



Massification of Higher Education in Taiwan: Shifting Pressure from Admission to Employment

Sheng-Ju Chan^{a,b} and Liang-Wen Lin^c

^aGraduate Institute of Education, National Chung Cheng University, No. 168, Section 1, Daxue Rd, Chiayi, 62102 Taiwan.

E-mail: ju1207@ccu.edu.tw

^bCentre for Civilisational Dialogue, University of Malaya, 2nd Floor, Siswarama Building, Kuala Lumpur, 50603 Malaysia.

^cUniversity System of Taiwan, No. 101, Section 2, Kuang-Fu Road, Hsinchu, 30013 Taiwan.

Educational authorities in Taiwan have been expanding the higher education sector since the 1990s to meet the demands of economic transformation and to meet cultural expectations. Consequently, the higher education system of Taiwan has evolved from an elite system to a universal one. The rapid expansion of higher education is also characterized by salient features such as the increase of higher degrees, an enlarged private sector, and diminishing numbers of junior college institutions and students. This study explores whether these changes at the national level have brought challenges to the labour market. Our findings reveal that intensified competition for employment caused by the increased number of college graduates has incurred extra monetary cost and uncertain wage prospects at the individual level. Disadvantaged students might suffer the most from the massification in light of increased financial investments and low(er) rates of return to higher education.

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Introduction

Higher education is a core sector of society that has grown in importance. To serve the diverse needs of a society, continuous expansion has become one of the main themes in modern higher education (McNay, 2006). For example, the average participation rate among 25 to 34-year-old individuals in member countries of the Organisation for Economic Co-operation and Development (OECD) was 26% in 2000 and increased to 39% in 2011 (OECD, 2013, 39). East Asian countries have undergone the same process. Only 28% of the young people in Taiwan were allowed to enter universities in 1995, but the proportion rose to ~67% in 2010.

Tapper and Palfreyman (2005, 2) commented that ‘demand for wider access has historically been a complex process, in which a combination of personal preferences, economic pressures and political variables is interwoven’. They asserted that ‘there may be global economic forces which explain the international nature of the rise of mass higher education’, although the key determinant is uncertain (Tapper and



Palfreyman, 2005, 2). On the one hand, intensified global competition in economy and trade might trigger the further growth of higher education internationally. On the other hand, another rationale in driving wider access is related to the idea of the equality of opportunity. Along with the development of democratization in several countries, enlarged higher education systems seem effective in removing 'institutional barriers in education to guarantee each social group an equal chance' (Teichler, 2009, 103). The main task of expanding higher education is to provide equal footing, at least at the entry point, for students from different social groups (Wang, 2012). Regardless of the motivations present, both rationales push higher education reform in the same direction.

However, the massification of higher education systems may create major challenges for the labour market. The current study investigates how and why the higher education system has been massified in Taiwan since the mid-1990s and examines the lingering effects of this massification on employment. The first section discusses concepts, patterns and concepts of massification of higher education. The next section provides an illustration of why Taiwan sought to massify its higher education system. The subsequent and penultimate sections explain how massification has been achieved. On the basis of our analysis of the situation in Taiwan, we discuss major labour market challenges. The final section provides conclusions and implications.

Massification of Higher Education: Concepts, Patterns and Theories

Operational concepts

Because the United States were the first to expand its higher education system, scholars in this country have been keen to explore concepts, structure, meanings and impacts. In his seminal work *Problems in the Transition from Elite to Mass Higher Education*, Trow (1973) proposed a well-known operational definition of the different phases of higher education according to participation rate. Using these rates, Trow (1973) defined systems as elite if 15% of its population (in the relevant age grade) enrolled in higher education. The mass type refers to a country with enrolment in higher education between 16% and 50%. When the proportion is more than 50%, the higher education system reaches the stage of 'universal' access. The attitude towards access varies in these different phases (Trow, 1973). When the age grade enrolment of higher education is below 15% of the total population, people tend to view access to higher education as being based on talent. When the proportion is more than 15%, access to higher education is regarded as a right. When the participation rate is more than 50%, access to higher education becomes an obligation (Trow, 1973, 7). These changing attitudes reflect how the nature of higher education is deemed differently and how this may affect potential participants.



