Analysis of Macao's Intellectual Capital under the "One Country, Two Systems" Policy

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I. Introduction

The concept of "One Country, Two Systems," first proposed by Deng Xiaoping – the former paramount leader of People's Republic of China, had long time been discussed to meet the nation's aspiration of reunification of the motherland. This principle adopted by the Chinese government in 1984, is critical for the practice of Hong Kong and Macao after the sovereignty was transferred back to China. With respect to the realities of China, the "One Country, Two Systems" policy supports the two former European colonies retain their established social and economic system after the reunification while China resumes exercise its sovereignty over them. Under this fundamental policy, Hong Kong and Macao returned to the bosom of the motherland respectively in 1997 and 1999 and become the Special Administrative Regions (SARs) of China with a high degree of autonomy. The smooth and successful handovers demonstrate China's ability to solve disputes peacefully and successfully.

The Macao Special Administrative Region (hereinafter as "the Macao SAR"), governed under the "One Country, Two Systems" principle, has been performing extremely well economically since reunification in December 1999. The successful practice of Macao under the "One Country, Two Systems" policy has been thoroughly discussed by scholars.[1] Macao's financial achievement has been recognized internationally; in particular, it demonstrates Macao's outstanding success by outperforming important regional figures such as Hong Kong, Singapore and Taiwan. All the achievements are yielded by the application of its constitutional principle – the "One Country, Two Systems" policy and its legal realization the *Macao Basic Law*. This unique political framework has been bringing Macao vitality, prosperity and stability while the Macao Government and Macao people take great advantage of the new opportunity to develop its gaming-related tourism industry.

A city has tangible assets as well as intangible assets. Macao's tangible assets directly reflected by the rapid increase of its GDP, demonstrate the positive outcome of the "One Country, Two System" format. In terms of intangible assets, how Macao's intangible assets have been developed under this unique framework since reunification has not been explored yet. The concept of intellectual capital has not been fully studied and applied by the Macao community in order to evaluate its potential. Assessing Macao's intangible assets since the reunification thus becomes an important and interesting topic for the community, and meanwhile it fills the research gap, raises the local awareness, helps understand Macao's value creation potential in building up a diversified economy, and leverages further the "One Country, Two Systems" policy.

Intellectual capital (IC), also called intangible assets, is "intellectual material – knowledge, information, intellectual property, experience – that can be put to use to create wealth."[2] Researchers agree that intellectual capital is important not only for firms' development at the micro-organizational level, but also for nations' growth. It constitutes a nation's invisible wealth, reflects its competitiveness on the regional or international stage,

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and represents the hidden national potential for future growth. More and more nations raise awareness that intangibles are “the driving force for the future wealth creation”[3] and form a new economic landscape that wealth is not measured solely by tangibles.[4] Therefore it is critical to evaluate a nation’s wealth from the intellectual capital perspective.

II. Objectives

The objectives of this paper are: to identify and measure the intangible assets of the Macao SAR since the reunification in 1999; to develop a better understanding of Macao’s intellectual capital landscape; and to examine its position in the region by comparing it with Hong Kong and Singapore. The paper focuses on the “evidential facts” which prove that Macao has made big progress in intellectual capital under the “One Country, Two Systems” policy.

Hong Kong and Singapore are selected for the following reasons: 1) Singapore, Hong Kong, and Macao are all city-states and the latter two are the SARs of China; 2) All the three are affluent cities with similar cultural and geographical characteristics; 3) Hong Kong and Singapore are regional leaders as well as competitors of Macao. The comparison will provide insight into Macao’s intellectual capital performance in Asia and worldwide. Moreover the comparison of the two SARs (i.e., Macao and Hong Kong) will present an overview of their performance since reunification. The research questions are: What improvements have been made since reunification? What are Macao’s intangible assets to define its strengths and weaknesses? What are Macao’s main weaknesses compared to Hong Kong and Singapore and what are its competitive advantages? What can be learned and what needs to be done?

III. Research Methodology and Model

Evaluating national capital is a complex and comprehensive task due to the nature of the intangibles. Many scholars, researchers, and organizations have developed models in order to assess the qualitative using a quantitative expression, which reflects a nation’s general status of competitiveness and potentials in the world. Laba and Sanchez have studied the existing models of auditing NIC.[5] Main models include the Intellectual Capital Navigator (ICN) developed by Edvinsson and Malone[6], National Intellectual Capital Index (NICI) by Bontis[7], Global Competitiveness Index (GCI) by World Economic Forum (WEF), World Competitiveness Index (WCI) by International Institute for Management Development (IMD), and Human Development Index (HDI) by United Nations Development Programme (UNDP). An important finding indicates that “models with partially different inputs produce similar country rankings.”[8]

