

Evaluating the Economic Impact of Casino Liberalization in Macao

Victor Zheng · Eva P. W. Hung

Published online: 13 May 2011
© Springer Science+Business Media, LLC 2011

Abstract This paper aims to evaluate the economic impact after Macao decided to liberalize its gaming industry. By analysing both objective data of official statistics and subjective data of the perceptions of quality of life, we painted a picture of mixed blessings. Although objective indicators showed strong economic growth in terms of a rise in per capita GDP and public revenue as well as a decline in unemployment rate, subjective indicators revealed that local residents were less than optimistic about their own employment outlook and did not perceive any improvement in their overall economic situation. While casino liberalization brought forth tremendous economic gain, the general population did not subjectively feel the benefits. An integrative analysis of both objective and subjective indicators would therefore allow us to look closer how residents' lives in the micro-level could have been adversely affected by the prosperous economic outlook at the macro-level.

Keywords Casino gambling · Objective indicators · Subjective indicators · Macao economy and society

Macao, also known as “Las Vegas of the East”, is believed to be the oldest economy in the world relying on legalized gambling, being in the casino industry since the 1850s (Vong and McCartney 2005). At the turn of the new millennium, the newly established Macao Special Administrative Region (SAR) Government decided to end the gambling monopoly in 2002 by granting concessions to three, and later six, gaming operators, including the original concessionaire and a significant number of foreign enterprises. Together with the influx of Chinese tourists into Macao under the Individual Visit Scheme (IVS) in the wake of the 2003 severe acute respiratory syndrome (SARS) outbreak, liberalization in the

V. Zheng (✉)

Hong Kong Institute for the Humanities and Social Sciences, The University of Hong Kong,
Pokfulam Road, Pokfulam, Hong Kong
e-mail: vzheng@hkucc.hku.hk

E. P. W. Hung

Department of Sociology, University of Macau, Taipa, Macau, China

gaming industry has led not only to robust economic growth (DSE 2010) but also drastic transformations in nearly all aspects of life (Li et al. 2009; Loi and Woo 2009). The public is increasingly concerned over issues such as labour importation, the booming property market, worsening gambling problem, juvenile delinquency, as well as social order, which were all considered serious threats to local residents (Lui 2010). In this paper, we focus on the economic impact of the liberalization of the casino gambling industry. We argue that while we can use objective indicators to measure the performance of an economy, it is subject indicators that help us interpret how people feel about their well-being in this context of economic development. We propose here an integrative analysis of both objective and subjective indicators to see how Macao residents fared after the gaming industry was opened up.

Macao is small in both territory and population, covering just 29.5 square kilometres with a population of about 542,200 residents. A unique blend of Western culture and Chinese civilization, it is one of the few economies in the world that has been heavily reliant on legalized gambling for well over a century. With the decision to liberalize the gambling industry in 2002, the Macao economy has taken off quickly, which not only drew the attention of the international community but neighbouring economies such as Japan, Taiwan, Vietnam, Thailand and Singapore were all considering following the footsteps in introducing legalized gaming activity (Vong and McCartney 2005).

Whether gaming should be promoted or legalized has always been controversial. One view sees casino gambling as an addictive “good” the consumption of which is criticized as harmful, both pathologically or psychologically, to gamblers and also a threat to the harmony and stability of the family and society as a whole. They also consider casino gambling as a “directly unproductive profit-seeking” activity that should not be allowed by law (Bhagwati 1982; Dixit and Grossman 1984). Others see gambling from a liberal perspective and consider it an ordinary kind of sport or popular entertainment which can stimulate economic growth, create employment, and draw in revenue for government. People who espouse this latter view propose to legalize casino gambling and turn it into a highly profitable industry (Rephann 1997; Walker 2007).

To dispute the proponents’ view that casinos bring substantial economic benefits, opponents consider the side effects of the so-called positive economic outcome to other industries. Economic researchers such as Goodman (1994) and Grinols (2004) argue that the expansion of casinos will push up the cost of production for local industries and make them more vulnerable. As casinos themselves are often full-service complexes which offer chain of goods and services including food services, retail marketing, and lodging, local enterprises are also difficult to compete and may be “cannibalized” or even driven out from the economy.

In addition to displacing existing industries, the opening up of casino gambling may displace local workers and residents as well. Casino gambling can be likened to “an economy within an economy” (Goodman 1994; Grinols 2004) because the job creation in the casino service sector usually generates a minimal spillover effect. Many of the newly created jobs may not benefit the gambling city/county as the casino firms generally discriminate against the population or underprivileged residents with the excuse that they lack skill. The sudden and rapid influx of capital may also push up prices of basic daily necessities and the property market, which would affect local residents’ standard of living.

Third, although casino gambling can be regarded as another kind of “trade” which may generate economic advantage, local people would not benefit if outside gamblers and tourists cannot be enticed to come. In a sense, casino gambling is a kind of service industry mainly for export. The more gamblers and tourists coming from outside, the more

gambling goods and services would be “exported”, and the more likely the industry is to bring benefits to local residents (Eadington 1995). Hence, how much the locals would gain hinges indeed largely on the actual number of gamblers and tourists outside of the city.

Fourth, much of the casino income generated may in the end go to “outsiders”. If franchised casino operators are non-locals, what they earned in the local economy will eventually be sent out of the region. The importation of casino facilities and know-how also imply a continuous outflow of capital. Thus, it has been argued that “a casino acts like a black hole sucking money out of a local economy” (Rose 1995, p. 50). In addition, since casinos themselves are often full-services complexes, ordinary workers and others in the community may find it difficult to get even a small piece of the cake. Furthermore, since the expansionary effect of casino gambling may diminish over time by competition, particularly when the number of casino gambling neighbours increases, public revenue may be ultimately affected as many casino operators may ask for a tax reduction in order to enhance their competitive edge.

Fifth, the rapid economic growth may not always translate into tangible economic benefits to residents or other local industries. Although casino promoters repeatedly emphasize that casino development is a good way to stimulate economic growth (Rephann 1997), sceptics are cautious that the real economic effect could be shallow or limited, that only a small group of people who are directly engaged in the industry would gain. In cases where the majority of the population is restricted from the highly concentrated “economic boom” of a flourishing gambling industry, social dissatisfaction may be galvanized (Kindt 1994; Grinols and Omorov 1996). As such, the imbalanced economic development will become the breeding ground of social conflict.

Sixth, the economic benefits may be offset by the social cost. Since casino gambling is regarded as a kind of “directly unproductive profit-seeking” activity which is addictive in nature, social externalities, such as environmental spoilage/pollution, nuisance to the community, and other social evils like addicted gamblers and crime, may also be triggered.