By explaining the potential problems of the transition from elite to the mass higher education system Trow (1973) pointed at several issues that should be addressed, including the functions of higher education, curriculum and forms of instruction, student careers, institutional diversity, characteristics and boundaries of higher education, locus of power and decision making, and academic standards. He predicted that ‘for the rest of the century the most important [functions] are “growth, democratization and diversification”’ (Trow, 1973, 40). The seminal report analyzed a wide range of critical problems faced by mass higher education, but failed to address the issue of employment. His exploration concentrates on the internal system changes without touching upon the interaction with the wider economic context. This article does address the influences of the post-massification of higher education on employment of college graduates in Taiwan.

Various patterns of massification

In Western societies, such as Britain, France, German and Nordic countries, a wide range of factors have been considered in expanding their higher education systems, including population demand, public financial burden and labour market characteristics. Some countries have spent decades gradually expanding their higher education systems. For example, the British government has been cautious in moving towards this direction (Robbins, 1963; Department for Education and Skills, 2003). Some countries, such as Switzerland, still keep an elite type of higher education without substantially enlarging participation. Most East Asian countries, such as Korea, Taiwan and China, have expanded their systems within a short period. In most cases, these countries spent only two or three decades in reaching the universal phase. This rapid transformation offers an able workforce for economic development, but might also provide too many graduates.

Different patterns might characterize the process of expansion. In some East Asian countries, private institutions were allowed substantial growth to compensate for participation shortcomings in the public sector (Cheng *et al.*, 2009; Kitagawa, 2009; Kariya, 2011). In the context of marketization or neo-liberalism, an expanded private sector aims to enhance flexibility and effectiveness, and save public expenditure in education. In Korea, the proportions of students in the public and private sectors in the post-massification era are estimated at 20% and 80%, respectively. In Taiwan, the number of students enrolling in private institutions rose to 70% of the total population. However, increasing participation through private higher education institutions (HEIs) also involves higher tuition fees (Altbach and Levy, 2005). The higher cost can exclude disadvantaged students or could lead to a lasting debt for them, thus lowering the rate of return of such an investment. Apart from introducing or expanding a private sector, a variety of other measures were taken to achieve a massified or universal higher education sector. First, establishing new institutions, enlarging current ones and upgrading some post-secondary institutions are the



mainstream strategies commonly used in developing and developed countries. Some countries have constructed new universities, that is, England in the 1970s (Tapper, 2005). Second, expanding current institutions is a strategy in which departments, programmes and colleges within the universities are enlarged. Third, upgrading tends to be regarded as effective because it can provide degree-level programmes in a short period for a low cost. Taiwan adopted all strategies, but the upgrading of junior college has caused some disturbance at the labour market because sub-degree programmes have been substantially reduced.

The expansion might also alter the balance between the different types of institutions. In some countries, the binary system, which prevails in European and Asian countries, is composed of general and technological institutions that serve different purposes (Teichler, 1988; Kyvik, 2009). General universities tend to focus on pure knowledge production and academic and disciplined-based teaching, whereas technological ones often aim to provide competent labour, stress knowledge application and foster economic development. Upgrading of junior colleges and colleges to university status in Taiwan since the 1990s has resulted in a more homogenized type of HEIs to some extent, and, in turn, the features of their graduates also converge. These upgraded institutions began to reduce their course provision at sub-degree level or vocational-oriented curriculum. As a consequence, a less-diversified graduate body had to find jobs on the labour market.

Different roles of higher education in labour market

The role of higher education is explained from two perspectives. First, the human capital approach argues that one of the underestimated factors in lifting economic growth is the quality of workforce. Able and competent employees are the key to productivity. Therefore, expanding higher education has a positive impact on national development. However, the signalling approach does not believe that individual ability can be improved through learning or teaching. Instead, higher education acts simply as a screening or signalling function without substantial contribution to economic development.

