Business and Economic Research Limited

Report to:

Hong Kong Sports Development Board

Economic Impact of Sport

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Note that all figures in all tables are calculated from unrounded numbers. So the total of the numbers listed in the tables may not sum exactly to the totals provided.

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EXECUTIVE SUMMARY

This research project employs a range of approaches to estimate components of the economic impact of sport on the economy of Hong Kong and these findings are summarised in this executive summary.

1. The foundations for the assessment are the Hong Kong national figures for GDP, for production and employment by industry; consumption and expenditure figures, and figures for exports, imports and re-exports. These foundations have been augmented and cross-checked by information surveyed from firms operating in sports-related industries, and from the HKSDB survey of participation in sport and expenditure on sport.

2. The ability of the project to explore the topic and the magnitudes of the data from a range of directions, and with data from a number of years provides confidence in the magnitude of the assessed economic impact of sport.

3. The direct economic impact of sport in Hong Kong is a contribution of $21bn to GDP per year. This is just over 1.5% of GDP, and reflects over 61,000 jobs, or nearly 2% of employment in Hong Kong.

4. The total economic impact of sport in Hong Kong including the direct, the indirect and the induced economic effects is estimated at over $26bn per year contribution to GDP, which is 2.1% of GDP. The total contribution of sport to employment is 81,000 jobs or 2.5% of total employment.

5. The total contribution of sport to GDP assessed at 2% in our research is similar to the contribution in a range of other countries. The impact of sport has been assessed at 1.8% of GDP in Scotland, 1.7% of GDP in UK, just over 2% of GDP in US, and just over 1% of GDP in Canada and New Zealand. The Hong Kong level of GDP per capita is closer to that of US than that of New Zealand, and so the contribution of sport in Hong Kong would seem to be consistent with the Hong Kong GDP level, or standard of living.

6. A large share of the GDP generated by sport is by Hong Kong businesses operating in the global sports goods markets. These businesses generally market, design and arrange production of quality sports goods and equipment in Mainland China for the global market. These activities directly contribute about $9bn to GDP per annum.

7. The other core driver of the economic impact is the spending by Hong Kong people participating in sport. Our investigations of the changing profile of participation in Hong Kong in recent years leads us to the conclusion that participation (and thus economic impact) will continue to grow because:

i. Younger age groups have higher participation rates and have developed stronger habits of participation which are likely to endure;

ii. The move of Hong Kong from a production-based to a profession-based economy has been accompanied by increasing participation in sport by people in the professions. This will continue to happen;

iii. Short-term factors reducing sport participation in the two years 1999 and 2000 are not expected to continue;

iv. The increasing level of income and standard of living in Hong Kong will support higher levels of participation than the present levels.

8. The indirect benefits available to Hong Kong from sport include reducing health care costs and increasing labour productivity. More accurate assessment of the extent of these benefits will require further research.

1 INTRODUCTION

This study builds on previous work undertaken for the Hong Kong Sports Development Board (HKSDB) entitled "The Economic Benefits of Sport: A Review". While that review described the range of business activities associated with the sport and active recreation sector and identified the potential level of benefits to the economy, this study aims to quantify as far as practicable these benefits.

In particular, the objective of this project is to provide "an estimate of the economic impact and benefits of sport in Hong Kong to help promote the benefits of sport and demonstrate the value of the sports sector in Hong Kong."

The report comprises:

- a description of the economic impact of sport in Hong Kong, including a breakdown of the composition of the sports sector;
- the approaches taken and areas that may require additional work in order to refine the estimates in the future;
- a simple but robust model that can be used to estimate the economic impact of individual events. As an example, it would enable you to estimate how much money the Hong Kong Rugby Sevens would bring into the economy;
- a comparison of the contribution that sport makes to Hong Kong's economy with other countries;
- a review of the other (mostly intangible) benefits which accrue to the economy from sport participation; and
- an identification of the areas where data may be incomplete or out-of-date and suggestions of ways of remedying this through further work.

The results of the study will raise awareness of the importance of the sport and active recreation industry to Hong Kong's economy. It will also show how the benefits arise and will emphasise that the benefits are distributed throughout the economy, rather than being isolated to sports-related industries.

The resulting increased awareness of the benefits arising from sport may, in turn, encourage increased levels of funding and sponsorship of sport by both government and the private sector.

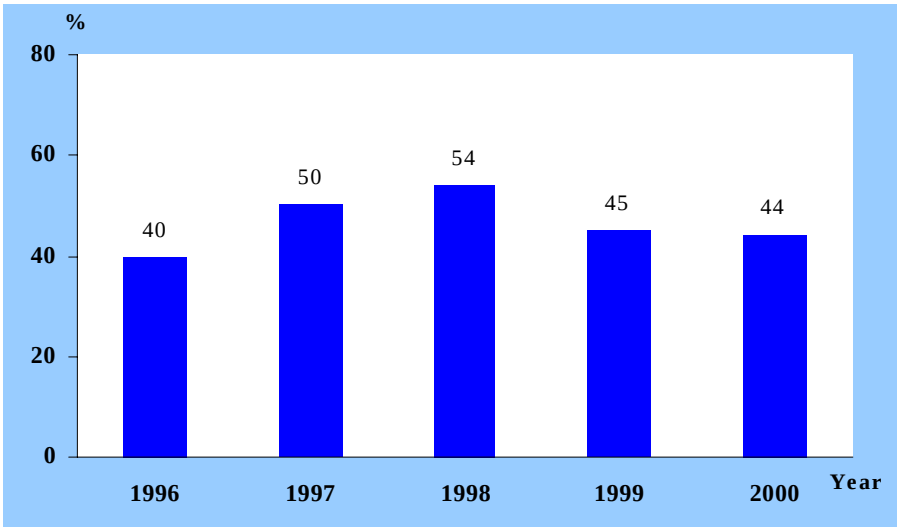
2 SPORT PARTICIPATION AND SPENDING IN HONG KONG

The economic impact of sport in Hong Kong will be estimated for the year 2000. The major determinant of the economic impact of sports is the participation in sport by Hong Kong citizens. To assist the reader to interpret the impact in 2000 in the context of probable future changes, this section outlines the recent past changes in average sport participation, some patterns of sport participation and some of the patterns of spending on sport in Hong Kong.

2.1 Average sport participation 1996 to 2000

The annual Sports Participation Survey undertaken by the HKSDB reports a sports participation rate of those aged 15 and over in the vicinity of 50%, although this rate has varied over recent years – and according to seasonal factors – between 40% and 60%. The actual trend of changes in sport participation shows strong growth from 40% of the population in 1996 to 50% in 1997 and 54% in 1998. In 1999 there was a fall back to 45%, and in 2000 it was reasonably stable at 44%.