Nevertheless, promoters of casino gambling dismiss these arguments and insist that through legalizing or opening of the gaming industry, not only large number of jobs would be created but the tourist industry would boom, government revenue could then be brought in and economic activities in other sectors would also be stimulated. In this vein, proponents take a pure economic point of view and rely mainly on objective indicators such as GDP, per capita GDP, employment rate and public revenue for analysis. In contrast, opponents tend to take a socio-economic-political stance and use subjective indicators like social value and public opinion to address grievances and discontent of the locals. Seldom are subjective and objective indicators being put together for an integrated analysis. This paper represents one such attempt by using Macao as a case for closer study.

Methodology

This paper maintains that no single parameter of measurement can draw a full picture of the various impacts of casino liberalization on the Macao society. While objective indicators such as GDP and per capita GDP growth rates, underemployment and unemployment rates are essential to understanding the overall economic performance, it is subjective indicators that throw light on the residents’ perceptions, attitudes, aspirations and subjective well-being in this context of development.

In this paper, objective indicators come from secondary data regularly published by the Statistics and Census Service (DSEC) of the Macao SAR Government. Subjective

indicators are primary data of a longitudinal study on the quality of life in Macao initiated by the Research Centre for Sustainable Development Strategies of the Macao SAR Government, the household surveys of which were carried out in 2005, 2007, and 2009, respectively. Target population of these three household surveys were Macao residents (i.e. those holding a Macao identity card) aged 18 or above and who live in Macao on a regular basis. For each survey, a multistage stratified systematic (Computerized Frame of Quarters) sample of 3,500 residential addresses was selected from a total of around 145,000 permanent living quarters. In cases where there were more than one household sharing the same address, a household would be selected from a random selection table. The Kish grid was then applied to select the respondent from the target household.

The questionnaire contained over 200 questions in 18 domains, including demographics, education, work, family and social network, health, income and expenditure, retirement planning, recreation, communication and media, living conditions, transport, public security, social participation, social stratification, living standard, subjective welfare, cross-border activity, and general perceptions on various aspects of the society. Table 1 summarizes the sample size and response rate of these three surveys.

In the following, we first describe how the Macao economy performed in the past 10 years, as measured by objective indicators such as GDP per capita, unemployment rates, and public revenue etc. We then use the household survey data to probe into the subjective perceptions of local residents regarding their own economic outlook. In the conclusion we bring together the analysis of both the objective and subjective indicators to paint a picture on how casino liberalization impacts the lives of the Macao residents.

Objective Indicators

Liberalization of the casino gaming industry in 2002 clearly marks the turning point of the Macao economy. Objective economic indicators such as GDP and GDP per capita growth rate, underemployment and unemployment rate, amount of public revenue from gambling tax, as well as the total number of visitors to Macao all tell a story of how Macao quickly regained the momentum to grow and take-off again after the SARS epidemic ceded.

When the Macao SAR Government was established in 1999, the economy was still in the doldrums as a result of the Asian financial crisis. GDP as well as per capita GDP were growing only very slowly. But as we can see from Fig. 1, the decision to end casino

Table 1 Sample size and response rate

	2005		2007		2009	
	Cases	%	Cases	%	Cases	%
Total Sample	3,500		3,500		3,500	
Less invalid sample	585		523		667	
Total valid sample	2,915	100.0	2,977	100.0	2,833	100.0
Less unsuccessful cases	855	29.3	915	30.7	813	28.7
Refusal	166	5.7	270	9.1	255	9.0
Non-contact	640	21.9	584	19.6	470	16.6
Other non-response	49	1.7	61	2.0	88	3.1
Successful cases	2,060	70.7	2,062	69.3	2,020	71.3

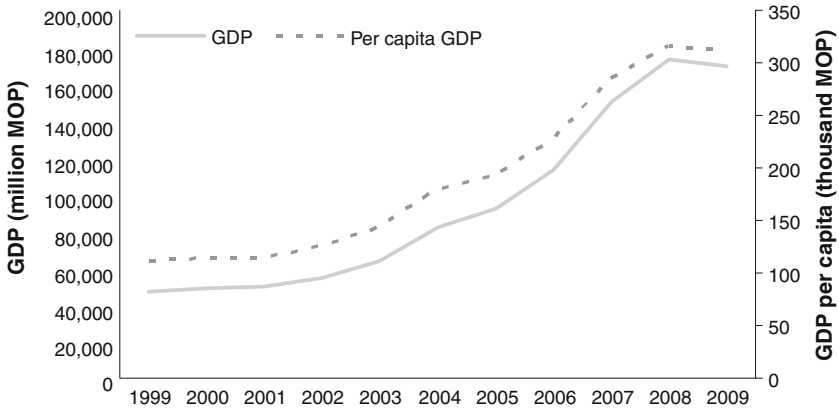


Fig. 1 GDP and per capita GDP (1999–2009). *Data Source:* DSEC (2010a)

gambling monopoly immediately set off an exponential growth in GDP and per capita GDP, from 1.5 to 0.7%, respectively in the previous year to 10.3 and 9.2%, respectively in 2002. And this high growth momentum has persisted ever since, taking the per capita GDP of Macao to rank the highest in Asia in 2007 (*Macao Daily*, April 3, 2008). Even in 2008 when the global economy was heavily struck by the financial tsunami, the Macao economy still recorded a 10.7% increase in per capita GDP. And it was only until 2009 that the rate declined by 1.6%, which could still be considered negligible compared with how most Western economies were doing.

This astonishing economic expansion would have been impossible, however, without the large influx of visitors, in particular those from mainland China. In fact, after the reunification of Macao with China, the number of tourists visiting Macao has increased steadily from 7.4 million in 1999 to 11.5 million in 2002 (Fig. 2). The introduction of IVS

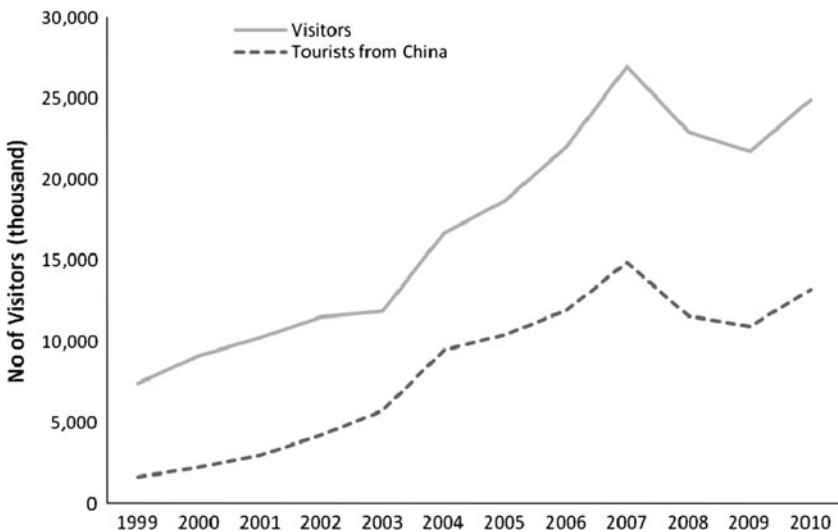


Fig. 2 Visitor arrivals (1999–2009). *Data source:* DSEC (2010b)

allowing mainland Chinese to visit Macao and Hong Kong on an individual basis, a measure by the Chinese government to help the two regions to recover from the economic damage inflicted by the SARS epidemic, boosted the total number of tourist arrivals to a record of 16.6 million in 2004, marking an increase of 40.3% from the previous year. Of which, tourists from mainland China increased from 5.74 million to 9.53 million, a jump of almost 66.0%. Since then, mainland tourists have consistently accounted for more than 50% of the total number of tourist arrivals in Macao. With the opening of more casino complexes, in 2007, the total number of visitors reached 27.0 million, representing 3.5 times more than that of 1999, whereas mainland tourists numbered at 14.9 million, a nine-fold increase. In that year, Macao overtook Las Vegas as the world's number one gaming destination.