Human capital approach

The most traditional and convincing argument for the expansion of higher education comes from human capital theory, which was strongly endorsed by American economists, such as Theodore William Schultz in the 1960s and Gary Becker in the 1970s (Psacharopoulos and Patrinos, 2004). This theory holds that one of the main determining factors in explaining the productivity of a company is the relative quality of its workforce. With better skills, knowledge and competencies, employees can promote their overall institutional effectiveness and productivity. Moreover, individuals with university education can generally earn more than their counterparts. Becker (1994, 17) argued that ‘the monetary gains from a college education rose



sharply during the 1980s to the highest level during these fifty years. The earnings advantage of high school graduates over high school dropouts also increased’.

By summarizing the important quantitative measurements of the rates of return to education, Psacharopoulos and Patrinos (2004, 15–16) pointed out that receiving education is beneficial to both individual and society. For high-income countries, the private and social rates of return to higher education are 12.4% and 9.5%, respectively. In other words, a university degree holder is expected to earn more in monetary and non-monetary respects than a non-degree holder. The private rates of return are even higher than social ones because of the public subsidization of education. According to the OECD (2012), the long-term economic advantage for an individual with a university degree instead of a secondary school leaving diploma is more than US\$175,000 for a man and \$110,000 for a woman. These findings show that investing in higher education is beneficial for both individuals and countries. OECD (2012) asserted that this economic advantage will remain the same in the future as long as societies need (more) high-level skills. Thus, human capital approach empirically and theoretically provides the bedrock for expanding higher education. Nonetheless, an alternative approach can explain the role of higher education in the labour market.

Signalling approach

Some scholars have proposed a neutral approach in interpreting the function of the university in the labour market; this approach regards education as a function of job market signalling (Spence, 1973; Brown and Sessions, 2004). Unlike the human capital approach, the screening or signalling approach denies the possibility that education can actually improve or raise personal skills or competencies through teaching and learning (Bedard, 2001). The signalling approach holds that (higher) education serves another purpose:

The individual, in acquiring an education, need not think of himself as signalling. He will invest in education if there is sufficient return as defined by the offered wage schedule. Individuals, then, are assumed to select signals (for the most part, I shall talk in terms of education) so as to maximize the difference between offered wages and signalling costs. (Spence, 1973, 358)

In other words, this approach sees signalling costs as an ‘investment in education’. The signalling approach suggests that an individual receives higher education simply because this is the additional cost one must pay if he or she wants a higher salary. In fact, individuals do not have to believe in the effectiveness of education in general. Credentials or degrees act as devices to aid in selecting employees with high-level abilities. However, with these characteristics and internal logics, signalling theory has failed to ‘explain most of the positive association between earnings and schooling’. Furthermore, ‘companies do not want information on success in school-work, but in terms of their abilities and performance in the context of working life — the discipline imposed by factories, the need to please customers and get along with



fellow employees, and so forth' (Becker, 1994, 20). Nonetheless, from the perspective of the employer, this approach highlights that education can predict the potential of workers. However, the following concern remains: What happens to the effect of signalling or screening if the number of college graduates increases rapidly?

Educational and Economic Rationales for Continuous Expansion in Taiwan

Some major forces or rationales have been intertwined and have reinforced one another in driving the expansion of higher education in Taiwan since the 1990s. After lifting the martial law, the whole society became even more diverse and democratic than before. Civil group movement and political reforms became mature and frequent. As an emerging economy, Taiwan attempts to transform its export-led industry into an innovative, knowledge-based and service-oriented economy. International competition in trade and commerce has been intensified. The island country must not only fight for its market niche with neighbouring counterparts, such as South Korea, Hong Kong and Singapore, but also aspire to gain relative advantages from traditional mature Western economies by enhancing its industry competitiveness (Mok *et al.*, 2013). These backdrops stimulated higher education to undertake structural reforms to satisfy the needs of social and economic development.