The study of intellectual capital in Macao adopts the Skandia Navigator developed by Edvinsson and Malone in 1997 for the following reasons. First, the Skandia model has been employed by many scholars as a feasible foundation to evaluate a nation’s intellectual capital. For example, Bontis used it to examine the Arab region’s intellectual capital[9]; Alexander applied it to evaluate the intellectual capital of the Grand Duchy of Luxembourg[10]; Pasher and Shacher employed it to examine Israel’s intellectual capital.[11] The model is “designed to provide a balanced picture of the financial and intellectual capital” and “its great advantage is the balanced total picture it provides of the operations.”[12] Second, the Skandia model “promises an easier understanding of results by governmental and business leaders and more flexibility to modify an audit in the future.”[13] Last, the Skandia model constitutes a classic schema and provides a general framework that could be adapted to similar assessment for national intellectual capital. According to Edvinsson, a nation’s intellectual capital comprises human capital and structural capital. Structural capital is composed of market capital and organizational capital which comprises renewal capital and process capital.[14] For this study the chosen indicators based on the Skandia Navigator are listed as Table 1.

Table 1: The Chosen Indicators

Indicators				
Financial Wealth			• GDP per capita ($USD) • GDP growth • Inflation (%) • External Debt ($USD)	
Intellectual Capital	Human Capital		• Literacy rate, adult total (%): Adult (15+) literacy rate • Trained teachers in primary education (% of total teachers) • Graduates by degree • School enrollment, tertiary (% gross) • Total labor force • Labor force, female (% of total labor force) • Labor force with tertiary education (% of total labor force) • Unemployment, total (% of total labor force) • Employed population by industry & occupation • Life expectancy at birth, total (years) • Physicians (per 1,000 people)	
	Structural Capital	Market Capital	• Economic freedom • GCI: Global Competitiveness Index • High-technology exports (%): products with high R&D intensity • ICT goods imports (% total goods imports) • ICCA number of meetings hosted	
		Organizational Capital	Process Capital	• Public spending on education, total (% of GDP) • Public spending on education, total (% of government expenditure) • Mobile cellular subscriptions (per 100 people) • Internet users (per 100 people) • Secure Internet servers (per million people)
			Renewal & Development Capital	• Researchers in R&D (per million people) • Research and development expenditure (% of GDP) • Patent applications, residents • Academic publications per million people • Quality of academic institutions • Graduates of higher education by program

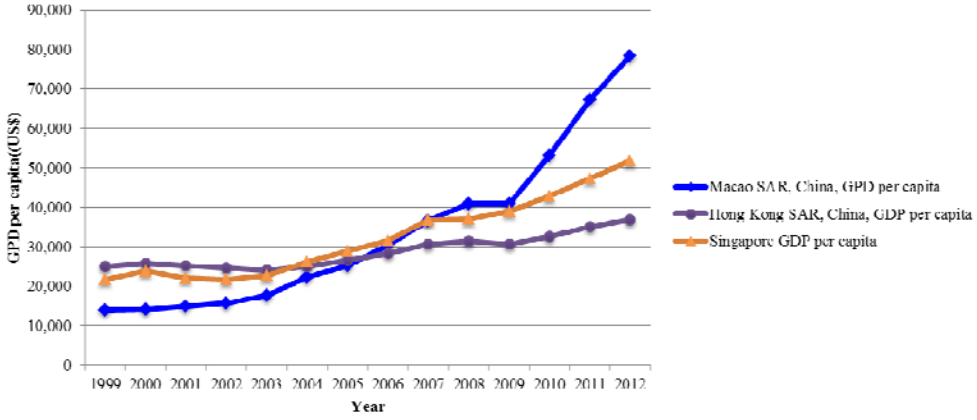
IV. Study

Main sources for data collection are World Bank, Macao Economic Services, Macao Statistics and Census Service, Annual Reports on Urban Competitiveness, ICCA, World Economic Forum, Elsevier's Scopus, and Academic Ranking of World Universities 2013. Considering the reunification taken place in December 1999, the study period is chosen from 2000 to 2012. All figures in this study are created by the authors using the collected data.

4.1 Financial Wealth

Financial capital reflects a nation's achieved economic performances. Macao paid off the external debt before the reunification.[15] Statistics indicate that the "One Country, Two Systems" format has provided Macao vitality and Macao has made a big growth in financial capital since 2000. In 2012 Macao's GDP per capita ($78,275) increased almost by 6 times relative to 1999 and successfully surpassed Singapore and Hong Kong (See Figure 1).

Figure 1: GDP per Capita: Macao SAR; Hong Kong SAR; Singapore (US$)



Source: The World Bank, 2014.

In 2012, its GDP growth reached 9.9%, which represents more than 7 times that of Singapore (1.3%), and more than 6 times that of Hong Kong (1.5%).

