement of the quality of teaching and research. Hence, a clear definition or classification of universities, self-governance mechanisms, and an improvement in the quality and quantity of teaching, research, and service, have gained importance. "The White Paper on University Education Policy", proposed by the Ministry of Education, aims at assuring the development of university education, the quality and quantity of the allocation of resources, the models of university operation, the degree of internationalization, the interaction between universities and society, and the establishment of an effective evaluation system. The White Paper provides practical approaches and advice for the pursuit of university's excellence. The missions of Taiwan universities consist of achieving academic excellence, providing community service, and playing a significant role in internationalization [20].

In addition, the Ministry of Education's objectives relevant to higher education are summarized as follows [20]:

(1) Human resource development: To implement the White Paper by establishing forward-looking innovative mechanisms for human resource development, focusing on strategies to actively cultivate a highly-skilled internationally competitive workforce with multifaceted expertise, and to provide a strong reliable basis for the nation to pursue sustainable development.

(2) Quality in teaching and research: To establish world-class universities and cutting edge research centers; to provide teaching excellence awards to a number of universities; to strengthen the education and training of highly-skilled people in higher education, as aligned with the needs of industry; to expand cross-strait academic exchanges; to vigorously promote education innovation and provide universities and colleges with more operational flexibility; to encourage domestic universities to adopt international practices and benchmarks; and to improve the quality of universities' teaching, research, and international competitiveness.

(3) Implementing the second Phase of the Technological and Vocational Education Reform Plan: To train highly-skilled technology professionals; to shorten the existing gap between education and the demands of employment; to further align technological and vocational education and training (TVE) to meet the needs of industry; to further develop exemplary universities of science and technology; to demonstrably manifest the practical relevance of TVE; to redefine its core values; and to increase its educational competitiveness.

(4) Effective implement and promotion of lifelong learning and associated activities: To integrate the resources of government and the private sector to make family education services more widely available; to safeguard and maintain the learning rights of the elderly, and to make education channels locally available for all senior citizens; to promote the innovation of services provided by public educational facilities; to provide a wide range of lifelong learning resources; and to focus

on the innovative use of library spaces and facilities, and to create quality reading environments with a good ambience.

(5) Assisting young people to explore career options: To promote competitions for innovative young entrepreneurs; to build stronger links between secondary schools, colleges, universities, and workplaces; to encourage more young people to engage in public and community affairs; to promote youth volunteering, charity work, and service-learning; and to encourage young people to take part in international events, to travel abroad, and to expand their international experience.

Moreover, the Ministry of Education has eagerly moved to implement the Innovative Transformation Policy, as shown in Table 7. With regards to the strategies of university closures, cooperation and mergers, it is expected that 8–12 public universities will merge, and the remaining campus land will be contracted out or be adopted for other use. Furthermore, 20–40 private universities will close, and these campuses will then be transformed into facilities for elderly care, day care, job training, or social housing. A trust fund will be set up to pay compensation to the faculty and staff. Table 8 shows the deceasing demand for faculty from 50,024 in 2013 to 39,579 (estimated) in 2023. This estimation indicates that a number of those holding doctoral degrees will not find full time jobs and it also indicates an oversupply of doctoral programs [23]. Regarding the strategy of transferring university faculty to industry, the Ministry of Education plans to set up a platform to match university supply capacity and industry demand requirements in terms of faculty expertise and development orientations. Universities and industries will be subsidized and motivated to encourage such cooperation. With respect to re-shaping the overall university paradigm, strengthening the university–industry relationship, establishing schools abroad, and initiating experimental education for university–industry cooperation are various strategies for current universities to find alternatives to enhance their sustainability.

Table 7. Innovative Transformation Policy.

Strategy	Action
University Faculty to Industry	1. Setting up a platform to match faculty expertise with industrial needs 2. Subsidizing universities to introduce faculty to industry 3. Motivating industry to recruit university faculty
University Closures	1. Disclosing registration rates 2. Supervising university finances 3. Assuring teaching quality 4. Arranging faculty and staff 5. Clearing assets
Re-shaping the University Paradigm	1. Strengthening the university–industry relationship 2. Promoting international cooperation 3. Initiating experimental education for university–industry cooperation
University Cooperation and Merge	1. Cross-university cooperation 2. University mergers 3. Balancing regional higher education development

Source: Ministry of Education, 2015 [20].

Table 8. Higher Education Faculty Numbers.