One of the mainstream rationales that support expansion in Taiwan is closely related to the access issue, particularly equal access or equality of opportunity (Wang, 2003). The key idea behind this rationale is that an expanded system is likely to recruit additional students who were previously unable to attend elite institutions. The extra places created may help realize the objective of equal access or even 'democratization' with the societal transformation. Opportunities for access to higher education have been restricted because of an elite system in Taiwan. HEIs in Taiwan were encouraged to accept more students with diverse backgrounds to materialize the idea of equality in a democratized society. A diverse student body reflects the mainstream discourse of 'opening the university to the public' and helps young generations live better lives in the future. Traditionally, access to higher education has been competitive and brought a great deal of pressure on the learning of students and entrance examination. Some distortions occurred, such as significant stress for students and their families, the prevailing of cram school (shadow education) and a bias towards some subjects (e.g., science and language subjects) because of high-stake assessments. Thus, unified entrance examinations have been criticized for such negative effects. An expanded higher education system is expected to remove such disadvantages and prevent 'one examination determines your whole life' (一試定終身).

In echoing such educational or cultural motivations, some grassroots movements have begun to call for increased participation in higher education. In 1994, a major



civil group called 410 Civil Educational Reform Alliance proposed the ‘universal establishment of senior high school and universities’ (廣設高中大學) to solve problems. In response to public expectation, the Council on Education Reform (1996), a high-level review committee led by Nobel Laureate Dr. Yuan-Tseh Lee, suggested the following:

To cater to the diverse needs of higher education, the overall capacity should be expanded continuously. However, the growth rate of public universities should be slower, while private ones can be considerably enlarged ... the existing public universities should be expanded to suitable size so as to take advantage of scale of economies. (1996, 60)

The proposed strategies concentrate on different paces of expansion between public and private institutions. As stated by the Council of Education Reform: ‘public institutions should be still under control of government with appropriate planning’, whereas ‘the private sector is subject to social demands’ (Council on Education Reform, 1996, 30). In other words, the market-oriented principle is applied to the expansion of the private sector, whereas governmental control is applicable to the public sector. Thus, in achieving greater equal participation, the private sector plays a key role. However, this market-oriented principle, which is subject to ‘social demands’, might pose serious challenges to college graduates in the labour market, which is addressed later.

With a long history of planned economy, the education sector in Taiwan has served as an effective tool in the economic development. Higher education is no exception. Since the 1980s, the economic structure in Taiwan has been changing and heading towards knowledge-intensive industries (Ministry of Education, 2001). A large highly skilled workforce is urgently needed for economic development. This economic rationale aims to provide qualified and high-quality workers to upgrade industry structures and finally promote national development. Former Minister of Education, Ovid Tzeng, stated the following:

The twenty-first century will be the century where knowledge-based economy will form the fulcrum of development, where universities around the world will become the spawning ground for the new knowledge and for human resources, i.e. universities will become the major focus for national competitiveness. (Ministry of Education, 2001, 6)

This white paper suggests that the educational authority in Taiwan clearly acknowledged the important role that universities should play in the new type of economy. An expanded and improved higher education sector is the prerequisite for securing relative competitiveness at the national level. On the basis of such economic motivations, the higher education system in Taiwan began to undergo dramatic transformation. One of the notable features is to enlarge long-standing colleges and universities and permit the establishment of additional public and private institutions



beginning in the 1990s. This supply-side policy driven by economic imperative provides additional places in higher education. The next section illustrates how the expansion has taken place in the past two decades.

Expansion of Higher Education in Taiwan: Institutions and Students

The higher education system in Taiwan has been expanded and has led to a system with a variety of institutions, both public *vs* private, and varying by disciplines offered. According to the classification of Trow (1973), the development of higher education of Taiwan has gone through a substantial transformation within a short period. As far as Net enrolment rate (NER) is concerned, Figure 1 shows a rapid expansion of the higher education system. In 1991, the NER was slightly more than 20%, which is slightly over the threshold of the elite system. However, it increased to 50% in 2004, reaching the universal phrase (see violet bar in Figure 1), and continued to increase afterwards.