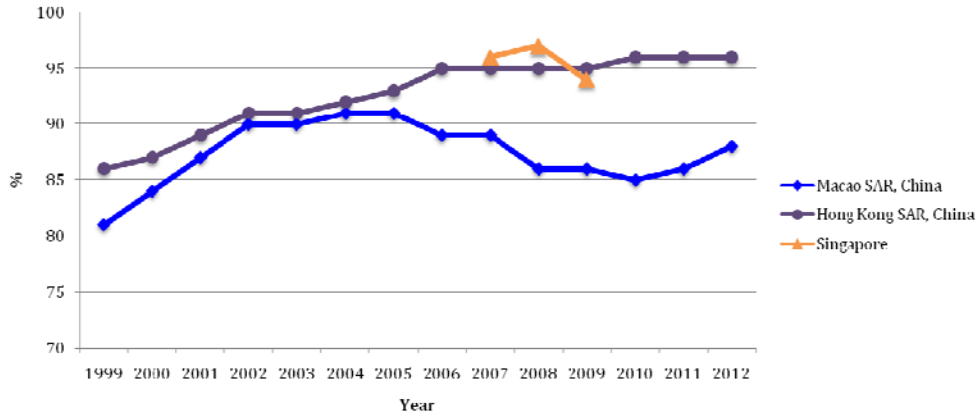
4.2 Intellectual Capital

4.2.1 Human Capital

Human capital applied in economics is viewed as similar to the physical means of production.[16] It is the critical means to achieve national tasks and goals and is the foundation of intellectual capital, which can be reflected by key indicators such as education, health, and equal opportunities.

In general, the adult literacy rate of people ages 15 and older in Macao was over 90% and reached 96% in 2011, which was the same as that of Singapore. The rate of trained teachers in primary education has increased since 1999 (See Figure 2).

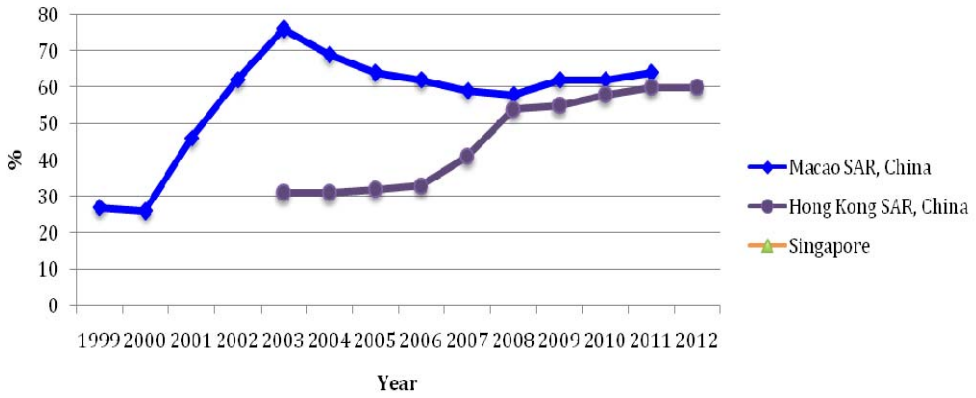
Figure 2: Comparison of Trained Teachers in Primary Education (% of total teachers)



Source: The World Bank, 2014.

The highest was 91% in 2004 and 2005, and then it went down to 85% in 2010. It went up again to 88% in 2012, but still lower than that of Hong Kong (96%). The tertiary school enrollment rate peaked in 2003 (76%), with a sharp increase of 181% relative to 2000 (27%). It went down in 2008 and remained around 63% in 2009-2011. Overall the tertiary school enrollment rate was higher than that of Hong Kong (See Figure 3).

Figure 3: School enrollment, tertiary (% gross)

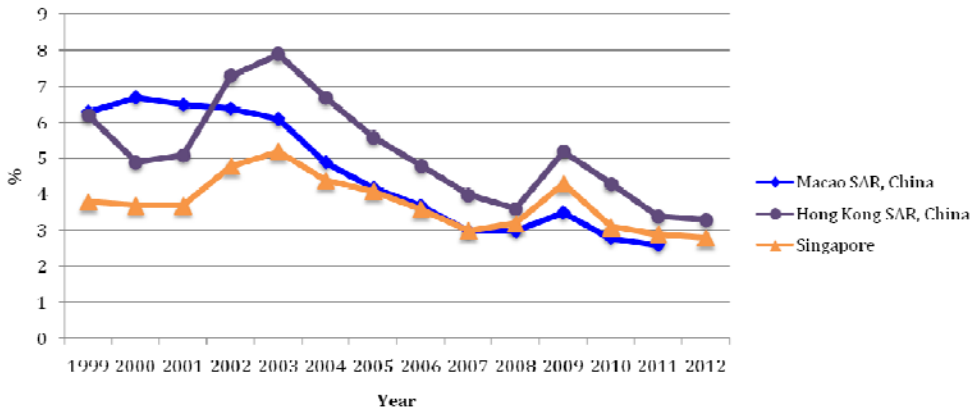


Source: The World Bank, 2014.

Regarding the post-secondary education, the number of graduates in all degrees increased greatly in general. Data from Macao Statistics and Census Service reveal that in 2001/2002, there were only two graduates with doctoral degree. It increased to 125 in 2010/2011 and 81 in 2011/2012. Graduates with master degree in 2011/2012 increased by 2.33 times compared to that of 2001/2002. Graduates with bachelor degree grew over 3.55 times compared to that of 2001/2002.