Figure 2.1 Participation Rates in Sport in Hong Kong 1996-2000



The main question this track in participation rates raises is whether participation peaked in 1998 and can now be expected to decline, or whether the figures for 1999 and 2000 reflect a mere fluctuation in a long-term trend upwards.

Looking in some detail at the figures for 1999 and 2000 gives some explanations for the fall in those years. In 1999 there was a large fall in participation in the third and fourth quarters from 50% and 52% in the first two quarters to about 43% and 36% in the third and fourth quarters. In the earlier years 1996, 1997 and 1998, the fourth quarter had the highest participation of all quarters and so the 1999 drop was most unusual. There was

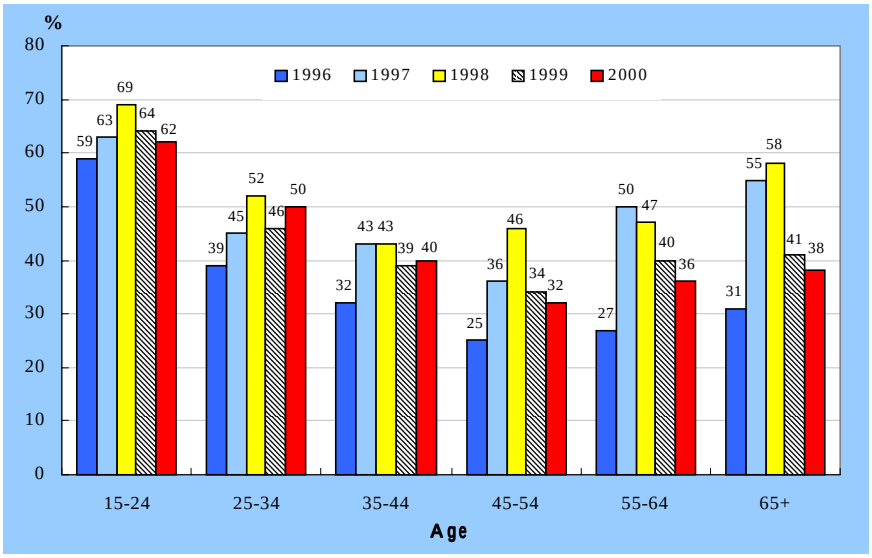
some downturn in the economy, and this could have reduced participation as 'pressure of work' was given as a reason for non-participation by more people. Also the weather was thought to be a factor as there was a stormier summer and colder winter in 1999.

With an anticipated return to a stronger economy and more normal weather patterns in the future, the rate of participation could be expected to lift. This indicates that the overall trend in the medium term is likely to be increases in the participation rate over time.

2.2 Pattern of participation with age

Analysis of the sport participation data by age groups over recent years shows higher participation rates in the younger and the older age brackets[1], with relatively lower rates of participation among those in the intervening age groups.

Figure 2.2 Participation Rates by Age in 1996-2000



Another pattern shown in this chart is that the three younger age groups, covering people aged 15 to 44 had more moderate changes over the years 1996 to 2000 than the three older age groups. The latter three groups aged 45 years and over had major increases in participation in 1997 and 1998, and major falls in 1999 and 2000. The large reduction in the 65+ age bracket in 1999 is consistent with the impact of the adverse weather – noting that the primary activity of those in this group is 'walking', which we would expect to be predominantly outdoors.

1 Specifically, the 15-24 and the 65 and above age groups, respectively.

It could be that younger people now have stronger established sporting habits that they will carry forward as they grow older. If this is the case participation will increase and will fluctuate less from year-to-year in the future. Certainly all age groups had higher participation in 2000 than in 1996, which indicates some gradual growth in participation.

2.3 Patterns of participation in different sports

The cross-tabulations of age groups, education and occupation characteristics of sports participants and the sports they participate in show different patterns for old and young, and a transition between these. In the first, there is the relatively higher participation in sport of those in the 65+ age group, which is consistent with the similar feature exhibited by those with 'no education' and those in the 'other'[2] occupation group. These are clearly describing largely the same group of people, and they have a high participation in 'walking' and similar activities.

On the other hand, the 15-24 age group is reflected in the participation rates reported for 'students' occupation group and the 'upper secondary', 'matriculation' and 'post secondary and above' education categories. These are again describing largely the same group of people and they have a high participation in 'swimming', 'badminton', 'basketball' and 'soccer'.

2.4 Occupational differences in participation

The occupational group with the highest participation in sport is the students, who apparently have a lifestyle which allows and encourages participation of about 70% of them.

Closely following the students are the professional people. Their participation is up to 65% by 2000, and of all groups they have shown the steadiest growth from 51% in 1996, and only a small reduction by 3% with the weather downturn in 1999. The 'professional' category is noticeable as the only group recording an increase in 2000. This increase is consistent with the idea that the downswing of the economic cycle during that time had less of an impact on professionals because of their relatively high-income levels.

The medium-term indication from this occupation chart is that, as Hong Kong is increasing the sophistication of its industry, the workforce is shifting from being predominantly production workers (who have sports participation rates of about 30%) to being predominantly professional, clerical and service workers (whose sport participation levels tend to be higher than that of production workers). These

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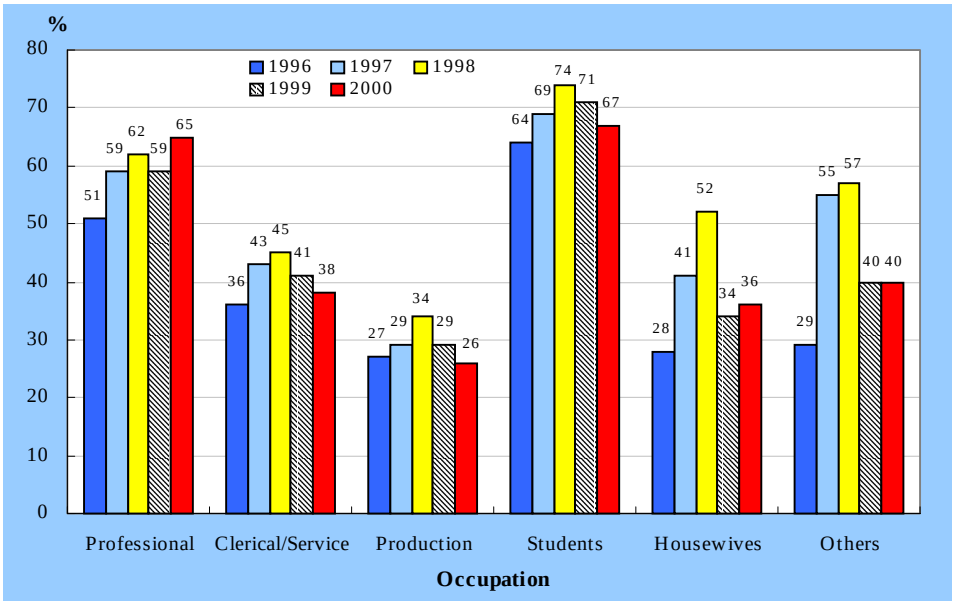
2 That is, not professional, clerical/service, production, student or housewives. By inference, these are likely to retired or unemployed.

occupational trends should reinforce other trends that should lead to increasing sports participation over time.