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Faculty	50,024	49,581	49,196	48,601	47,768	46,900	45,845	44,548	43,161	41,398	39,579
Compare To Previous Year		−443	−385	−595	−833	−868	−1055	−1297	−1387	−1763	−1819
Retired	440	537	584	668	767	838	947	1053	1210	1334	1390

Source: Ministry of Education, 2015 [20].

Moreover, faced with the decreasing number of university students, the Ministry of Education will reduce the quota of enrollment from 10% to 30% if a public university's registration rate is below 80% for two consecutive years, and if a private university's registration rate is below 70% for

two consecutive years. Since 2011, the quota for a class size has been reduced from 60 to 58 students, and will gradually be reduced to 50. The student–teacher ratio will be required to decrease from 32:1 to 27:1 from 2016, which means every 27 students will require at least one full-time teacher. The graduate student-teacher ratio will also be adjusted from 12:1 to 10:1. The training of doctoral students has been asked to focus on both practical and academic dimensions. Furthermore, current faculty members will be offered more incentives to promote university-industry cooperation than before in order to create possibilities for career transfers.

3.4. Universities' Views

In this era of contemporary globalization, knowledge and innovation are the key requirements for gaining competitive advantage in academic excellence and elite cultivation. Given the emphasis on university appraisals and the pursuit of excellence all over the world, Taiwan has promoted a policy entitled "Stepping towards Premier University Plan" since 2006 [24]. The Ministry of Education has appropriated a special budget of 10 billion Taiwan dollars per year from 2006 to 2016 [25]. Eleven public universities and one private university have been selected as targets to obtain the grants for particular breakthroughs. Furthermore, in order to enhance teaching excellence, the Ministry of Education has planned three-stage grants, with the first stage of 2006–2008 offering a grant of 12.5 billion. The grant was 16.2 billion for the second stage of 2009–2012. For the third stage of 2013–2016, 4.5 billion was granted in 2013, and, of this amount, 2.4 billion was to help comprehensive universities to establish unique characteristics of development, and to improve faculty teaching, student learning, curriculum design to enhance students' employment competitiveness, university-industry cooperation, and academic-practical integration. The teaching excellence grant was 1.575 billion in 2014, and 1.568 billion in 2015 [26]. The budget has gradually decreased because government revenue and its allocation to higher education decreased, and because the government has helped the program to achieve significant progress.

The 2014 Government education budget, as presented in Table 9, shows that 41.61 billion was granted to public universities, while 22.5 billion was granted to private universities. The total number of students for the 2013 academic year was about 1.4 million with the average budget for each student of NT$45,000. Questions have been raised as to whether this amount per student is sufficient. Is it reasonable for a student in higher education? Is it equitable for students in both public and private universities? Some scholars have proposed that this allocation of money per student be replaced with a scheme of education vouchers for parents and students with which they can themselves decide how and where to make commitments and expenditures [27].

Table 9. 2014 Education Budget.

Total Education Budget	115.43
Higher Education	81.79
Grant to Public Universities	41.61
Grant to Private Universities	22.50

Unit: billion. Source: Ministry of Education, 2015 [20].

Taiwan university presidents met on 27 March 2015 to discuss how to confront the reality of decreasing incoming student numbers. *Cheers Magazine* surveyed university and college presidents to understand their main concerns and responses to Taiwan's current higher education situation. 152 presidents reported their main concern to be student recruitment, followed by HEI financing and grants from the Ministry of Education, as shown in Table 10. Their solutions or policies, in Table 11, include strengthening teaching, improving recruitment strategies, promoting university-industry cooperation, and increasing overall enrollments of international students.

Table 10. University Presidents' Main Concerns.

Issues	% (Multiple Choice)
1. Student Recruitment	61.8%
2. Financing	45.1%
3. Endeavors to obtain grants from the Ministry of Education	44.4%
4. Low internationalization	32.6%
5. Students' low learning motivation	28.5%
6. Too little university-industry cooperation	25.7%
7. Insufficient research capacity	18.8%
8. Turnover of excellent faculty numbers	10.4%
9. No teaching passion	9.0%

Source: Cheers magazine, 2015 [27].

Table 11. Response to Decreasing Number of Students.

Action	% (Multiple choice)
1. Strengthening teaching	91.7%
2. Improving recruitment strategies	86.1%
3. Promoting university-industry cooperation	74.3%
4. Increasing the enrollment of international students	68.1%
5. Merging or adjusting schools and departments	45.8%
6. Cooperation with international universities	45.1%
7. Faculty bearing administrative duties	6.9%
8. Not encountering this problem so far	6.3%
9. Freezing vacancies	5.6%

Source: Cheers magazine, 2015 [27].