The total number of labor force in Macao increased by 64% from 213,020 in 1999 to 348,913 in 2012, higher than that of Hong Kong (13%) and Singapore (50%). Macao is doing well in promoting equal opportunity. The female labor force rate in Macao increased from 44.7% in 1999 to over 48% after 2007, which was higher than that of Hong Kong and Singapore during the past 14 years. However, the labor force with tertiary education rate is lower than that of Hong Kong and Singapore during the period of 1999-2003 where data are available. The unemployment rate in Macao remains low since reunification; particularly since 2005 it remains lower than that of Hong Kong and Singapore (See Figure 4).

Figure 4: Comparison of unemployment rate (% of total labor force)



Source: Macao Statistics and Census Service, 2014.

The structure of the employed population reflects that the economy of Macao is driven by the recreational, cultural, and gaming industry. The employed population in the recreation, cultural, and gaming industry was 19,300 in 1999, which held 11% of the total employed population, but increased to 89,500 representing 30% of the total employed population in 2012. The population in manufacturing declined sharply. There were 42,700 people (24% of the total employed population) in 1999. However, in 2012 the number went down to 10,300, representing only 3.4% of the total employed population.

Health is another vital element in human capital.

Life expectancy at birth in Macao (79 in 2011) was generally stable for the past years, slightly lower than that of Hong Kong (82 in 2011) and Singapore (81 in 2011). Macao had the highest physician rate (per 1,000 people) in general, compared to Hong Kong (1.8 in 2011) and Singapore (2.6 in 2011).

4.2.2 Structural Capital

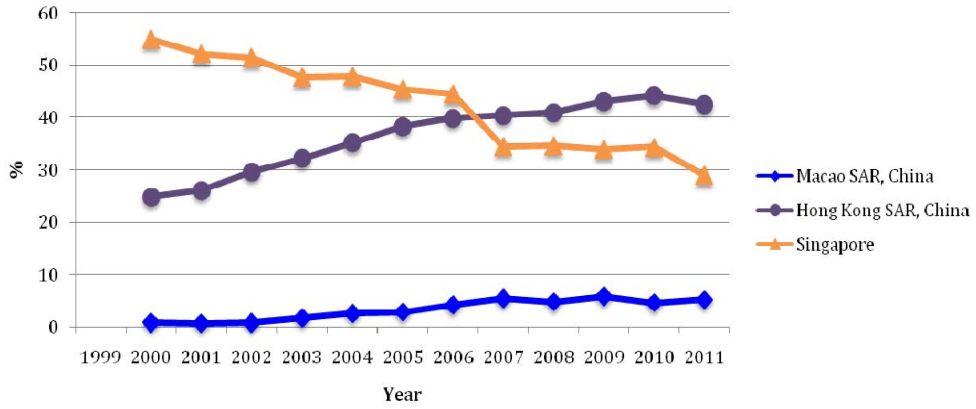
4.2.2.1 Market Capital

Market capital as the social aspect of intellectual capital refers to the assets embodied in a nation's relationship with the international market, which represents the nation's capabilities and successes in providing an attractive, competitive solution to the needs of its international clients.[17] The key indicators to reflect the development of market capital include openness to globalization, flexibility and adaptability, and resilience of economy.

Macao is very open to the global market. The *Macao Basic Law* clearly regulates that "The Macao Special Administrative Region shall maintain the status of a free port and shall not impose any tariff unless otherwise prescribed by law" (Article 110) and the Macao Government shall "pursue the policy of free trade and safeguard the free movement of goods, intangible assets and capital" (Article 111). After reunification Macao strengthens as a business friendly, low taxation system. Foreign firms and individuals are welcome to establish companies and branches with no restrictions on the ownership of such establishments and no restrictions on capital flows and foreign exchange operations.[18] Macao's economy has been rated "mostly free" by the Heritage Foundation's Index of Economic Freedom since 2009. According to The Heritage Foundation, Macao ranked the 29th in 2012, while Hong Kong ranked the 1st place, closely followed by Singapore as the 2nd. However, for the past several years the score of Macao declined in freedom from corruption, government spending, and labor freedom; only investment freedom advanced to enhance market openness.[19]

The Global Competitiveness Index 2013-2014 reported that Singapore ranked the 2nd and Hong Kong the 7th. Macao was not ranked in the Index. China has started the competitiveness study of 294 cities since 2002. According to Ni[20] and Hao and Wu,[21] among 294 cities in China, Hong Kong has been ranked the 1st with the full score 1. Macao ranked the 10th among the 294 cities in 2012 with the GCI 0.692. The percentage of high technology exports in all manufactured exports in Macao has been much smaller than Hong Kong and Singapore. ICT goods exports (% of total goods exports) are another key element of exports. Figure 5 shows that the percentage of ICT goods exports of total good exports was much smaller than the other two, and particularly was only 5.16% in 2011. The flat growing trend demonstrates echoes its poor performance in high technology exports.

Figure 5: Comparison of ICT goods exports (% of total goods exports)



Source: The World Bank, 2014.