Concomitant with the exponential increase in tourist arrivals is the upsurge in gross gaming revenue, which in a sense corroborates the “export” nature of gaming goods and services that we mentioned earlier. While gaming revenue has increased by just 66.1% between 1999 and 2002, with the introduction of IVS in 2003 and then the opening of the first foreign-invested casino in 2004, gaming revenue jumped by almost four-fold in the years between 2003 and 2009. Even though the sudden eruption of the global financial crisis in 2008 also affected the Macao economy and the number of visitors dropped by 15.1%, gaming revenue increased nonetheless. In the same vein, the resulting revenue received by the Macao SAR Government also increased rapidly. For instance, in 2000 and 2001, public revenue from gaming were only MOP5,646.5 million and MOP6,292.9 million, respectively. In 2005 and 2009, they reached MOP17,318.6 million and MOP44,309.3 million (Fig. 3). Within 7 years (2002–2009), tax revenue from the gaming sector recorded an impressive 470.6% increase or an average annual increase of 67.2%.

Before the first foreign-invested casino complex came into operation in 2004, employment in the gaming sector had never accounted for more than ten percent of the total employed positions in the Macao SAR. With the steady inflow of investment as a result of casino liberalization, the employment share of the gaming sector jumped simultaneously. In 2004, 2006 and 2008, employment in gaming increased to 10.5, 16.1 and 20.6%, respectively. In fact, the global financial crisis beginning in 2008 also did not seem to have exerted any serious effects on the labour market, as the proportion dropped

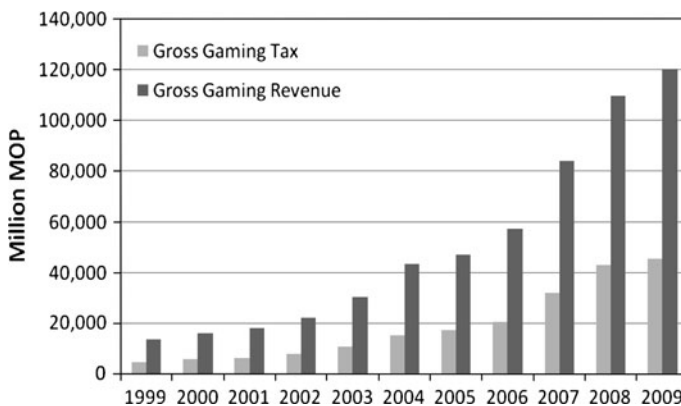


Fig. 3 Gross gaming revenue and gross gaming tax (1999–2009). *Data source:* DSEC (2003: 353, 2006: 355, 2010c: 468). Data of gaming revenue prior to 2004 is not available. Present figures are estimated based on the statutory flat tax rate of 35%

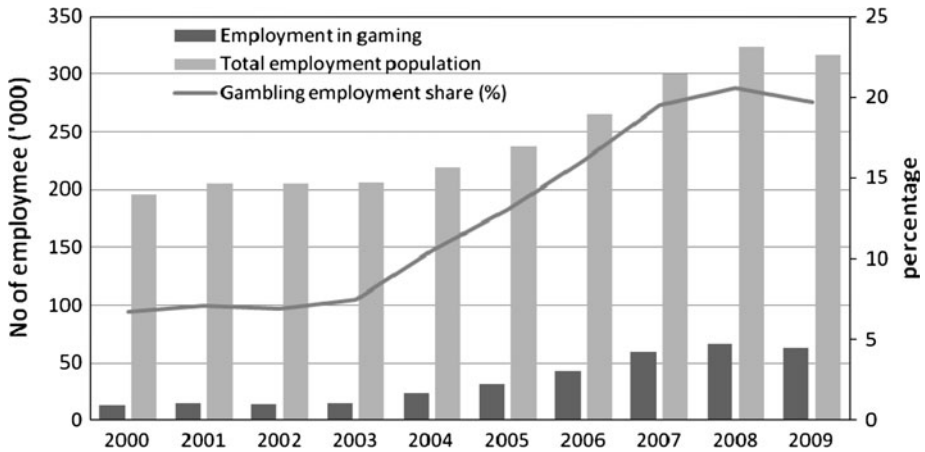


Fig. 4 Employment in gaming (1999–2009). Data source: DSEC (2010d)

only slightly to 19.7% (Fig. 4). Thus, not only public revenue from the gaming industry increased rapidly after the expansionary policy, employment in the industry also went up remarkably.

Figure 5 shows the employment rate and the inflow of migrant workers. Although improvement in employment is less astonishing compared to the rapid growth in per capita GDP and public revenue etc., its dynamism is clearly strong and persistent. Before the opening of the casino industry in 2001, underemployment and unemployment rates reached a high level of 3.6 and 6.4%, respectively. The expansionary policy of the gaming industry, however, brought about lots of construction projects and ample job opportunities in the casino complexes. Hence, the underemployment rate dropped steadily to 2.7% in 2003 and further again to 1.0% in 2007, while unemployment rate fell from 6.0 to 3.1% in the same period (Fig. 5).