To a large degree the concern of these senior higher education leaders corresponds to the abovementioned Innovative Transformation Policy enacted by the Ministry of Education, and suggests that Taiwan universities will need to clearly determine their own unique characteristics of development, expand the scope of university–industry cooperation, develop their comparative advantage and recruit international students on this basis.

4. Conclusions

The Innovative Transformation Policy has been implemented for a number of months, having been introduced in March 2015. The evaluation is ongoing and will take time to produce results that can be analyzed and studied. However, based on current analysis, university responses and scholars' suggestions [23,24,28,29], three conclusions can be made.

First, focusing university governance on issues of sustainability and competitiveness is the most important issue. Efficiently integrating teaching resources and cross-disciplinary curriculum design can equip students with multiple abilities and opportunities for career preparation. Since 2012, the Ministry of Education's policy of a "University Self-Governing Project" has deregulated and empowered certain public universities to transform themselves into corporations or public bodies with autonomy and flexibility concerning human resources, finances, accounting, recruitment, organizational structure, and student affairs. In this way, a university can avoid unwanted government intervention and promote its own local and global competitiveness [20,23,28,29]. Institutional research can further benefit a university's good governance. According to the Association for Institutional Research (AIR), universities all over the world have paid attention to data-driven and evidence-based institutional research to enhance their decision-making and long-term planning with regards to admissions, financial management, curriculum design, enrollment, staffing, student life, facilities, athletics, and alumni

relations. With an emphasis on big data, institutional researchers systematically and empirically collect and analyze warehouse quantitative and qualitative data to benefit university governance of teaching, research, community service, and student learning outcomes [30].

Second, departments or colleges with unique characteristics of development can combine their local advantage with industrial development, and the university vision for market differentiation for sustainability. For example, some universities have emphasized cultural creativity to identify and implement soft power, while some focus on market sensitive and rewarding fashion design or innovative technologies to mark their institution's specialty. At the same time, it is also important to assure a university's diversity and quality. Diversity can be shown in recruiting students and faculty with diverse academic backgrounds, expertise, languages, practical skills, and industrial connections. Diversity not only manifests universities' concern with social equality and demand, but also represents a university's uniqueness and competitive advantage by reflecting social differences. In terms of university quality, assessment and excellence with regards to performance in research, teaching, and community service have long been promoted to create an attractive campus for students, faculty, and staff [23,24,28,29].

Third, globalization initiates significant opportunities for international mobility and cross-country job demand. As a result of globalization pressures and opportunities, higher education also encounters competition from other countries. Interaction within the international academic community, shaping a friendly environment, promoting cross-country cooperation, recruiting international students, providing faculty or student exchange, and creating joint degree programs have been pervasive and encouraged. Taiwan has its competitive advantage in the fields of electronic engineering, semiconductors, medical science, fashion design, cultural creativity, and social science. Along with the tide, each university should continue excelling with its own uniqueness [23,24,28,29].

References

1. Dian-Fu Chang. "Students in mass higher education: Effects of student engagement in Taiwan." In *Mass Higher Education Development in East Asia*. Edited by Jung Cheol Shin, Gerard A. Postiglione, and Futao Huang. New York: Springer, 2015, pp. 189–205.

2. Yu Chilik, and Yu-Ying Kuo. "Policy analysis in a time of turbulence." In *Policy Analysis in Taiwan*. Edited by Yu-Ying Kuo. Bristol: Policy Press, 2015.

3. Chuing Prudence Chou. "Higher Education Development in Taiwan." In *Mass Higher Education Development in East Asia*. Edited by Jung Cheol Shin, Gerard A. Postiglione and Futao Huang. New York: Springer, 2015, pp. 89–103.

4. King Roger, Simon Marginson, and Rajani Naidoo. *Handbook on Globalization and Higher Education*. Cheltenham: Edward Elgar Publishing Inc., 2011.

5. Rhoads Robert, and Katalin Szelényi. *Global Citizenship and the University: Advancing Social Life and Relations in an Interdependent World Hardcover*. Redwood City: Stanford University Press, 2011.

6. Roberta Malee Bassett, and Alma Maldonado-Maldonado. *International Organizations and Higher Education Policy: Thinking Globally, Acting Locally?* New York: Taylor and Francis, 2009.