The number of international meetings hosted reflects the recognition of Macao's meeting industry. ICCA, the International Congress and Convention Association with over 900 member companies and

organizations in 87 countries worldwide, is the most global association within the meetings industry. ICCA data show that 11 meetings were held in Macao in 2011, 79th in the worldwide rankings and 19th in the Asia Pacific & Middle East rankings. Hong Kong held 77 meetings in 2011, 38th in the worldwide rankings and 10th in the Asia Pacific & Middle East rankings. Singapore held 142 meetings in 2011, 24th in worldwide rankings and 5th in the Asia Pacific & Middle East rankings.

4.2.2.2 Organizational Capital

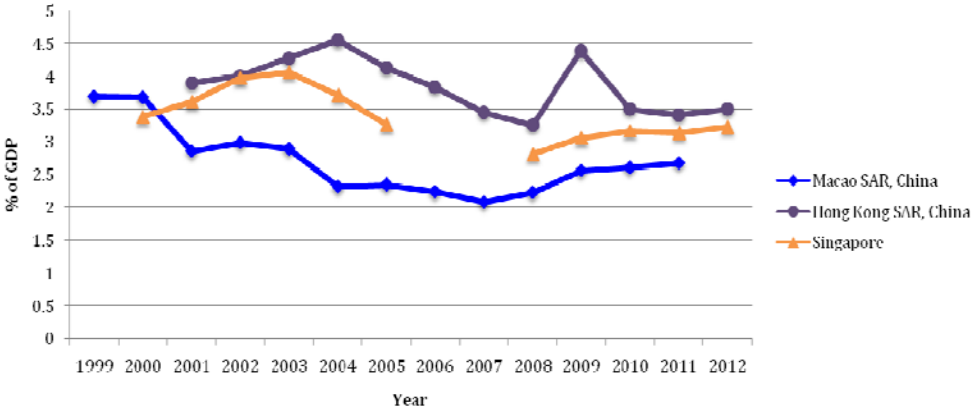
Process Capital

Process capital requires structural intellectual assets and makes the cooperation and flow of knowledge happen. The structural assets in process capital usually refer to information systems, hardware, software, databases, laboratories, an organizational/national infrastructure, and a management focus. Information and technology play an important role in creating process capital.

Macao's public spending on education did not experience an upward trend during this study period in terms of its percentage in the GDP. On the contrary it encountered slight decreases as the beginning of the period (the year 2000) had the highest percentage of 3.68%. In 2007, with a GDP growth nearly 3 times of that in 2000, Macao spent 2.087% of its GDP in education, this is the smallest percentage in the period. However, corresponding to the annual GDP growth at an average of 12% in real term during 1999 to 2012, there still should be great increases in terms of the actual amount of money invested in education.

Additionally Macao's significant change is that it had a clear upward trend since 2007 (See Figure 6).

Figure 6: Comparison of public spending on education, total (% of GDP)

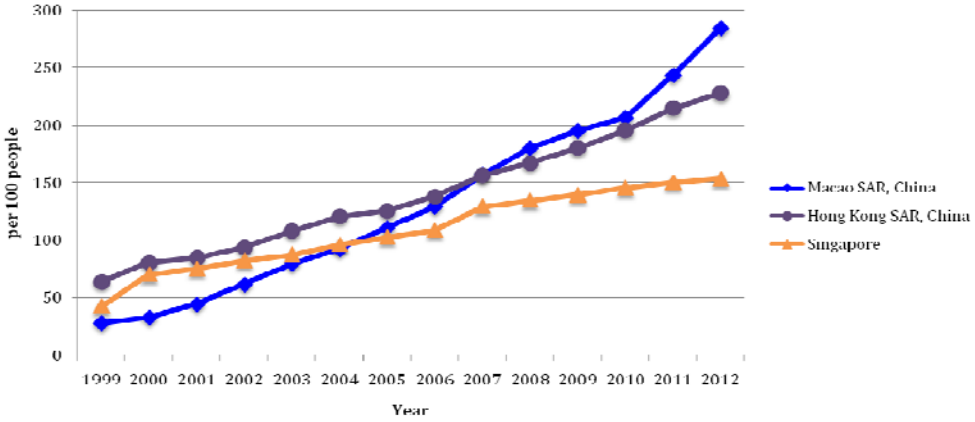


Source: The World Bank, 2014.

Cellular penetration has been very successful in Macao. The number of mobile phones used by the residents increases every year. In 1999-2004, Macao was behind Hong Kong and Singapore, but it surpassed Singapore and Hong Kong respectively around the first quarter of 2005 and the middle of 2007 as shown in Figure 7.

In 2012 with an average of 2.84 cellphones per person Macao ranked the first out of the three cities in terms of the number of cellular subscribers per 100 people. Both Hong Kong and Singapore had more Internet users per 100 people than Macao had over the 13-year period (2000-2012) (See Figure 8).