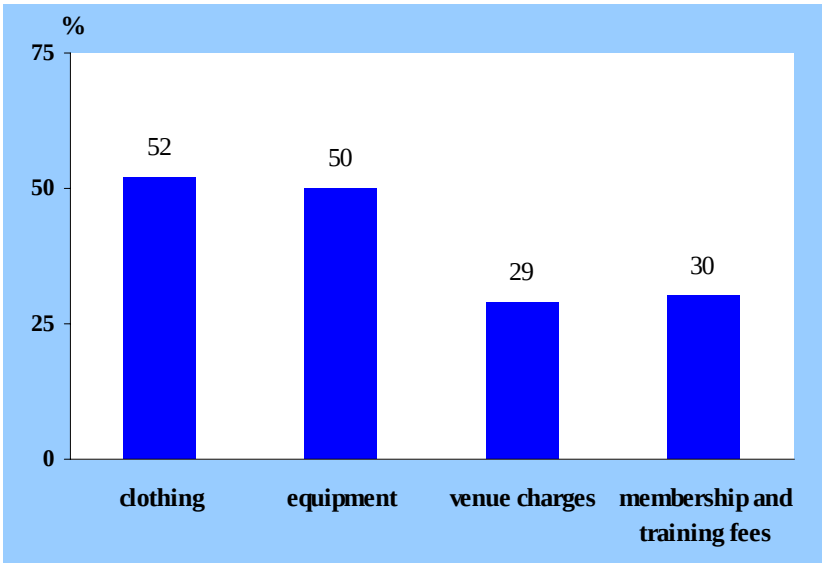
Figure 2.3 Participation Rates by Occupation in 1996-2000



2.5 Market profile of spending on sport

The market profile of those spending on sports goods and services shows that in 1999, 52% of participants said they spent some money on clothing, 50% spent on equipment, 29% spent on venue charges, and 30% said they spent on memberships fees and/or training fees.

Figure 2.4 Profile of Sport Spending by Participants



This very clear pattern carried through to all age groups, but the spending incidence in younger age groups was much higher than in older groups. The three age groups spanning the ages from 15 to 44 years had about 60% to 70% of participants who spent on clothing and equipment, and 30% to 40% who spent on venue charges and membership or training fees. At the other extreme those participants aged 65+ had only 1% to 8% of their number who spent on each of the four categories.

The implications of such spending patterns for future developments in the sports market is likely to be closely related to the pattern of future participation. In particular, if the pattern of sports participation in Hong Kong follows that elsewhere to a gradual 'flattening' of the age profile (i.e., so that the reduction in participation in the post-35 age categories becomes less pronounced), then this could result in a changed pattern (as well as a higher level) of sports expenditure. In essence, this could result in a greater emphasis on clothing and equipment as the tastes and spending patterns of those currently in the below-35 age groups drift into the older-age categories in the coming years.

On the other hand, if the profile of sports participation in Hong Kong continues its recent pattern (of being relatively 'dominated' by below-35s), then the emphasis on future spending patterns is likely to depend on the trends and tastes of the current youth population.

2.6 Profile of spending by sport

The figures provided in the HKSDB Sports Participation Survey show the average annual expenditure by participants. An average can cover a very wide range of numbers, and so we analysed the unit records data for participants in 1999 who listed only one sport in which they participated and gave their monthly dollar expenditure on that sport.

This procedure resulted in quite small samples of usable records. However, these records indicated that there are not just a few sports with very high spending and a lot with relatively low spending.

In fact the participants in most sports, even in popular basketball, swimming and badminton seem to spend $2,000 to $5,000 per annum on their sports. Those undertaking organised exercise, weight training and aerobics, appear to spend somewhat more and those with golf as their sole sport spend significantly more again.

2.7 Survey estimates of total spending

The HKSDB Participation Survey provides estimates of the spending per head of the sport participants, and of the total spending on sport in Hong Kong as determined from the Survey. The figures for recent years are listed in Table 2.1.

The relatively small number of participants who give detailed information on their expenditure tends to cause the estimates to fluctuate somewhat from year-to-year. However, these estimates fall within a reasonably narrow range, and in fact the changes in the economy indicate that the actual spending on sport may have followed a track similar to these estimates.

The economic impact assessment which follows will derive estimates of spending on sport from the overall household consumption figures and provide a cross-check on the magnitudes of these estimates.

Table 2.1 Annual Spending on Sport in Hong Kong

Year	Sport Participation %	Average Spend *$ per year*	Estimated Total Spent on Sport *$bn per year*
1998	54	$3,574	$10.9bn
1999	45	$4,573	$11.5bn
2000	44	$3,450	$9bn

3 METHODOLOGY AND FRAMEWORK OF ANALYSIS

Our methodology was designed to meet the three aims as stated in Section 25 of the Agreement for Research – viz:

25.1 provide an estimate of the economic impact of the sports sector;

25.2 identify areas where the data may be incomplete or out-of-date and suggestions of ways of remedying this through further work; and

25.3 compare the contribution that sport makes to Hong Kong's economy with other countries.

For the purposes of this study, the definition noted in our previous work for the 'sport and active recreation industry' was retained to ensure comparability with overseas reports. In particular, the sports sector includes not only organised sport but also active recreation, such as walking, jogging, exercising, hiking and camping, as well as sports-related tourism.

3.1 Characteristics of the Hong Kong sports market

The sports market in Hong Kong could be characterised into two areas. The first area is associated with the production, marketing, trade and sale of sports goods and equipment – including clothing. The second relates to the participation of groups and individuals in sports activities or events and the associated sale, purchase, and provision of facilities and services.

This study assesses the sports market in Hong Kong from two directions – production GDP and expenditure GDP. It is standard procedure to estimate GDP from more than one direction.

The production measure of GDP arises from the estimated value of output produced by individual industries, minus the value of the material (or 'intermediate') inputs used by these industries. This provides a measure of the 'value added' to all products by each industry. Totalling the 'value added' across all industries provides a measure of the total GDP (or output produced) of an economy.