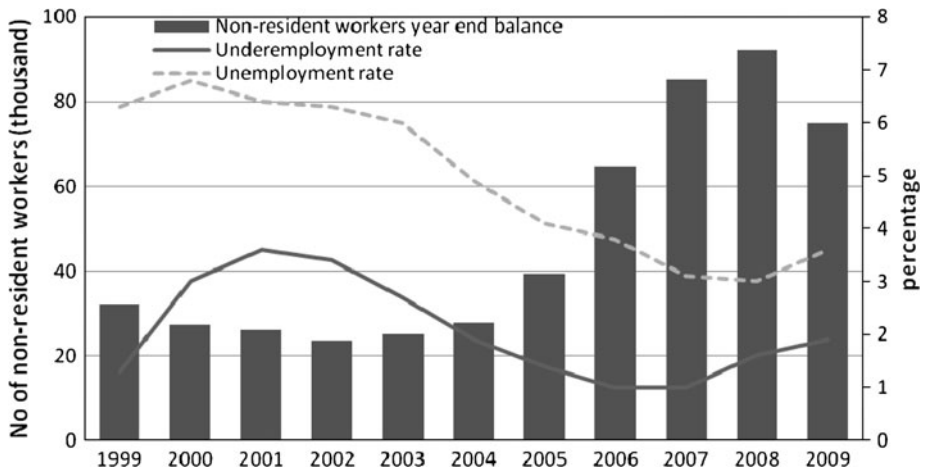


Fig. 5 Unemployment rates and number of non-resident workers. Data source: DSEC (2010d, 2010e)

Although the labour market recorded a persistent improvement, local workers, particularly semi-skilled and unskilled workers, were not without grievances. The core reason was that both the government and casino operators chose to import migrant workers, mostly from Hong Kong and the Chinese mainland, to solve the problem of labour shortages, citing a lack of skilled local workers. We can see from Fig. 5 that between 1999 and 2002, the number of migrant workers was in fact declining as a result of the economic slump at the early years of the establishment of the Macao SAR government. However, after the announcement of casino liberalization, importation of migrant workers has been on the rise from 2003 onwards, cumulating to a record high of 92,161 at the end of 2008, which accounted for 28.5% of the total employed labour force. In 2009, although the government tightened the procedure of labour import, the year-end total of migrant workers still stood at 74,905. Thus, most semi-skilled and unskilled local workers tend to think that migrant workers had not only stolen their jobs but also dragged down their wages (Loi and Woo 2009; Wong 2010).

In addition, the expansion of the gaming sector inevitably raised concerns over its potential “cannibalizing” effect on other industries. In this regard, we look at the number of companies dissolved and the amount of capital disinvested over the years to get a sense of whether other companies are forced out of business. Figure 6 shows that in 2001, just about 90 companies were dissolved, representing a disinvested capital of MOP231,653. As time went by, the number of companies dissolved increased to 254 in 2006 and 469 in 2009, while capital disinvested increased to MOP682,874 in 2006 and MOP1,994,414 in 2009. On the other hand, the statistics on newly incorporated companies and new capital injected into the local economy could have discarded the cannibalizing argument. From 2001 till 2007, the number of new companies increased each year. In 2008 and 2009, although the total number dropped, they still recorded 2,738 and 2,529 registrations, respectively. While new companies are on the rise, the total amount of capital invested varied from year to year. For instance, in 2002, there was a 64.7% decrease in capital investment even though the total number of newly established firms increased by 34.4%. Similarly, in 2004 and 2006, the number of newly incorporated firms increased whereas the

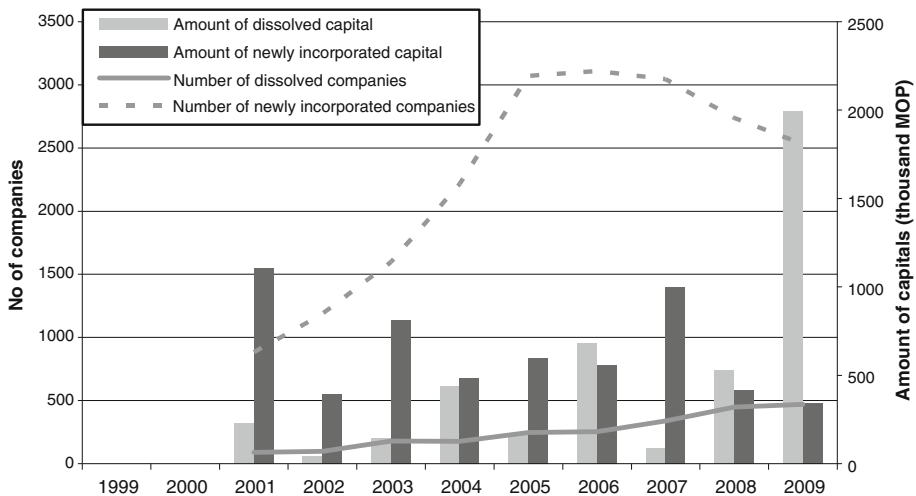


Fig. 6 Dissolved companies and newly incorporated companies (1999–2009). *Data source: DSEC (2010f)*

percentage of capital invested plummeted. Taken as a whole, however, between 2001 and 2009, the total number of dissolved companies was 2,300 and amount of capital disinvested was MOP43 billion, whereas the number of newly incorporated companies was 20,736 and the amount of new capital injected into the economy was close to MOP57 billion. Clearly, there are a lot more capital invested than disinvested, suggesting that the overall speed of replacing and expanding capital is far quicker and stronger.

In sum, objective indicators such as GDP and per capita GDP, unemployment, visitor arrivals and gaming tax etc. all seem to lend support to the argument that opening up the industry could exert strong and persistent positive economic impact. Although the speed of growth has slowed down since 2008, it reflects more the sudden change in global economic climate rather than the internal contraction of the Macao economy. However, consequential to this booming economy such as the continuous influx of legal and illegal workers also works to galvanize local workers' discontent. These problems could well be concealed by the prosperous economic outlook but nonetheless are the source of social instability. And this is where the study of subjective indicators finds its importance.

Subjective Indicators

While the aforementioned objective indicators paint a rosy picture of the economic situation of casino liberalization, these hard data tell very little about how people react to this progressive development. Subjective indicators—perception, attitudes, values, and behaviour—could offer better insights in understanding how people are impacted by this expansionary gaming policy. In the following, we use data from the territory-wide household surveys on quality of life in 2005, 2007 and 2009 to analyse the subjective side of this development.

Since this paper examines mainly the economic impact of casino liberalization, only respondents who were economically active, i.e. having full-time jobs, were included in the analysis. For these working respondents, we further sub-divide them into three groups. The first group is those engaged directly in casino gambling and entertainment industries (GEI). The second group is those worked in gambling-related industries (GRI) such as financing, tourism, construction, wholesale and retail trade, hotels and restaurants, and community services. The third group is those engaged in non-gambling-related industries (GNI), including fishing, farming, manufacturing, and electricity, gas and water supply.

Figure 7 shows the distribution of these three groups of respondents across the 3 years. Compare with Fig. 4, data from the first two household surveys more or less correspond to the official figures. For instance, in 2005 and 2007, 13.3 and 21.9% of the respondents engaged in GEI, whereas the official figures were 13.0 and 19.5%, respectively. In 2009, the discrepancy between the survey data and official figure was more marked, the former 26.2% and the latter 19.7%. In any case, they unanimously suggested that with the liberalization of the casino gambling industry, GEI was expanding at the expense of GRI and GNI.