We reveal some interesting patterns from Figure 2 by examining this issue from the total numbers and changing proportions of the type of HEIs. The total number of HEIs increased considerably from 130 in 1994 to 164 in 2007. The growth rate is moderate (approximately 26%) compared with the NER because each university and college has been enlarged to accommodate more students as discussed previously. When considering the changing proportions of HEIs with respect to institutional type, three different phases of development in Taiwan have been identified. Junior college (i.e., a sub-degree or foundation courses) was the dominant form of HEI before 1998 (see the violet bar in Figure 2), and it provides vocation- and occupation-oriented programmes. The second phase, from 1999 to 2003, was characterized by numerous colleges as mainly focused on 4-year courses (i.e., undergraduate). After

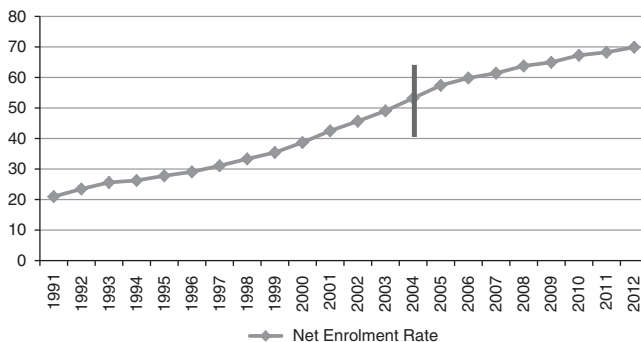


Figure 1. NER of higher education in Taiwan by year (Percentage).

Source: Ministry of Education (2014a).

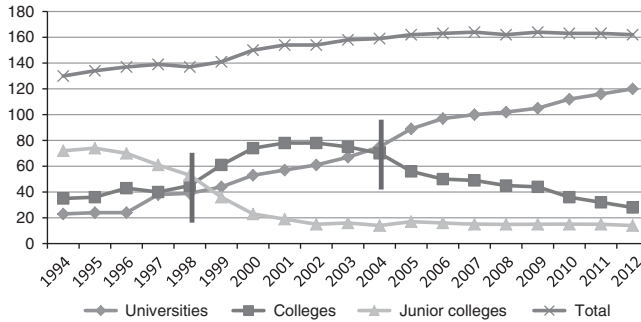


Figure 2. Number of higher education institutions by type.

Source: Ministry of Education (2014b).

2004 (please see violet bar in Figure 2), universities became the mainstream type of HEI, with a wide range of courses, including those at the undergraduate and postgraduate levels. These distinctions highlight a trend of several institutions having been gradually upgraded to a higher level of universities. The main drivers for this structural transformation are twofold: enhancing the education quality and meeting the cultural expectation of attending a ‘university’, rather than a ‘junior college’ or ‘college’. Politically, the expansion of higher education aims to raise citizenry quality through schooling. Therefore, upgrading junior colleges and colleges corresponds to the needs of transforming the higher education sector and providing more places for prospective students.

Another dimension regarding the expansion of higher education is the types of graduates produced. The upgrading policy centred on the junior colleges and colleges that belonged to the ‘vocational and technological sector’. They produced a mid-level workforce and stressed practical skills and techniques. After upgrading, the mission of the programmes shifted to white-collar, professional or even high-end jobs. However, whether such an institutional transformation is successful heavily depends on the absorbing capacity of the labour market.

Another feature of higher education expansion in Taiwan is a relatively larger private sector, which has significant implications for individual financial burden. On average public institutions catered for 30% of the students in the period 1994–2012 (Ministry of Education, 2014b). This means that although the public sector had been increased, the whole system, however, is mainly composed of private universities. This reality represents that increased participation is achieved in Taiwan through further ‘privatization’ to absorb more students. This strategy, which eases the public financial stringency, amplifies the private monetary contribution to the growth of the higher education sector. However, students registering at private institutions pay higher tuition fees because of the lack of ‘public subsidization’ (Lin, 2012).



In general, tuition fees at private universities are two times higher than those at public ones. This difference can be problematic because more disadvantaged students are enrolled in private institutions than in public ones. Lin (2012, 29) asserted that ‘more and more disadvantaged households rely on increased borrowing to send their children to school’. Great financial burden has been placed on lower-income groups because of this dual policy on tuition fees (Wang, 2012). Social class segregation seems to persist in Taiwan in terms of the types of HEIs (Chen, 2012), for students with higher social status end up paying less for an education at public universities with a good institutional reputation. Their disadvantaged counterparts (students with a lower socio-economic status) pay higher tuition fees and attend lower-reputation private universities. This will have major implications for the employment of college graduates in the labour market.