Figure 7: Comparison of mobile cellular subscriptions (per 100 people)



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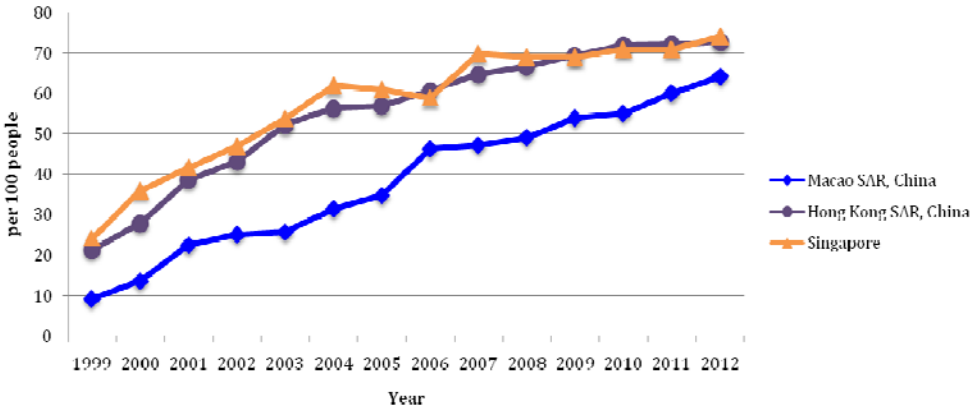
Source: The World Bank, 2014.

Figure 8: Comparison of Internet users (per 100 people)



Source: The World Bank, 2014.

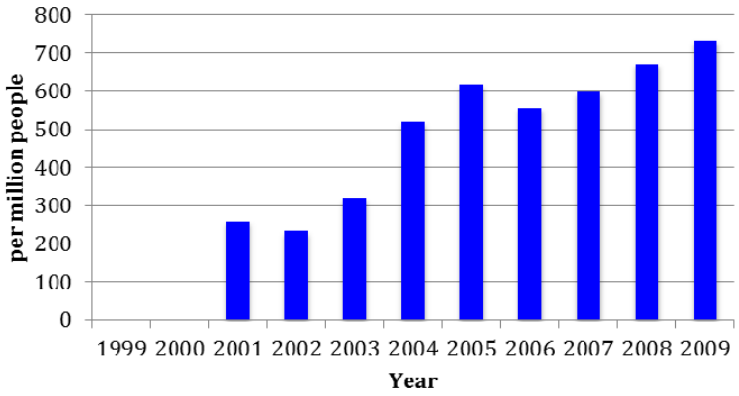
However Macao had a slightly steeper upward trend with respect to Hong Kong and Singapore. This means that Macao is quickly catching up and narrowing the gap with the other two. In terms of secure Internet servers, in 2003-2011 Macao had much less secure Internet servers per million people than Hong Kong and Singapore did. In 2003 the secure Internet servers that Hong Kong and Singapore had were respectively 4 times and 6 times the number that Macao had; the gap narrowed to 2.5 times in 2011 with respect to both Singapore and Hong Kong.

Renewal Capital

According to Oxford English Dictionary, one of the meanings of “renew” is “to change, *esp.* to change form by growing, grow”. Renewal capital is precisely linked to a nation’s future intellectual wealth, and is the critical bottom line for sustainability. It includes a nation’s capabilities and actual investments in renewal and development for sustaining competitive advantage.

Researchers per million people had been increasing in Macao in 2001-2009 although there were a few ups and downs. In 2009 Macao had the most researchers per million people. Macao has made great advances in this area, but compared to Hong Kong and Singapore which have much more researchers in R&D, Macao is still lagging behind. On the other hand, the number of technicians in R&D per million people in Macao had been continuously increasing during the period 2001-2009 (See Figure 9).

Figure 9: Researchers in R&D (per million people)

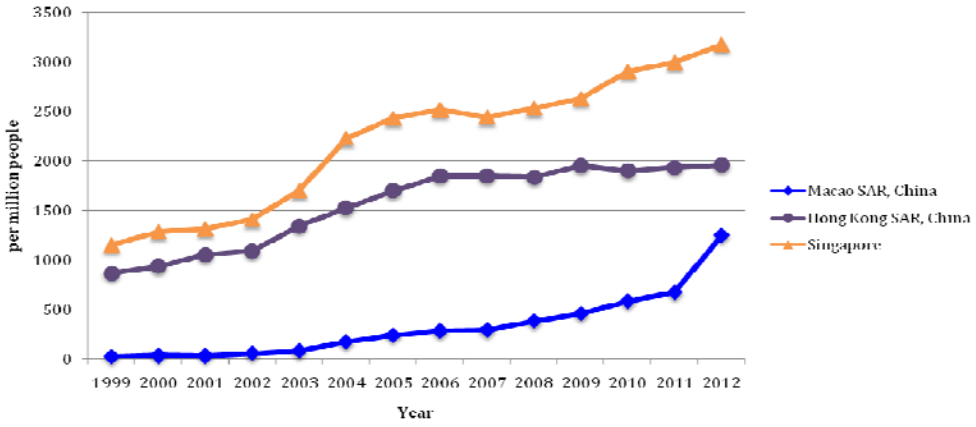


Source: The World Bank, 2014.