Table 2 shows the demographic background—sex and educational level—of these three groups of respondents. On the whole, more females worked in GEI while more males worked in GNI and the sex imbalance in the later group was quite pronounced. Sex distribution was more or less equal in GRI. Over 70% of the respondents in GEI only had secondary education. Around one-tenth of these had post-secondary education. Relatively speaking, respondents working in GNI had the lowest educational attainment. Over 30% only had primary education or under. Around half had secondary education. Respondents

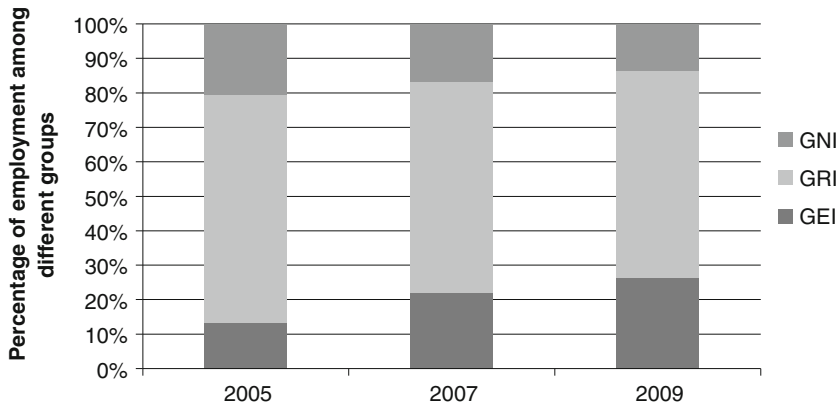


Fig. 7 Employment of different groups (%)

engaged in GRI showed a higher proportion of post-secondary education (around one-fifth).

Table 3 shows the average age, income and weekly working hours among different groups of respondents which were tested by the Post-hoc (Duncan) method for comparison. Respondents engaged in GEI in 2005 showed significant difference to other groups. In statistical term, it belonged to the first group which had an average age of 34.6 years, while GRI and GNI belonged to the second and third group (also in statistical term, same as below) with an average age of 40.5 and 43.7 years, respectively. In 2007 and 2009, although there was variation among the three groups, the pattern was that GEI belonged to the first group, GRI belonged to the second group while GNI fell into the third group was more or less the same.

Compared to average age, average income and average weekly working hours were less distinctive among the different groups of respondents. On the whole, those in GEI had a higher average income while those in GNI less. Respondents in GRI fell in the middle. Between 2005 and 2009, the average income earned by GEI respondents increased by 32.3%, whereas it was 28.4 and 84.2% for those in GRI and GNI, respectively. Clearly, although GNI respondents still earned the least, the rate of salary increase was the highest among the three groups. This suggests an obvious spillover effect from the gambling sector to non-gambling sector, clearly deviating from what Goodman (1994) and Grinols (2004) have argued.

In relation to the rise in average income, the average weekly working hours were in steady decline despite there being little differences among the three groups. On average, respondents in GRI worked longer hours while those in GNI worked shorter hours. From 2005 to 2009, the average weekly working hours for GEI respondents dropped by 8.7% while for those in GRI and GNI, the respective rate of decrease were 7.7 and 6.7%. Taken together the average income and weekly working hours, a picture of improving employment situation is clearly seen.

However, cautions must be taken in the interpretation of the spillover effect as many of the economic benefit generated is lopsided, especially to the young, female and middle educational level respondents. These people usually concentrated in GEI and thus could earn a higher income. This finding is consistent with Vong and McCartney's (2005) study, which showed that married, senior management, professionals, skilled workers, and

Table 2 Demographic distribution across the three groups (%)

	GEI	GRI	GNI
<i>Sex</i>			
2005			
Male	46.3 (87)	51.2 (480)	58.1 (168)
Female	53.7 (101)	48.8 (457)	41.9 (121)
	$(\chi^2 = 7.044, df = 2, P < 0.05)$		
2007			
Male	48.9 (158)	49.6 (450)	67.2 (166)
Female	51.1 (165)	50.4 (458)	32.8 (81)
	$(\chi^2 = 26.217, df = 2, P < 0.001)$		
2009			
Male	47.2 (177)	49.1 (422)	71.8 (140)
Female	52.8 (198)	50.9 (438)	28.2 (55)
	$\chi^2 = 36.955, df = 2, P < 0.001$		
<i>Education</i>			
2005			
Primary or below	18.1 (34)	23.7 (222)	39.4 (114)
Secondary	70.7 (133)	57.5 (57.5)	53.6 (155)
Post-secondary	11.2 (21)	18.8 (18.8)	6.9 (20)
	$\chi^2 = 55.222, df = 4, P < 0.001$		
2007			
Primary or below	11.1 (36)	21.8 (198)	36.4 (90)
Secondary	80.2 (259)	52.6 (478)	54.3 (134)
Post-secondary	8.7 (28)	25.6 (232)	9.3 (23)
	$\chi^2 = 123.1, df = 4, P < 0.001$		
2009			
Primary or below	12.0 (45)	19.4 (167)	31.8 (62)
Secondary	73.1 (274)	56.5 (486)	51.8 (101)
Post-secondary	14.9 (56)	24.1 (207)	16.4 (32)
	$\chi^2 = 53.367, df = 4, P < 0.001$		

Actual number of respondents in brackets

students were more optimistic while single, clerical, technical staff, unemployed, or self-employed were less optimistic (reserved optimistic) about the opening up of the gaming industry. They further showed that the former group could easily perceive more chances for new employment opportunities and a subsequent increase in income, while the latter could be more vulnerable to gambling addiction and related problems.

To better gauge this sense of optimism, we look at respondents' evaluation of their own employment conditions, measured by a 5-point Likert scale. On whether their pay was reasonable (Table 4), most respondents took a neutral position (around 40–50%). Over time, although neutral and positive perceptions concerning job remuneration fluctuated, negative feelings were in steady decline. Upon closer examination, higher proportions of respondents engaged in GRI and GEI agreed or strongly agreed that their income was reasonable when compared to their work effort. Respondents working in GNI, however,

Table 3 Post-hoc comparison of average age, income and weekly working hours

	GEI	GRI	GNI
<i>Average age</i>			
2005			
First group	34.6		
Second group		40.5	
Third group			43.7
2007			
First group	34.4		
Second group		40.8	
Third group			45.2
2009			
First group	35.5		
Second group		41.9	
Third group			44.9
<i>Average income (MOP)</i>			
2005			
First group	10,661.2	9,696.5	
Second group			6,298.8
2007			
First group	12,348.0		
Second group		10,674.6	
Third group			8,724.6
2009			
First group	14,105.9	12,453.2	
Second group		12,453.2	11,601.6
<i>Average weekly working hours</i>			
2005			
First group	50.673	50.789	
Second group			48.123
2007			
First group	47.595	48.103	47.595
2009			
First group	46.348	46.855	44.863

showed stronger disagreement, implying a stronger sense of job dissatisfaction among them.