The expenditure measure of GDP, arises from the total spending on all final goods and services produced in the economy. This adds the spending by households, government and firms together with the spending by foreigners on Hong Kong goods and services. The last-mentioned category being labelled 'exports' as well as 're-exports'. From this total figure, spending by Hong Kong residents on imported items must be subtracted to obtain the formal 'expenditure GDP' estimate.

In theory, calculating GDP from two directions – one, using industry production data and two, using expenditure figures – should result in the same number. In practice, data and sampling inaccuracies result in two different numbers. The process of obtaining two different estimates, however, allows the order of magnitude of the GDP numbers to be checked for consistency and robustness. It is for this reason we also estimate the impact of sport using two measures.

In the sport context therefore, the production GDP dimension is comprised of the domestic production and supply of sports goods and services in Hong Kong. The expenditure dimension, on the other hand, is comprised of the consumption (household, firm and government spending) and export (foreigners spending) of sports goods and services, less the spending on imports of these goods and services.

The framework of this study encompasses the assessment of the economic impact of sport in Hong Kong across both of these two dimensions.

3.2 Information and data collected

The following data was compiled to generate the economic impact analysis:

- GDP data compiled by the Census and Statistics Department (HKCSD)
- Household Expenditure Survey undertaken by the HKCSD
- External trade statistics compiled by the HKCSD, based on information contained in import/export declarations
- The reports of Annual Surveys published by the HKCSD of Industrial Production and of Wholesale, Retail and Import and Export Trades, Restaurants and Hotels
- Tourism data from the Hong Kong Tourist Association
- Public sector expenditure from HKSDB and LCSD reports
- Details of the backwards and forwards linkages[3] of firms operating in the sports industry

3.3 Estimating the economic impact of sport

The economic impact of sport in Hong Kong has been assessed with reference to three primary variables. Namely:

- employment;

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3 That is, linkages between firms in the sports industry and other firms elsewhere in all other industries across the Hong Kong economy.

- value added (i.e., sales less purchases of raw materials and other inputs); and
- gross output (i.e., gross sales, or similar to turnover).

Given the absence of an input/output table giving forward and backward linkages to and from sports-related industries to the rest of the economy, it was necessary to gather information to construct the necessary estimates of these linkages. This comprised an assessment of the data contained in the HKCSD's Annual Surveys to determine the relationships between gross output, value added, employment, compensation of employees and operating expenses at the broad industry classifications available.

In addition to this assessment, a selection of face-to-face interviews of 'representative firms' in specific sports-related industries in Hong Kong were undertaken. These interviews captured more detailed information on the nature and extent of linkages through their individual patterns of sales and purchases. This portion of the research study was completed in association with ACNielsen (HK) Ltd, who assisted in identifying appropriate 'representative firms' and also in assessing the information gathered from those interviewed.

Using both the broad industry data and the selection of detailed firm information, we were able to determine the nature and scope of the backward and forward linkages associating the sports-related activities to the wider economy. 'Multipliers' based on the relationships given by these linkages enabled the calculation of *indirect* and also the *induced* economic impacts of sport to be estimated.

- The *direct* impact arises from the production and selling activity of the sport industry.
- The *indirect* impacts on the other hand arise from the linkages associated with the transactions (and employment) in raw materials industries (or importing industries)
- The *induced* impacts occur as a result of the spending arising from the incomes generated by those employed in the sports-related activities.

3.3.1 Estimation of impacts of individual sports events

In addition to determining the above economic impact, the study also generated a simple model to be used to estimate the economic impact of individual sports events on the economy. This 'spreadsheet' takes the form of relatively simple formulae linking event attendance numbers, tourist visitor numbers, origin of the tourists, daily visitor spending on accommodation and food as well as other sub-categories. The model is designed to give an approximate (but readily available) estimate of the contribution of 'an event' to overall activity in Hong Kong in the short term. Clearly, if the 'event' were a recurrent activity then the 'short-term' estimate may need to be modified to incorporate longer-term effects on, for example, facilities.

3.3.2 Description of 'other' benefits

This category refers to the mostly 'intangible' benefits which accrue to the economy in terms of reduced absenteeism and increased productivity attributable to a healthier and more motivated workforce, and the benefits that arise in terms of reduced health care costs due to increased levels of fitness of the population.

Substantial information on these topics were collated during preparation of the feasibility study and *The Economic Benefits of Sport: A Review*. This study revisits that work and attempts to assess their applicability to Hong Kong.

4 ASSESSING THE ECONOMIC IMPACT

4.1 Summary of impact on GDP and employment

All dollar values, unless stated otherwise, are given in HK$m, and relate to the 2000 year.

Table 4.1 summarises the calculated economic impact of sport in Hong Kong. Overall, the study finds that sports-related activities directly employ approximately 61,300 persons in Hong Kong (or 1.9% of total employment). Within this direct number, the biggest element (i.e., more than 17,000) comes from employment in the import/export of sport clothing, footwear and equipment. The provision of LCSD facilities and events are also significant in terms of employment within the sports sector in Hong Kong.

The indirect and induced linkages add another 19,000 persons to the direct estimate of 61,300 persons, bringing the total employment impact of sport to 80,300 or 2.5% of the total.

Table 4.1 Summary of the Economic Impact of Sport in Hong Kong, 2000

	Employment *number*	Value Added (GDP) *HK$m*	Gross Output *HK$m*
Direct impact by industry			
sports clothing & footwear manufacturing	9,419	1,946	6,729
sports equipment manufacturing	541	153	593
wholesaling of sport clothing, footwear & eqpmt	474	79	151
retailing of sport clothing, footwear and eqpmt	1,577	231	606
import/export trading of sport clthg, ftwr & eqpmt	17,226	6,833	12,403
fitness centres services	9,428	3,189	5,224
provision of LCSD facilities	11,725	3,965	6,496
SDB services, provision of education services	788	266	436
events	10,162	3,437	5,630
TOTAL direct impact	**61,339**	**20,100**	**38,268**
% of total economy	***1.91***	***1.58***	***1.65***
Indirect impact	13,885	4,638	8,655
Induced impact	5,086	2,012	3,672
TOTAL direct + indirect + induced impact	**80,310**	**26,750**	**50,595**
% of total economy	***2.50***	***2.10***	***2.18***

Given the relative employment-intensity of services[4], the contribution of sport to the Hong Kong economy is slightly less when measured in terms of 'value-added' or 'gross output'. Nonetheless, the industry pattern is similar with the export/import of sport clothing, footwear and equipment accounting for a large share of the value-added and the gross output within Hong Kong's sports sector.