Compared to Hong Kong and Singapore, Macao had fewer technicians than Singapore, but had more than Hong Kong. Hong Kong and Singapore spent a bigger percentage of their GDP on R&D than Macao did during the period 2001-2010. Particularly, relative to Singapore Macao's expenditure on R&D represented a low percentage of its GDP.

Number of patent applications measures a nation's renewal capability. Compared to Hong Kong and Singapore, Macao is very weak in inventing. This helps explain why data on ICT-related patent applications cannot be located. From 2005-2011, it had only 16 patent applications by its own residents. Singapore had been much stronger than Hong Kong, and its patent application by residents had been continuously rising and experienced noticeable increases particularly in 2005-2008 and 2009-2011. The total number of publications is not significant compared to Hong Kong and Singapore (See Figure 10).

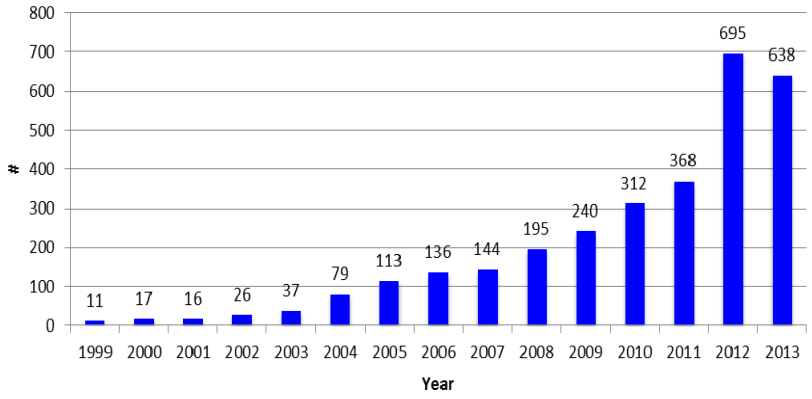
Figure 10: Comparison of academic papers published (per million people)



Source: Scopus, 2014.

However, its academic performance has a clear upward trend during the study period with the academic publications per million people making steady progress since 2003. Particularly in 2012, it made a huge progress by doubling the number of its publications relative to the previous year see (Figure 11).

Figure 11: Academic papers published



Source: Scopus, 2014.

Regarding the quality of academic institutions, according to Academic Ranking of World Universities 2013 Macao has not had any university ranked in the top 500.[22] Hong Kong has five universities ranked in the 151-200, 201-300 and 301-400 categories. Singapore has two universities ranked respectively in the 101-150 and 201-300 categories. Considering that Macao has 10 universities and colleges, Hong Kong has the same number and Singapore has less, the quality of Macao's academic institutions is lower than that of Hong Kong and Singapore.

The programs that attract Macao students since 2001 are mainly teaching training and education, arts, humanities, social and behavioral science, journalism and information, business and administration, law, computing, health, social services and personal services. Except for computing and health that belongs to sciences in a broad sense, all the other programs fall under the big category of social sciences. Business and administration has the most students with 2,254 graduates in 2011-2012. Personal services program is the second most popular program and the number increased by 10 times in 2011-2012 relative to 2001-2002. Natural sciences, engineering, and specific science disciplines such as physics, chemistry or mathematics, are not listed by Macao Statistics and Census Service as a category. Lack of these programs implies that these subjects are not popular and have not had considerable weight in the higher education system.

V. Findings and Discussion

The “One Country, Two Systems” framework leads Macao to vitality and prosperity. The above study demonstrates Macao's achievements in intangible assets since reunification in 1999. It is clear that Macao is making progress while it still needs to make efforts in some aspects compared to Hong Kong and Singapore.

Under the “One Country, Two Systems” policy, Macao has achieved great economic success. Macao has made the most progress in financial capital and successfully outperformed Hong Kong and Singapore. Compared to itself during the colonial time before the handover, Macao has overcome the economic recession and high unemployment rate to show the world that the application of the *Macao Basic Law* benefits the city and brings sustainable development. The economic success is particularly significant when Western countries were struggling with the economic recession in the past several years. Macao is a rising economic power in Asia.

The rapid economic growth is greatly generated by the Individual Visitor Scheme policy launched in 2003, which allows millions of visitors from the Mainland China to Macao for sightseeing and shopping each year. The policy of opening the gaming industry attracts foreign investors to invest considerable money in Macao's gaming industry. All this created the rapid development of gaming-related tourism. It is estimated that the average spending per visitor in Macao during the period 1999-2011 was approximately USD183.[23]

There is no doubt that being a small economy with a population of 600,000 inhabitants Macao has quickly become a very affluent city-state.

Under the "One Country, Two Systems" policy, Macao is making progress in the area of intellectual capital. The "One Country, Two Systems" principle has brought Macao many development opportunities including creating more intellectual capital. An important finding of this study is that Macao's performance in the majority of the indicators discussed above has improved since reunification. While there is still distance between Macao and Hong Kong and Singapore, Macao is narrowing the gap and catching up with the latter two. Economic prosperity creates a good environment for the development of intellectual capital. If Macao continued to suffer from the economic recession of the colonial time, it would be very difficult to develop its intangible assets. Thanks to the sound economic environment, talents from all over the world are attracted to work, study, do research and live in Macao. It has the potential to build the University of Macao up to be one of the world-class universities and invest more in the field of intellectual capital. An important evidence of the achievement is the quick increase of academic publications. Macao was very weak in academic research before the handover. Since the reunification, Macao is paying more and more attention to teaching and researching in higher education. It is believed that supported by the financial success, higher education will generate more intellectual capital for Macao.