On the possibility of a better job prospect (in terms of salary increase or job promotion), nearly half of them held a pessimistic view (Table 5). Around one quarter had an indifferent attitude while another quarter was positive. As expected, respondents working in GEI and GRI were relatively more optimistic than those engaged in GNI. For example, in 2009, just about 49.8 and 49.7% of GEI and GRI respondents, respectively were not hopeful of a brighter prospect, whereas up to 63.4% of GNI respondents took such a stance. The relative pessimism of the latter group is in fact understandable since they were not engaging in gambling or its related industries and therefore were not benefiting from the expansion. However, the overall wary attitude also corroborates the caution laid against the

Table 4 Your pay is very reasonable (%)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2005					
GEI	5.3 (10)	19.7 (37)	43.1 (81)	24.5 (46)	7.4 (14)
GRI	6.4 (59)	20.2 (186)	36.9 (340)	30.5 (281)	6.1 (56)
GNI	9.9 (28)	26.9 (76)	41.3 (117)	19.1 (54)	2.8 (8)
	$\chi^2 = 28.051, df = 8, P < 0.001$				
2007					
GEI	5.3 (17)	12.5 (40)	42.1 (135)	33.6 (108)	6.5 (21)
GRI	8.3 (75)	17.6 (159)	44.6 (403)	23.3 (211)	6.2 (56)
GNI	9.8 (24)	17.5 (43)	51.2 (126)	15.9 (39)	5.7 (14)
	$\chi^2 = 29.977, df = 8, P < 0.001$				
2009					
GEI	2.4 (9)	11.0 (41)	41.4 (155)	36.1 (135)	9.1 (34)
GRI	6.1 (52)	12.3 (105)	45.2 (385)	26.1 (222)	10.3 (88)
GNI	8.2 (16)	15.4 (30)	44.6 (87)	23.1 (45)	8.7 (17)
	$\chi^2 = 24.762, df = 8, P < 0.01$				

Actual number of respondents in brackets

Table 5 Possibility of a better job prospect (%)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2005					
GEI	21.9 (40)	30.6 (56)	19.7 (36)	25.1 (46)	2.7 (5)
GRI	21.5 (177)	25.4 (209)	21.8 (179)	26.8 (220)	4.5 (37)
GNI	39.3 (105)	27.3 (73)	16.9 (45)	14.2 (38)	2.2 (6)
	$\chi^2 = 46.956, df = 8, P < 0.001$				
2007					
GEI	14.6 (46)	19.4 (61)	31.4 (99)	31.4 (99)	3.2 (10)
GRI	24.0 (206)	22.1 (190)	24.9 (214)	23.9 (205)	5.0 (43)
GNI	30.1 (72)	23.8 (57)	19.7 (47)	23.0 (55)	3.3 (8)
	$\chi^2 = 32.583, df = 8, P < 0.001$				
2009					
GEI	25.3 (93)	24.5 (90)	28.9 (106)	17.7 (65)	3.5 (13)
GRI	27.3 (217)	22.4 (178)	25.9 (206)	20.0 (159)	4.5 (36)
GNI	37.8 (68)	25.6 (46)	17.2 (31)	16.7 (30)	2.8 (5)
	$\chi^2 = 17.255, df = 8, P < 0.05$				

Actual number of respondents in brackets

large and continuous import of migrant workers, whose competition was considered the key factor that limited the improvement in labour market.

On the relative ease to get a job with similar salary and benefits, around half of the respondents gave a negative answer. Approximately one quarter took a neutral stance whereas around one-fifth were relatively more positive. While there was no significant difference among the three groups of respondents in 2005, in both 2007 and 2009,

Table 6 Potential in finding a job with similar salary and benefits in the labour market

Group	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2005					
GEI	19.1 (35)	29.0 (53)	34.4 (63)	12.6 (23)	4.9 (9)
GRI	17.8 (158)	28.9 (257)	32.0 (285)	17.5 (156)	3.8 (34)
GNI	20.7 (57)	32.2 (89)	27.5 (76)	13.8 (38)	5.8 (16)
$\chi^2 = 9.291, df = 8, n.s.$					
2007					
GEI	15.5 (49)	32.5 (103)	26.8 (85)	18.0 (57)	7.3 (23)
GRI	15.0 (132)	23.9 (211)	24.7 (218)	27.3 (241)	9.1 (80)
GNI	20.7 (51)	35.0 (86)	16.3 (40)	21.1 (52)	6.9 (17)
$\chi^2 = 34.532, df = 8, P < 0.001$					
2009					
GEI	28.4 (106)	36.7 (137)	24.7 (92)	7.5 (28)	2.7 (10)
GRI	20.9 (175)	33.9 (283)	24.6 (206)	14.8 (124)	5.7 (48)
GNI	29.1 (55)	36.0 (68)	16.9 (32)	12.2 (23)	5.8 (11)
$\chi^2 = 29.475, df = 8, P < 0.001$					

Actual number of respondents in brackets

respondents working in GRI showed significantly more faith than those in GEI and GNI in the chances of finding a similar kind of job (Table 6). Again, although there was reportedly a serious labour shortage, local workers did not feel that finding a job with better remuneration or prospects was any easier. Competition from migrant workers again looms large here.

On whether their current job offered fringe benefits such as pension, paid sick leave, and medical allowance, again the three groups differ significantly. Respondents working in GEI and GRI were much better protected than respondents engaged in GNI. For instance, in 2009, over 70% of respondents working in GEI had enjoyed the various fringe benefits, but the opposite was true for respondents working in GNI (Table 7). While those working in GEI and GRI were benefiting from the expansionary gaming policy and a general improvement in the welfare package was seen, those in GNI were continuously being disadvantaged.

When the respondents were asked to compare their present household economic situation with that of 3 years ago, no statistical significance was found among the three groups of respondents in 2005 and 2007. However, in 2009, around 36% of respondents engaging in GEI and GRI considered their present household economic situation as better than 3 years ago, while only 32% of the GNI respondents held a similar attitude. On the contrary, 34% of respondents who worked in GNI believed their present economic situation had worsened while only 21.6% of GEI and 23.4% of GRI respondents believed so (Table 8). Thus, even although GDP and per capita GDP escalated after the opening of the gambling industry, only respondents engaged in GEI and GRI seemed to be benefiting from this larger piece of cake.