From national accounts, trade and production data, the impact of expenditure on GDP in Hong Kong was derived as $21,549 million, as shown in Table 4.2. Note the difference between the expenditure estimate of GDP ($21,549m) and the production estimate of GDP ($20,100m) is an indication of the imprecise data available. The difference between the two estimates is a bit larger than ideal but – at $1.4m or 0.1% of GDP – it is sufficiently small to be of negligible impact on our overall conclusions. Nevertheless, the difference is important to note and tends to reinforce the indicative rather than exact nature of the estimates.

Table 4.2 Impact of Sport on GDP in Hong Kong by expenditure category

	HK$m
Direct GDP impact by expenditure category	
household (private) consumption of sports goods & services	9,104
government (public) provision of sports services	4,232
exports of services (eg sports tourism)	1,681
exports sports goods	2,100
re-exports of sports goods	21,535
LESS imports of sports goods	17,102
TOTAL direct expenditure impact	**21,549**
% of total GDP	*1.69*

The rest of this section firstly describes the estimation of the 'multiplier effects'; secondly, discusses the components and composition of the impact of sport on GDP; and, thirdly, makes some comparisons between the sports market in Hong Kong relative to other countries.

4.2 Estimation of multiplier effects

As noted above, the multiplier effects can be categorised into indirect and induced effects. The estimated multipliers are listed in Table 4.3. The indirect multipliers for each industry or activity were estimated using value-added to gross output ratios from HKCSD Annual Survey data. The consequential estimate of intermediate inputs per unit of gross output, along with estimates of the proportion of imported components enabled

4 That is, the average labour-to-output ratio (the quantity of labour employed per unit of output produced) in services is much greater than in other sectors of the economy.

an estimate of the indirect domestic purchases required by the activities of each of these industries.

It should be noted that the multipliers as calculated here, only capture the 'first' and 'second' round indirect effect. Ideally the multipliers should be derived from a full inter-industry input-output table, thus also capturing the indirect effects arising from the purchases required in turn by these 'second-round' industries – and so on. However, the dilution of 'indirect' effects is expected to be relatively rapid, given the small size of the multipliers calculated, and thus we are confident these estimates are likely to capture the majority (if not the large majority) of these effects.

The induced multipliers were estimated using the wages-to-gross output ratios from HKCSD Annual Survey data. Wages, for this purpose, were assumed to be the equivalent to 'compensation of employees' category. Also required for this calculation was the overall consumption-to-GDP ratio from the National Accounts data, along with an estimated import component of consumption.

Table 4.3 Estimated indirect and induced gross output multipliers

	indirect multiplier *"Type 1B"*	induced multiplier *"Type 2"*
Industry or activity		
sports clothing & footwear manufacturing	1.2710	1.3134
sports equipment manufacturing	1.2860	1.3630
wholesaling of sport clothing, footwear	1.0569	1.1344
wholesaling of sport eqpmt	1.0394	1.1394
retailing of sport clothing, footwear	1.0712	1.1363
retailing of sport eqpmt	1.0584	1.1326
import/export trading of sport clthg, ftwr	1.0487	1.1227
import/export trading of sport eqpmt	1.0464	1.1192
provision of sport services	1.3391	1.4728

It is evident that the larger multipliers are associated with domestic manufacturing and the provision of services. On the other hand, wholesaling, retailing and import/export trading all exhibit smaller indirect effects, as their purchases are predominantly imported products.

Furthermore, the induced multipliers for services are somewhat higher due to the higher labour (i.e., wage) component associated with their activity.

4.3 Household expenditure and associated provision

The estimate for private household consumption expenditure (in Table 4.2) is $9.1bn in 2000. This estimate is based on the proportion of clothing, footwear and general equipment in total consumer expenditure (as from the consumer price index weights), and implied consumption from trade, export and import data.

This figure represents 1.24% of total consumption spending. The sports expenditure above comprises $5.9bn of spending on goods and $3.2bn on services.

The annual Sports Participation Survey provides a crosscheck for the above estimate of private household consumption. Although the Survey exhibits a considerable degree of variability, the estimates of total spending on sport derived from the Survey responses has ranged from between $9bn to $11.5bn since 1998. Thus, both sources provide very similar order-of-magnitude estimates, especially with the 2000 Survey recording a total spending of $9bn compared our estimate for 2000 of $9.1bn.

The fact that both of these sources have generated estimates which are so similar tends to reinforce the usefulness or accuracy of both approaches, at least in terms of the order-of-magnitude of private household expenditure. Indeed, within the overall context of Hong Kong's GDP, even the 1999 Survey spending figure of $11.5bn is not wildly out of variance with our estimate for 2000 of $9.1bn.

4.3.1 Domestic industry

Direct manufacture of clothing and footwear in Hong Kong is a negligible component of the Hong Kong economy. Similarly, the contributions from the wholesale and retail trade sectors are also not large. It is important to remember here that these contributions are not measured in turnover or gross sales terms, but in terms of the wholesale and retail trade sectors' margins – or 'mark-up'.

Clearly, comparing the goods expenditure figure above with the contribution from domestic industry, carries the implication that much of this consumption expenditure is undertaken on goods imported.

4.3.2 Services

Expenditure on sports services comprises the use of fitness centre facilities and associated services.

It is clear that there is already a substantial and well-established fitness industry in Hong Kong and indications are that it is growing rapidly. The fitness industry covers a range of small-scale gymnasium and exercise-type centres as well as several comprehensive hotel-based sports facilities including swimming pools, squash courts, and other sports equipment.

The growth in this industry is likely to have been the cause of the high expenditure on membership and training fees in the 15-40 years age group category. The increased availability of facilities in the central business district (CBD) and residential areas makes active recreation more accessible even to those in the 'very busy', 'work-dominated' age groups of 45 to 64. The 25 to 44 age groups are probably also about equally work-dominated, and so it is likely that as these people move through the age groups, they will tend to continue their relatively high level of physical activity. In this way, the average level of participation by the whole population over time can be expected to rise.

The statistics suggest there were some 460 'fitness centre/gymnasium/athletic institute' facilities in Hong Kong in the year 2000, employing a total of approximately 8,400 persons. While this indicates a relatively large 'average' facility (i.e., around 18 persons per establishment), this number is likely to be influenced by a few 'very large' centres. For example, the 22 establishments recorded on southern Hong Kong Island reported average employment of 55 persons. At the other end of the spectrum, the 86 facilities in the Wong Tai Sin and Kwun Tong areas of Kowloon reported an average of only 4 persons per centre.

At first, gymnasium and fitness services were available in some community centres with little if any charge. Also, in some quality 'resort hotels', there were membership clubs with a range of facilities. More recently, however, there has been strong growth in more specialised fitness facilities, with the cost being greater than the community centres, but less so than the resort clubs.