Features of Massification: In Pursuit of Higher Degrees

The analysis shows that Taiwanese higher education has gone through substantial growth in NER, accompanied by a moderate increase in the number of institutions. The proportions of students in public and private HEIs have been almost unchanged. However, a prominent feature emerges in Taiwanese higher education expansion if we examine the statistics by the level of education, that is, the pursuit of higher degrees. In mirroring the development of different types of institutions (junior colleges, colleges and universities; see Figure 2), the constituents of the student body in Taiwanese higher education change accordingly (see Figure 3). Before 1998, junior college students comprised the majority, followed by undergraduate students. However, undergraduate students have substantially taken the lead since 1999 because of the continuous upgrading from junior colleges to colleges or even universities. Hence, the number of master’s students even surpassed that of junior

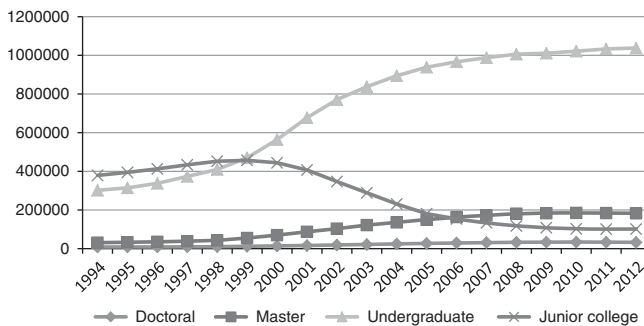


Figure 3. Number of students in higher education by level.

Source: Ministry of Education (2014b).



college students in 2006. Junior colleges and their students have become marginalized with minor roles since the early 2000s.

Other dramatic transformations are revealed if we look at the changing proportion of the student body according to the level of education. With 1994 as the benchmarking year, Figure 4 shows a different landscape of Taiwanese higher education. The total volume of students considerably increased by 88% from 1994 to 2012. However, the number of junior college students has decreased rapidly, whereas the number of participants in other levels has grown substantially since 2000. Over the past two decades, the number of undergraduate students doubled within 10 years (from 1994 to 2005), stabilized and grew rapidly after 2005. However, the number of master's students increased five-fold from 1994 to 2010, whereas the number of doctoral students rose by 300%. In other words, postgraduate programs have been the focus of expansion. More students of doctoral and master's degrees than undergraduate were produced. This systematic growth of postgraduate programmes coincides with the hopes of raising human resource quality and lifting the enterprise productivity as a whole.

With a successful transformation of higher education, the Taiwanese workforce actually faces serious declining wage levels (see Figure 5 and Figure 6). Taiwan had 40% NER approaching universal access in 2000. With this year as the benchmark, we witness a continuously reduced income level after inflation adjustment for all types of educational attainment. Figure 6 shows that college graduates still earn more in labour market than those with other levels of education. However, the differences in average wage have been gradually narrowed between 2000 and 2012 because of slower decline of other levels of educational attainment. In Figure 6, the average wages of college and university graduates in 2012 were less than three quarters of the level in 2000. Clearly, declining wages are consistent with the continuous expansion of NER. College

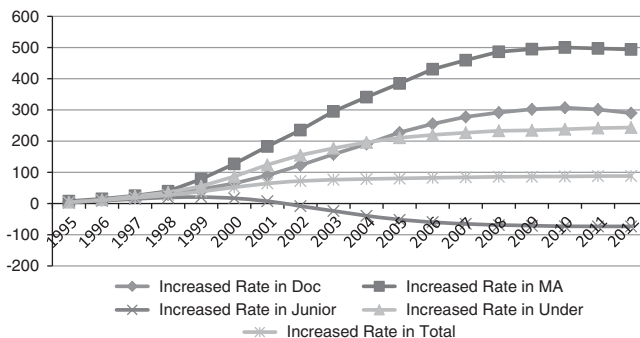


Figure 4. Increased rate of student numbers by level.
 Source: Calculated from Ministry of Education (2014b).