On their subjective comparison with other Macao citizens regarding their income, again there was sharp contrast between GEI respondents and GNI respondents. For instance, in 2005, 18.7% of GEI respondents thought their income was lower or much lower than others. However, GNI respondents who held the same perception reached 57.2%. In 2007

Table 7 Fringe benefits provided by the employers (%)

Group	Pension		Paid sick leave		Medical allowance	
	No	Yes	No	Yes	No	Yes
2005						
GEI	39.3 (70)	60.7 (108)	59.1 (110)	40.9 (76)	52.7 (97)	47.3 (87)
GRI	46.5 (383)	53.5 (441)	36.7 (302)	63.3 (522)	49.1 (405)	50.9 (420)
GNI	69.7 (182)	30.3 (79)	70.1 (183)	29.9 (78)	77.7 (206)	22.3 (59)
	$\chi^2 = 52.805, df = 2, P < 0.001$		$\chi^2 = 102.2, df = 2, P < 0.001$		$\chi^2 = 67.369, df = 2, P < 0.001$	
2007						
GEI	21.0 (66)	79.0 (249)	34.6 (109)	65.4 (206)	37.4 (117)	62.6 (196)
GRI	46.4 (400)	53.6 (462)	37.2 (318)	62.8 (537)	48.8 (421)	51.2 (442)
GNI	71.1 (165)	28.9 (67)	66.9 (158)	33.1 (78)	71.5 (171)	28.5 (68)
	$\chi^2 = 138.3, df = 2, P < 0.001$		$\chi^2 = 75.6, df = 2, P < 0.001$		$\chi^2 = 64.833, df = 2, P < 0.001$	
2009						
GEI	26.1 (93)	73.9 (264)	17.5 (64)	82.5 (301)	24.6 (91)	75.4 (279)
GRI	45.0 (380)	55.0 (465)	35.3 (296)	64.7 (543)	47.7 (400)	52.3 (438)
GNI	69.4 (129)	30.6 (57)	64.4 (121)	35.6 (67)	70.7 (133)	29.3 (55)
	$\chi^2 = 95.617, df = 2, P < 0.001$		$\chi^2 = 120.8, df = 2, P < 0.001$		$\chi^2 = 115.2, df = 2, P < 0.001$	

Actual number of respondents in brackets

Table 8 Perception of present household economic situation (%)

Group	Worse than 3-year ago	Almost the same	Better than 3-year ago
2005			
GEI	23.4 (44)	39.4 (74)	37.2 (70)
GRI	18.4 (171)	44.4 (412)	37.2 (345)
GNI	20.8 (60)	35.8 (103)	43.4 (125)
	$\chi^2 = 8.816, df = 4, n.s.$		
2007			
GEI	12.7 (41)	39.1 (126)	48.1 (155)
GRI	17.8 (161)	42.0 (379)	40.1 (362)
GNI	14.2 (35)	43.5 (107)	42.3 (104)
	$\chi^2 = 8.830, df = 4, n.s.$		
2009			
GEI	21.6 (80)	42.7 (158)	35.7 (132)
GRI	23.4 (200)	40.4 (345)	36.2 (309)
GNI	34.0 (66)	34.0 (66)	32.0 (62)
	$\chi^2 = 12.097, df = 4, P < 0.05$		

Actual number of respondents in brackets

and 2009, an increasing number of GNI respondents felt “almost the same” (Table 9) while just about 7.2% believed that they had higher income than others, suggesting that most of them felt only very slight improvement in the labour market even though the local economic atmosphere was increasingly buoyant.

Table 9 Self-perception of income level as compared to others (%)

Group	Much lower	Lower	Almost the same	Higher	Much higher
2005					
GEI	11.2 (21)	7.5 (14)	62.6 (117)	13.9 (26)	4.8 (9)
GRI	16.3 (151)	19.1 (177)	54.0 (500)	8.0 (74)	2.6 (24)
GNI	28.6 (82)	28.6 (82)	38.7 (111)	3.8 (11)	0.3 (1)
$\chi^2 = 88.485, df = 8, P < 0.001$					
2007					
GEI	10.5 (34)	7.4 (24)	68.4 (221)	11.8 (38)	1.9 (6)
GRI	17.3 (156)	16.1 (145)	57.2 (515)	6.7 (60)	2.8 (25)
GNI	25.7 (63)	17.6 (43)	53.5 (131)	2.4 (6)	0.8 (2)
$\chi^2 = 60.890, df = 8, P < 0.001$					
2009					
GEI	7.5 (28)	9.7 (36)	67.5 (251)	12.6 (47)	2.7 (10)
GRI	13.7 (117)	15.7 (134)	56.8 (486)	10.6 (91)	3.2 (27)
GNI	15.5 (30)	22.2 (43)	55.2 (107)	4.6 (9)	2.6 (5)
$\chi^2 = 37.700, df = 8, P < 0.001$					

Actual number of respondents in brackets

Apart from the problem of illicit workers that has plagued Macao for a number of years (Wong 2010), the continuous rise in property prices accompanying with the economic boom has also disappointed many local residents, particularly those who did not own any property. In 2005, over 90% considered the property price too high that it was unaffordable. Cross-tabulation of data indicates that there was no significant difference among the three groups of respondents, suggesting that it was a unanimous opinion. In 2007 and 2009, still around 80% of respondents believed that the property price should be set lower. Again, cross-tabulation of data showed that there were little significant differences among the three groups of respondents in both years (Table 10).

Table 10 Perception of property price in Macao

Group	Too low	Reasonable	Too high
2005			
GEI	0 (0)	4.9 (9)	95.1 (176)
GRI	0.3 (3)	6.4 (58)	93.3 (843)
GNI	0.4 (1)	5.4 (15)	94.3 (263)
$\chi^2 = 1.54, df = 4, n.s.$			
2007			
GEI	14.5 (46)	5.7 (18)	79.9 (254)
GRI	9.6 (84)	4.5 (39)	86.0 (753)
GNI	14.0 (34)	2.9 (7)	83.1 (202)
$\chi^2 = 10.017, df = 4, P < 0.05.$			
2009			
GEI	13.2 (49)	7.3 (27)	79.5 (294)
GRI	11.6 (97)	7.5 (63)	80.8 (675)
GNI	16.0 (30)	5.9 (11)	78.2 (147)
$\chi^2 = 3.206, df = 4, n.s.$			

Actual number of respondents in brackets

On the whole, subjective indicators showed that although average wage and weekly working hours had improved significantly from 2005 to 2009, over half of the respondents did not perceive an improvement in their household economic situation, and this is particularly true for those engaged in non-gambling-related industries. Despite nearly full employment in Macao, not many respondents were optimistic of a salary increase or job promotion. Almost half of the local workers still were not entitled to fringe benefits like pension, paid sick leave or medical allowance, which are commonly offered in most developed economies. Even worse, although many respondents recorded a significant increase in their nominal wage, their actual living standard weakened as real prices, including property prices, rent and prices for a number of daily necessities, also increased drastically. Therefore, even though the Macao economy has achieved growth, most of the accrued benefits seemed go to a minority group, especially to those working in gambling and related industries. People working in other sectors did not share too much of the cake.