Also, in the past, golf was available only to the very few who could afford the limited availability of the membership to one of the two courses of the Royal Hong Kong Golf Club. More recently, golf courses have been constructed across southern China, making golf much more accessible to middle-income Hong Kong people by way of relatively cheap weekend golf tours to these courses. This has increased participation as well as demand in Hong Kong for golf driving ranges, and coaching facilities.

It is, however, relevant to note that growth in this sub-sector of the sport industry could be vulnerable to short-term influences on the prospects for the wider Hong Kong economy. In particular, considerable uncertainty surrounding US (and also global) economic growth has contributed to concern that the overall prosperity of the Hong Kong economy and its people may not improve by much in the coming few years. If so, then expenditure on sports services (e.g. fitness centres) would be curtailed as would other components of domestic spending. Furthermore, spending on sports services could well be more affected than other items of domestic spending, if uncertainty impacts more on employment and income of those in 'professional' occupation groups.

Nevertheless, our 'face-to-face' interviews with those in this sector suggested that such influences are seen as 'short-term' interruptions to the long-term picture of continued

growth. Furthermore, it is relevant to recall that the profile of those participating in sport is relatively more dominated by those with higher educational attainment. Given that the proportion of those receiving higher education is expected to continue to increase, this bodes well for an overall rise in the number of active sports participants in general – and so for the sports services sector in particular.

4.4 Government expenditure and associated provision

The difficulty in the estimation of the public provision of sports services and its consequent contribution to the Hong Kong economy GDP is compounded by data availability and imprecise boundaries of the sport industry. Furthermore, the recent reorganisation of the Urban Council and Regional Council in transferring roles to the Leisure and Cultural Services Department (LCSD) has not assisted in this estimation. As such, while the summary tables above list 'provision of LCSD facilities' (in order to be consistent for the year 2000), the data sources for these estimates were, in the main, the Regional and Urban Council annual reports up to 1997-98.

Furthermore, in the absence of Production Survey data for this industry, the employment numbers and value added numbers were derived using sector-wide averages ratios for the 'community, social and personal services' sector. In particular, the average 'value-added to gross output' ratio here is calculated as 0.61, yielding a total value added of $255.5bn, with over 755,000 employed – implying an average GDP per worker per year of $338,200.

4.4.1 The LCSD and other public provision

Analysis of the annual reports of the former Regional and Urban Councils indicate their total expenditure is of the order of $12.5bn per annum[5]. Whilst the main category[6] for this expenditure is 'environmental hygiene' (accounting for nearly 50% of the total), the second major item is 'recreation and sports'. Clearly the 'public' provision of facilities contributes a significant portion of sports services in the Hong Kong economy. These services include golf centres and driving ranges[7], 'open-space' and children's parks and play equipment, swimming pool complexes, general indoor recreation centres as well as the installation and maintenance of shark nets at all major beaches.

The estimate of the contribution of these services to the Hong Kong economy is, as listed in Table 4.1, close to $4bn in terms of GDP and employment of well over 11,500 persons. Note that these figures include capital works spending which is explicitly associated with recreation and sports. Where the nature of capital spending is not clearly identified, a pro-rata proportion has been allocated to sports expenditure.

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5 Including capital works of the order of $1.9bn.

6 Excluding capital works.

7 Including, in cases, 'self-service on-line' booking systems to shorten queues.

4.4.2 The SDB, NSAs and Education

The annual report of the Sports Development Board indicates budgeted expenditure of $266m, funded predominantly by government subvention. The expenditure of the National Sports Associations that arises through block grant funding from the SDB is supplemented by funds from sponsorship and other sources. An allowance for this additional element has been incorporated in the overall figures.

The sport and recreation (or physical education) component of the school curriculum appears limited by the access to equipment, grounds and other facilities. An estimate of the contribution to sport based on a pro-rata share of the overall total spending in the compulsory education sector was considered. It was decided, however, that including such a pro-rata figure was too speculative in light of the limited scale of the sport curriculum.

4.5 Exports, re-exports and imports of goods

4.5.1 Exports

Detailed trade data records the export of 21.2m units of sports clothing from Hong Kong at a value of $1.9bn. The majority of this clothing consists of ski jackets and anoraks, which accounted for 15.4m units at a value of $1.7bn. Other items of sports clothing exported included swimwear, ski suits and track suits. On the other hand, the export of sports equipment from Hong Kong was negligible.

However, the contribution of re-exports to the Hong Kong economy is far more significant.

4.5.2 Imports and re-exports

In earlier times Hong Kong businesses produced in Hong Kong a volume of sports clothing, footwear and equipment. In recent times, Hong Kong companies in this field have retained and expanded their established markets, and in many cases expanded their capabilities in Research and Development (R&D). To maintain their production capability and to hold costs in the face of the rapidly growing standard of living and thus wage costs in Hong Kong, they have either established a production facility in Mainland China, or they have the goods produced on contract on the Mainland. In these cases the marketing and R&D is carried out in Hong Kong, and the Quality Assurance (QA) is carried out by Hong Kong staff travelling to, or working in, the production facilities on the Mainland.

The functions of the Hong Kong businesses are thus marketing, R&D and QA, which are the higher skill / higher value added part of the production and marketing process. The goods are then either imported into Hong Kong and re-exported to their destination

markets, or they are physically exported from the Mainland on behalf of, and to fill orders of, the Hong Kong companies.

Consequently there is high value added on the goods which are imported and then re-exported from Hong Kong.

Trade data recording imports and re-exports of the same commodity can be used to gauge the degree of this added value. For example, import statistics show that 86.4m units of swimwear were imported into Hong Kong in the year 2000 at an average unit cost of $19.97. On the other hand, over 80.6m units of swimwear were re-exported with revenue showing an average per unit price of $25.46, suggesting 27.5% on top of the unit cost is 'added value' provided by the marketing, R&D, QA and trade services of the Hong Kong economy.

On a similar note, imports of ski jackets and anoraks suggested an average per unit cost of $66.02, while re-exports data shows average per-unit revenue on these items of $113.61 – reflecting value-added services provided by Hong Kong businesses of 72% on the cost of the imported item. The equivalent figures for sports footwear – a per unit import cost of $84.03 and per unit re-export receipts of $106.42 – imply HK business providing value added services of 26.6% on cost for this commodity.

It is not as simple to calculate figures for the value-added by Hong Kong business in re-exports of sports equipment due to difficulty in measuring items with differing units. Nevertheless, interviews with representative firms suggest that the value-added component would be of the order of 20% to 25% on the unit cost of imports.

Production Survey data for 2000 suggests that over 101,600 establishments in Hong Kong engaged in the export/import trade activity. On average, these establishments employ 5 persons resulting in more than 509,000 total employment in this industry. Furthermore, these numbers report that 15,200 of these establishments were involved in the clothing and footwear export/import trade, whose average employment was somewhat higher at 5.7 persons, yielding total employment in this sub-sector of nearly 87,400.