7. Anthony Gary Dworkin, and Pamela F. Tobe. "Globalization and Education within a System of Neoliberal Accountability." *Taiwan Journal of Sociology of Education* 14 (2014): 1–31.

8. Yat Wai Lo. "Reflection on Internationalization of high education in Taiwan." *High Education* 58 (2009): 733–45. [CrossRef]

9. Jonathan G. Cooper, Zeenat Kotval-K, Zenia Kotval, and John Mullin. "University Community Partnerships." *Humanities* 3 (2014): 88–101. [CrossRef]

10. Mok Ka-Ho. " Reflecting globalization effects on local policy: Higher education reform in Taiwan." *Journal of Education Policy* 15 (2000): 637–60.

11.   Mok Ka-Ho. "Globalization and higher education restructuring in Hong Kong, Taiwan and Mainland China." *Higher Education Research and Development* 22 (2003): 117–29.

12.   Sheng-Ju Chan, and Liang-Wen Lin. "Massification of Higher Education in Taiwan: Shifting Pressure from Admission to Employment." *Higher Education Policy* 28 (2015): 17–33. [CrossRef]

13.   Yu-Ying Kuo. "Policy analysis education in Taiwan: A comparative perspective." In *Policy Analysis in Taiwan*. Bristol: Policy Press, 2015, pp. 231–45.

14.   Higher Education Evaluation and Accreditation Council of Taiwan (HEEACT). Available online: http://www.heeact.edu.tw/ (accessed on 3 February 2016).

15.   North America Intellectual Property Company. Available online: http://tw.naipo.com/Portals/1/web_tw/Knowledge_Center/Editorial/publish-193.htm (accessed on 3 February 2016).

16.   Murasawa Masataka, Satoshi P. Watanabe, and Takashi Hata. "Self-Image and Missions of Universities: An Empirical Analysis of Japanese University Executives." *Humanities* 3 (2014): 210–31.

17.   Easton David. *The Political System: An Inquiry into the State of Political Science*. New York: Knopf, 1953.

18.   Ministry of Interior. Available online: http://www.moi.gov.tw/english/ (accessed on 3 February 2016).

19.   The Epoch Times. Available online: http://www.epochtimes.com/b5/15/3/27/n4398297.htm (accessed on 3 February 2016).

20.   Ministry of Education. Available online: http://www.edu.tw/statistics/ (accessed on 3 February 2016).

21.   Brian Pusser, Ken Kempner, and Simon Marginson. *Universities and the Public Sphere: Knowledge Creation and State Building in the Era of Globalization*. New York: Taylor and Francis, 2012.

22.   Hsuan-Fu Ho, Ming-Huang Lin, and Cheng-Cheng Yang. "Goals, Strategies, and Achievements in the Internationalization of Higher Education in Japan and Taiwan." *International Education Studies* 8 (2015): 55–65. [CrossRef]

23.   Shen-Ju Chan, and Chia-Yu Yang. "Facing the Challenge of Less Children and Globalization: Development Strategy of Higher Education." *Evaluation Bimonthly* 52 (2014): 19–22.

24.   Kuo-Chao Liu. "A Discourse Analysis on 'Stepping Towards Premier University' Policy in Taiwan: The Perspective of Post-Structuralism." *Taiwan Journal of Sociology of Education* 14 (2014): 33–71.

25.   Ministry of Education. "Stepping Towards Premier University Policy." Available online: http://www.edu.tw/FileUpload/4022–18520/Documents/13.pdf; http://140.113.40.88/edutop/index_3.php (accessed on 3 February 2016).

26.   Ministry of Education. Teaching Excellence Award. Available online: http://www.edu.tw/FileUpload/4022–18520/Documents/14.pdf (accessed on 3 February 2016).

27.   Cheers Magazine. Available online: http://topic.cheers.com.tw/issue/2015/college/home/check-2.aspx (accessed on 3 February 2016).

28.   Z. R. Huang. "The Closures of Universities Facing Less Children." *Education Trend Report* 51 (2015): 13–22.

29.   Haydn H. D. Chen. "Recruiting Strategies for Universities to Encounter the Trend of Less Children." In Paper presented at Recruiting Strategies under Less Children Era Conference, Tamkang University, Taipei, Taiwan, 22 October 2010.

30.   Association for Institutional Research. Available online: http://www.airweb.org/pages/default.aspx (accessed on 3 February 2016).