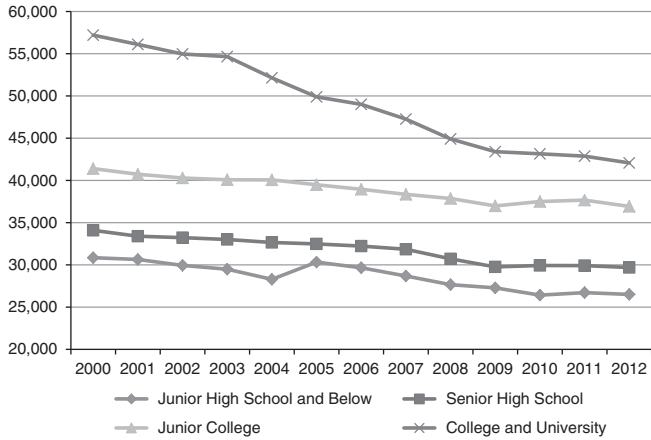


Figure 5. Declining average wages (after inflation adjustment in \$NT Dollars).
Source: Chan and Yang (2015).

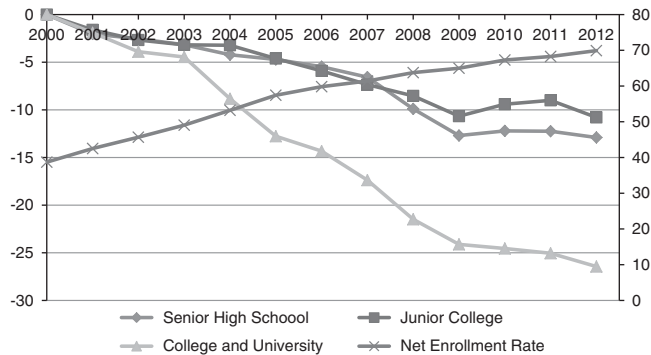


Figure 6. Declining average wage by percentage (after inflation adjustment).
Source: Chan and Yang (2015).

and university graduates suffer the most, followed by senior high school and junior college leavers. This surprising outcome seems to be not supported by the human capital approach that graduates with higher educational attainment are more competitive and productive in general sense. With the narrowing differences in wage levels between college graduates and junior college leavers, the relative advantage of employment in the labour market seems to erode for university attendees. Therefore, how such an expansion strategy in the pursuit of higher degrees has caused other difficulties or challenges in the labour market is a serious issue.



Challenges to Labour Market: Increasing Personal Burden

An expanded higher education in Taiwan has extended educational equal access to some extent (Lin and Yang, 2009). As far as political will and economic needs are concerned, the Taiwanese experience is positive. However, if we approach this issue from the individual level in relation to the labour market, we arrive at a different conclusion. Students' chances of having bright employment prospects in the labour market have become problematic. First, in the universalized higher education system in Taiwan, public universities tend to be full of students with high or middle social status who pay lower tuition fees and have better employment opportunities. By contrast, private universities that charge higher tuition fees than public universities mainly admit working-class students whose job prospects are somewhat uncertain (Wang, 2012). This massified higher education might lead to reverse income redistribution among different social classes because of the varied institutional reputation and the dual-track tuition fee policy. The rate of return to higher education for upper- or middle-class students is even higher than for working-class ones because of the public subsidization to public universities.

The second issue that challenges the labour market is related to the declining quality of college graduates (Chou and Wang, 2012). The higher education system was originally expanded to provide competent workforce for enterprises. However, the mass production of college graduates in such a short period has received a great deal of criticism in terms of their declining ability, skills and required attitudes (Cheng and Chang, 2010; Chiang, 2013). The entry score of university examination has gone down further along with the expansion. Some university students do not devote to learning entirely. Although there are greater numbers of graduates, employers complain about their lack of skills required by industries. Therefore, balancing the rapid expansion of higher education and quality of college graduates has become a tough issue for policy makers and institutional leaders in Taiwan.