Conclusion

The stunning growth of the Macao economy as measured by various objective indicators after the opening of the gaming industry has indeed attracted quite a number of international followers. For instance, the Singaporean Government announced in 2005 that it would legalize casino gambling, while other economies such as Japan, South Korea, Taiwan and Vietnam also indicated that they would like to get in on the act (Vong and McCartney 2005; Walker 2007). However, the impressive economic growth resulting from casino liberalization in Macao is perhaps exceptional. As the only city in China where casino gambling is legally permitted, Macao is the top gambling hub for the 1.3 billion newly affluent people. In other words, Macao is facing a nearly unlimited demand curve for gambling goods and services which may not be easily achieved by other economies (Li et al. 2009).

Casino liberalization has brought with it a highly favourable investment environment, which has made Macao's gambling industry flourish since 2003 and has brought significant economic progress. Not only GDP and per capita GDP grew rapidly, tourism and related industries also prospered. However, our analysis of subjective indicators cautions that economic development would necessarily improve the quality of life of the residents. For instance, around two-third of the licensed gambling operators, i.e. Wynn Resorts, Galaxy Entertainment and Las Vegas Sands, are non-local multinational corporations, meaning that income generated by the casino business essentially goes largely to foreign investors. In addition, trade statistics in recent years also showed that various kinds of goods and services are increasingly imported from adjacent cities or around the globe, suggesting that a lot of expenditures are spent to other economies in order to support the development of the gambling business. All these corroborate the idea that "casino income generated may go to outsiders" (Rose 1995), which can at least partially refute the ideal prediction suggested by the gambling proponents (Rephann 1997; Walker 2007).

Although the employment environment has improved and nominal wage has increased, dissatisfaction of ordinary citizens and grievance of displaced local workers have also accumulated. With the rise in property as well as prices of daily necessities, the general public is faced with a weakening of real purchasing power that has eaten away their regular income, while the huge importation of migrant workers (legal and illegal) has also taken away promising employment opportunities of local workers. In this sense, the Macao SAR Government could not be too complacent with the economic progress achieved if only it

takes both objective and subjective indicators into full consideration. We suggest that more effective policy in wealth redistribution should be carried out in order to narrow the increasing wealth gap. In addition, stronger action should be taken to curb the problem of rampant illegal workers. The government should also take necessary measures to protect local workers such as promoting priority employment and better job benefits. Last but not the least, the government should spend more in social welfare to make sure that the lower class and under-privileged could live a decent life.

To sum up, although the opening of the casino gambling industry has brought a number of promising statistics indicating a huge progress of the economy, interpretation of these objective statistics must be cautioned, and would best be balanced by an analysis of subjective indicators. The macro picture of a vibrant economy must therefore be scrutinized with a microscopic look of how local residents subjectively fared. Since the social cost of casino liberalization is not easily calculable and hence is not usually considered in the economic decision-making process, grievances and discontent of local residents could well mount up that would jeopardize the social fabric and hence stability of the Macao society.

Acknowledgment This research was supported by the Research Centre for Sustainable Development Strategies of the Macao SAR Government.

References

- Bhagwati, J. N. (1982). Directly unproductive profit-seeking activities. *Journal of Political Economy*, 90, 988–1002.
- Dixit, A., & Grossman, G. (1984). Directly unproductive prophet-seeking activities. *American Economic Review*, 74, 1087–1088.
- DSE (Direcção dos Serviços de Economia). (2010). *Mainland and Macao Closer Economic Partnership Arrangement (CEPA)*. Retrieved from http://www.economia.gov.mo/web/DSE/public?_nfpb=true&_pageLabel=Pg_EETR_CEPA_S&locale=en_US.
- DSEC (Direcção dos Serviços de Estatística e Censos). (2003). *Yearbook of statistics 2002*. Retrieved from <http://www.dsec.gov.mo/Statistic/General/YearbookOfStatistics.aspx>.
- DSEC. (2006). *Yearbook of statistics 2005*. Retrieved from <http://www.dsec.gov.mo/Statistic/General/YearbookOfStatistics.aspx>.
- DSEC. (2010a). Gross domestic product—annual. Retrieved from <http://www.dsec.gov.mo/Statistic/NationalAccounts/GrossDomesticProduct.aspx>.
- DSEC. (2010b). *Visitor arrivals*. Retrieved from <http://www.dsec.gov.mo/Statistic/TourismAndServices/VisitorArrivals.aspx>.
- DSEC. (2010c). *Yearbook of statistics 2009*. Retrieved from <http://www.dsec.gov.mo/Statistic/General/YearbookOfStatistics.aspx>.
- DSEC. (2010d). *Employment survey*. Retrieved from <http://www.dsec.gov.mo/Statistic/LabourAndEmployment/EmploymentSurvey.aspx>.
- DSEC. (2010e). *Non-resident workers*. Retrieved from <http://www.dsec.gov.mo/TimeSeriesDatabase.aspx?lang=en-US&KeyIndicatorID=16>.
- DSEC. (2010f). *Company statistics*. Retrieved from <http://www.dsec.gov.mo/Statistic/Other/CompanyStatistics.aspx>.
- Eadington, W. R. (1995). Economic development and the introduction of casinos: Myths and realities. *Economic Development Review*, 13, 51–54.
- Goodman, R. (1994). *Legalized gambling as a strategy for economic development*. Northampton, MA: United States Gambling Study.
- Grinols, E. L. (2004). *Gambling in America: Costs and benefits*. Cambridge: Cambridge University Press.
- Grinols, E. L., & Omorov, J. D. (1996). Development or dreamfield delusions? Assessing casino gambling's costs and benefits. *Journal of Law and Commerce*, 16, 49–87.
- Kindt, J. W. (1994). The economic impacts of legalized gambling activities. *Drake Law Review*, 43, 51–95.

- Li, G. Q., Gu, X. H., & Siu, R. C. S. (2009). The impacts of gaming expansion on economic growth: A theoretical reconsideration. *Journal of Gambling Studies*, 26, 269–285.
- Loi, K. L., & Woo, G. K. (2009). Macao's casino industry: Reinventing Las Vegas in Asia. *Cornell Hospitality Quarterly*, 51(2), 268–283.
- Lui, K. N. (2010). *A summary and reflection on the liberalization of the gaming industry in Macao*. Macao New Vision, 2, 1–8. Retrieved from <http://www.myra.org.mo/?p=342>.
- Rephann, T. J. (1997). Casino gambling as an economic development strategy. *Tourism Economics*, 3(2), 161–183.
- Rose, I. N. (1995). Gambling and the law: Endless fields of dreams. In R. Tannenwald (Ed.), *Casino development: How would casinos affect New England's economy?* (pp. 18–46). New York: Federal Reserve Bank of Boston.
- Vong, A. C. K., & McCartney, G. (2005). Mapping resident perceptions of gaming impact. *Journal of Travel Research*, 44, 177–187.
- Walker, D. M. (2007). *The economics of casino gambling*. New York: Springer.
- Wong, H. S. (2010). A report on the problem of illegal migrant workers in Macao. *Macao Daily News*, 29 April 2010.