Activity associated with the export/import trading in sports clothing and footwear is a sub-group of this sub-sector which includes all clothing and footwear.

Analysis of detailed exports, import and trade statistics leads to the calculation that trade in sports clothing and footwear is 4.1% of total clothing and footwear trade activity. This results in an estimated 623 establishments involved in the export/import of sports clothing and footwear industry, accounting for the employment of over 3,500 persons. This translates into a contribution to Hong Kong value added from this activity of $1.82bn.

In terms of sports equipment, export and import trade statistics put the share of sports equipment trade at 5.5% of trade activity in the other consumer durables not elsewhere classified[8] category. Production data records nearly 40,300 establishments engaged in the export/import trade activity of "other consumer durables and nec". This activity employs 219,200 persons at an average of 5.4 persons per establishment.

Activity associated with the export/import trading in sports equipment is a sub-group of the sub-sector incorporating other consumer durables and nec.

These numbers result in an estimated 2,200 establishments employing nearly 12,000 persons engaged in the export/import trade activity of sports equipment. This results in a contribution to Hong Kong value added of $4.98bn.

4.6 Exports of services

4.6.1 Sport tourism

Inbound tourism is a major generator of activity in the Hong Kong economy. The *World Market Review 2001* of the Hong Kong Tourism Board shows that there were 13.06 million visitor arrivals in 2000, and that in total they spent $59.3bn in Hong Kong. Of these, about 2% of 'vacation' visitors (or 140,000 people) recalled having visited a sports place. In addition, 1% of 'business' visitors – about 40,000 people – visited a sports place.

The potential for sports events to attract more visitors and for visitors to stay longer is indicated by the number of visitors who stated an interest in existing activities or attractions which are related to sport and recreation. Of the vacation visitors, 20% (1.4 m people) were interested in horse racing; 12% (860,000 visitors) were interested in Major Sports Competitions; and 14% (1.0m visitors) were interested in hiking in the countryside. However, the number of people who recalled participating was much lower – with participants in both horse racing and hiking in the countryside recording about the same number of persons (70,000). Those recalling participating in Major Sports Competitions were not significant.

A significant aspect of Hong Kong sports tourism is that the business visitors were also interested in sport and recreation aspects of Hong Kong. In fact, of the business visitors, 14% (548,000 persons) were interested in horse racing; another 14% were interested in Major Sports Competitions; and 12% (470,000) were interested in hiking in the countryside. The indication from the total tourist sample is that business visitors have a slightly higher interest in Major Sport Competitions than visitors in total. This indication is even more marked for visitors from some specific countries. For example,

8 Not elsewhere classified is sometimes abbreviated to "nec" in statistics publications.

from Australia and New Zealand[9], there were 14% of vacation visitors interested, but 23% of business visitors interested in Major Sports Competitions. The interest of business visitors is important because they already spend more per capita than vacation visitors, and stay on average about half-a-day longer. It would seem that business visitors have some discretion to co-ordinate their business visits with Major Sports Events and thus pursue their interest in this field.

The actual impact of sport tourism on the Hong Kong economy is difficult to estimate from the international tourism numbers. While a reasonably small proportion (1% to 2%) recalled visiting sports places, a much higher proportion (12% to 14%) said they were interested in horse racing, major sports competitions and hiking. It could well be that many of those who said they were interested in fact came to Hong Kong for the purpose of attending a major sporting competition – and added a vacation or business activity on to that visit. Therefore, it could be that at least 5% of international tourism spending is made up of sport and recreation tourists. If so, this would amount to approximately $3bn per year.

Our research did not obtain any sources of specific data on sports-related tourism, but the interests of tourists revealed in the Hong Kong Tourism Board surveys give some general indication of the level of interest in sport by tourists. This certainly indicates the possibility and potential for expansion and promotion of further sport and recreation tourism activities, including walking in the countryside.

Another approach our research pursued was to work out estimates of the number of visitors to specific sporting events as well as their spending in Hong Kong. This approach is discussed in section 5.

4.6.2 International and Regional Sporting Events

There is a significant number of sporting events that attract participants and spectators to Hong Kong, and thereby create additional activity in the economy. The information we obtained indicates that 15 to 20 significant fully international sporting events and close to 30 regional sporting events are hosted annually in Hong Kong.

Unfortunately, there has been little research into the numbers of inbound tourists who are spectators at these events, nor into the average length of stay or spending per capita of these tourists. We understand that some major sponsors of events have carried out their own analyses, but these figures are confidential to the sponsors.

Our conservative order-of-magnitude estimate of spending by spectators at international events in Hong Kong is a total spending of $350m per annum. We understand that some other surveys and assessments have given very much higher spending per sports tourist

9 That is, Australia and New Zealand together.

than the average tourism data would indicate. On the assumption that these assessments reflect a fundamental difference between spending by average tourists and sports event tourists, the actual number could be significantly higher than our conservative estimate. In fact, the actual number could be $750m to $1bn.

In addition, spending by visitors to regional events could be nearly as much as spending by visitors to international events. The regional event tourists spend at least as much per day as other international tourists, and there is likely to be more of them because they are closer to the event. However, being closer means that they will typically stay in Hong Kong for fewer days. It is therefore, possible that total event tourism brings into Hong Kong about $1.5bn to $2bn per annum.

At a local level, the main event calendars indicate a number of annual events which, although predominantly for local participants, undoubtedly attract at least some spectators from regional and international tourists. The Sponsorship Expenditure Survey of 1999 conducted for HKSDB showed the broad extent of the sponsorship of events, training schemes and similar and associated programmes funded by the LCSD and the National Sports Authorities. For 28 main sport categories there were 350 events or schemes listed, and the total funding in cash and in kind was $66m. There is here a diverse range of events and activities which can form a base for further regional and international events to be developed.

This is clearly an area where better quality information is necessary, and should be collected in co-operation between the tourism organisations, the HKSDB, the individual event organisers and the sponsors. The latter, the sponsors, may in fact take the lead in promoting increased participation in specific sports as well as generating the international events to lift the profile of the sport and thus the profile of their product.

4.7 Comparison with other countries

As noted in our earlier report to the HKSDB, *The Economic Benefits of Sport: A Review*, while the direct contribution of sport to GDP varies across countries, most findings suggest this contribution to range between 0.5% and 2.0%. While our estimate (of 1.6%) of the GDP impact of sport in Hong Kong appears consistent with this range, the figure for Hong Kong does lie at the upper-end of the range.