Under the "One Country, Two Systems" policy, Macao strengthens as an international free market with high economic freedom. Macao is even more open after the handover in economic freedom. An example is the opening of the gaming industry. Regarding market capital, Macao has a positive relationship with the international market as well as with Mainland China. Clear and sustainable regulations and policies after reunification attract people and investments, and support Macao's economy being rated mostly free. All this testifies the promises of the *Macao Basic Law* that Macao maintains its existing social and economic system on one hand; on the other it benefits from being a part of China and takes advantage of the enormous Chinese market to boost its own economy. The prosperity would not have taken place if it had not received political and economic support from the Mainland.

Macao should continue to take advantage of the constitutional principle to further develop its intellectual capital. Macao needs to develop process capital. Macao lacks of high-tech and science-based industry, and does not have world known universities or research institutions. The latter constitutes particularly its weakness compared to Singapore and Hong Kong. Quality infrastructure is fundamental to a nation's growth. Macao needs to have a national strategy to improve the quality of its higher education and to consider developing high-tech industry to diversify its economy.

Macao needs to develop processes to stimulate innovation. Relative to Hong Kong and Singapore, Macao is quite weak in renewal and development capital despite the achievements it has made. It has less academic publications and patent applications than Hong Kong and Singapore. For further improvement, renewal and development capital should become an area of Macao's focus and the city must continue investing in education and technology development. The percentage of high-tech exports of manufactured exports and ICT exports of the total goods exports are still much lower than that of Singapore and Hong Kong, which is correlated to the industrial structure.

Human capital is Macao's weakness, even though the performance in education, health and equal opportunities has improved during the past years. The booming of the gaming and tourism industry has directly impacted the industrial structure, which is exemplified by the sharp decline of the manufacturing industry and the loss of skilled workers in this industry. The economy restructuring also impacted the structure of occupation and post-secondary education. For example, students are inclined to choose tourism and business as majors. Young graduates worry less about the long-term development of work competencies and choose to serve in the gaming industry or personal services, which offer a decent salary but require less creativity. Scholars also

criticize that well educated experienced professionals with critical thinking skills, and creative and open spirit are not well acknowledged or rewarded in this small single-product economy.[24]

To improve Macao's human capital, in 2014 was set up a Human Resources Development Committee led by the Chief Executive and composed of leaders from key government agencies and local renowned universities. Its mission is to "plan and establish short-, medium- and long-term measures for Macao's human resources development" and to "nurture local human resources for the future development of Macao and prepare for new industries as the economy diversifies".[25] In July 2014, a database, which allows local people to register their personal information, education background and specialties, was officially launched by the local government. This database, called Human Resources Bank, will help the local government better understand the local workforce and local talents be discovered and hired by employers.

VI. Conclusion

Under the "One Country, Two Systems" policy, Macao has achieved great progress in many aspects. The gaming and tourism driven industries have created a great growth of the financial capital. However, only sustainable development can ensure the long-term wellbeing of the city-state. This study helps understand the characteristics and trends of intellectual capital in Macao under the "One Country, Two Systems" principle. The analysis demonstrates the positive development of intellectual capital in Macao. The comparison to Hong Kong and Singapore indicates Macao's weaknesses, implies that Macao is closely catching up with the regional leaders, and serves to direct Macao for future development in the area of intellectual capital. Findings particularly suggest that Macao should consider investing in innovation and technology to stimulate the positive growth of the industrial structure and improving human capital to cultivate multi and diversified talents. Intellectual capital reflects the potentials of a nation's growth. Macao needs further leverage the constitutional principle, raise awareness of the importance of intellectual capital regarding its future development and take advantage of its financial growth to invest more in certain areas such as education, research and technology.

Notes:

1 Ieong Wan Chong (2004). "One Country, Two Systems" and the Successful Practice of Macao. Beijing: Encyclopedia of China Publishing House.

2 Stewart, T. A. (1997). *Intellectual Capital: The New Wealth of Organizations*. New York: Nicholas Brealey. XX.

3 Amidon, D. (2001). The Intellectual Capital of Nations. In the website of Entovation International: http://www.entovation.com/whatsnew/ic-nations.htm. 21st January 2014.

4 Lin, C. Y. and L. Edvinsson (2011). *National Intellectual Capital: A Comparison of 40 Countries.* New York: Springer. 1-3.

5 Labra, R. and M. P. Sánchez (2013). National Intellectual Capital Assessment Models: A Literature Review. *Journal of Intellectual Capital*, 14(4). 582-607.

6 Edvinsson, L. and M. Malone (1997). *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower*. New York: Harper Business.

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