According to the Global Competitiveness Report 2013–2014 released by the World Economic Forum (2013), Taiwan has been highly ranked in terms of its performance. One of the main enhancers is its higher education system, which is excellently rated. Compared with other political entities, the high competitiveness of Taiwan is related to universal participation and increased human resources brought by the expansion of postgraduate courses. However, as explained previously, such an achievement was accomplished through an enlarged private sector of higher education. Thus, in spite of enjoying high international ranking at national competitiveness, most of the educational cost is shared by individuals who attend private institutions and pay higher tuition fees. The better competitiveness or productivity in Taiwan is attributable to the additional investment of individuals in higher education borne with additional study costs. In spite of becoming a productive society as a whole, Taiwan suffers from a serious decline in wages for college graduates. The supply-side approach in Taiwan (i.e., expanding higher education) makes the labour



market even more competitive than before for college graduates. However, this situation might also cause a polarized phenomenon, that is, a lack of mid-level workforce and reduced wage level of college graduates. Taiwan has to import several foreign workers to perform basic or low-skill jobs and faces a lack of workers to do semi-professional or mid-level jobs because of the overexpansion of the higher education system (more than 70% NER in 2012). This type of universal higher education might have provided the labour market with some able and competent candidates for cutting-edge industries. However, sub-degree level workers have been largely removed, but Taiwanese enterprises still need them. This assertion might be confirmed by Figure 6 in that the wage decline among junior colleges has been much less than that among degree holders over the past decade. This situation leads to another major concern in Taiwan in relation to overeducation or overinvestment in higher education as a whole (Lin and Wang, 2005).

As we have presented previously, NER in Taiwan at the university level reached nearly 70% in 2012, with the risk of the phenomenon of overeducation. A continuous decrease in income level is a key indicator because the market value of college graduates has been reduced along with the expansion of higher education. The actual level of overeducation depends on the dynamic relationship among the industrial structure, demand side, and the configuration of the higher education system and supply side (Chevalier, 2003). As the signalling approach asserts, extra investment in schooling, such as higher education, is deemed as an additional cost for exchanging better employment opportunities, rather than actually improving skills and professional or vocational experiences. Therefore, such a signalling effect was blurred or considerably weakened when Taiwan evolved from an elite system to a universal system. Employers face a wide range of difficulties in determining who is most competent because of the increase in the number of degree holders, particularly master's and doctoral degrees. Competition among individual graduates intensified. Thus, personal cost in job hunting substantially increased as each candidate seeks to gain a better chance for employment. Job seeking became a game in which each young person must engage. Receiving higher education became a must or obligation (as Trow (1973) mentioned) when universal access became a reality in Taiwan. Without higher education, the relative advantage for employment is decreased. Individuals bear higher study costs, particularly socially disadvantaged students attending private institutions, but are not guaranteed of a bright job prospect in a highly competitive labour market. The signalling effect has lost its validity in these situations.

Conclusions and Implications

With great prospects of elevating citizenry quality, meeting the cultural expectation of parents and promoting a high-technology island region, higher education in Taiwan has been encouraged not only to improve overall quality but also to expand



the participation rate. On the basis of these motivations and visions, the massification of higher education in Taiwan has been a mainstream public discourse since the 1990s without challenges or resistance. This transformation promised bright prospects for students, parents, industries and higher education institutions. The massification had positive effects in terms of upgrading the industrial structure and maintaining regional competitiveness. At the individual level, the pressure of access to higher education substantially improved by providing extra places. Nevertheless, this process posed challenges for the career development of the younger generation.

High-end job vacancies seem nowadays limited in Taiwan, which has led to declining wage levels, because of the overprovision of master's and doctoral courses. Rapid expansion makes this issue even worse because of the increasing incidence of overeducation or mismatch. Instead of raising regional competitiveness as a whole through a massified higher education sector, this major reform in Taiwan has undoubtedly presented the younger generation an extra cost for higher learning. Unfortunately, this unstable and intensified competition for employment incurs extra personal burden, particularly to disadvantaged students. Therefore, matching the expansion of higher education and the changing needs of the transformative economy has been a tough lesson learned in the case of Taiwan. In addition, the rapid expansion of access and the wrong types of graduates seem to be related to the declining income level. These points deserve further investigation.

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