Specifically, our above-mentioned report suggests that the impact of sport in Canada and New Zealand is just over 1.0% of their respective GDP, with Scotland at 1.8%, the UK at 1.7% and the US at just over 2%. As noted in that report, these estimates are not totally comparable, given that there are data and definition variances and so are at best indicative.

Furthermore, it is noticeable that nearly half (or $9bn of the $21bn) of the contribution in Hong Kong is attributed to sports goods manufacture and sale, with nearly $7bn attributed to activities in the wholesale, retail and export/import sectors. Thus,

compared to other countries, the economic impact of sport in Hong Kong is more associated with Hong Kong business participation in the global sports goods markets rather than from economic activities related to sports participation by the local population. Research from other countries suggests a relatively smaller role in the sports industry played by manufacturing, wholesaling, retailing and trading activities and, consequently, a relatively larger role played by the participation-driven provision of sports-related services and leisure activities.

On the other hand, the importance of services relating to sports activities is significant in Hong Kong, and consistent with estimates of similar impacts in other countries. For example, with respect to Canada and New Zealand, the impact of sport services[10] amounted to around 0.6% to 0.8% of their respective GDP. In comparison, the estimated impact of sports services in Hong Kong is close to 0.9% of GDP.

[10] That is, excluding goods manufacturing, wholesale, retail and export/import trading activity.

5 ASSESSING THE IMPACT OF INDIVIDUAL EVENTS

This section provides a simplified framework of related calculation worksheets that enable the additional impact of an 'individual event' to be estimated given the number of foreign visitors attracted by the event. In these calculations, the worksheets use 'generalised', or average parameters derived from overall tourist data. As such the calculated impacts provided by these worksheets will not be exact, but rather, a more general guide to the likely magnitude of the impact of the event. On the other hand, these parameters could be modified where more precise or 'event-specific' data is available, thus resulting in more refined estimates of the event's impact.

5.1 International visitor profile

The first step in this procedure is to obtain foreign visitor numbers attracted by the event in question. Detailing these visitor numbers by main source region adds further precision to the subsequent calculations.

5.1.1 Visitor numbers

Information from the Hong Kong Tourist Board provides an indication of the average length of stay for international visitors, identified by main source region. This then allows the total number of visitor nights to be obtained.

Table 5.1 Calculation Worksheet for Total Visitor Nights

Region	Competitors (1)	Officials, supporters and media	Total # of visitors (2)	Average # of nights stay (3)	Total # of visitor nights (4)=(2)x(3)	Source of data, other comments
China				3.4		
Taiwan				2.3		
North Asia				2.4		
S&SE Asia				2.4		
Americas				4.2		
Australasia				4.2		
Other				4.2		
TOTAL				na		

It is noticeable that visitors from Taiwan, North Asia and South & South-East Asia record a significantly shorter duration of stay compared to those from other regions. This accords with the likely higher proportion of 'business' compared to 'vacation' travellers visiting Hong Kong from these regions. As such the use of the 'average nights stay' from this data source may necessitate amendment to properly capture the profile and spending patterns of those attracted to 'events'. On the other hand, the use of overall averages may be more appropriate than otherwise thought given that – as noted above – some visitors attracted to an 'event' may structure their visit to include other business activities – and so be classified as 'business' travellers.

5.1.2 Visitor spending per day

Using Hong Kong Tourist Board data, the average spending per visitor per day while in Hong Kong can be tabulated as follows.

Table 5.2 Calculation Worksheet for Visitor Daily Spending

Region	Hotels (5)	Meals (6)	Domestic travel (7)	Retail spending (8)	Misc. (9)	TOTAL
China	369	199	85	711	57	$ 1421
Taiwan	542	292	125	1042	82	$ 2083
North Asia	489	263	113	940	75	$ 1880
S&SE Asia	456	246	105	877	70	$ 1754
Americas	307	165	71	591	48	$ 1182
Australasia	390	148	56	297	37	$ 928
Other	280	151	65	539	43	$ 1078
TOTAL average spend	$ 393	$ 212	$ 91	$ 756	$ 71	$ 1513

It is further noticeable that while visitors from Taiwan, North Asia and South & South-East Asia have stays of shorter duration, their daily expenditure is significantly higher than foreign visitors from other regions. In particular, their accommodation (hotel) and retail spending are substantially above that of other visitors.

Again, the parameters in the above table may be improved if specific information in relation to visitors to the event in question is readily available.

5.2 Foreign exchange earnings from international visitor spending

Combining the visitor night information with the expenditure data provides an estimate of the foreign exchange earnings arising from the visitors attracted to the event under investigation. Note that 'competitors' expenses', such as *ad hoc* training fees or the cost of specialist medical advice procured while in Hong Kong, should also be included.

In addition to the tabulation of total visitor foreign exchange earnings, appropriate multipliers can be applied to each spending category to determine the indirect and the induced impact on Hong Kong economic activity arising from the sports event. Consequently, the direct plus the indirect effect – as well as the total direct, indirect and induced impact – of the event can be estimated.

Values for the relevant multipliers have been provided in the calculation worksheet, as shown in Table 5.3. These have been calculated using the same methodology as that in sub-section 4.2. The interpretations of 'direct', 'indirect' and 'induced' impact are the same as that used earlier in section 4 and defined in sub-section 3.3.

Table 5.3 Calculation Worksheet for International Visitor Impact

Country	Hotels (4)x(5)	Meals (4)x(6)	Domestic travel (4)x(7)	Retail spending (4)x(8)	Misc. (4)x(9)	Competitors' expenses [related to (1)]	TOTAL
China							
Taiwan							
North Asia							
S&SE Asia							
Americas							
Australasia							
Other							
TOTAL visitor foreign exchange (A)							
Multiplier I	1.265	1.448	1.219	1.061	1.339	1.199	
Direct + indirect impact (A)x (I)							
Multiplier II	1.368	1.534	1.356	1.133	1.473	1.303	
Direct + indirect + induced impact (A)x(II)							

5.2.1 Other foreign exchange earnings

In addition to the total visitor foreign exchange estimated above, other receipts accruing to the 'event' from outside HK (e.g. sponsorship, television, advertising), should also be noted. It should be remembered, however, that only receipts attributable to the 'event' should be captured here. Thus, for example, standard sponsorship funding of the national body organising the 'event' should not be included – unless it is directly associated with, or tied to, the 'event' in question.

6 SPORT AND HEALTH: AN ASSESSMENT

6.1 Participation and health

Numerous studies have established a positive relationship between physical activity and health. A comprehensive literature review conducted by researchers at the University of Alberta indicated that more than 1500 scientific studies published since 1990 have studied the link between physical activity and health[11]. The evidence with respect to cardiovascular disease, diabetes and high blood pressure and cholesterol is widely acknowledged. More evidence is coming to light on other health problems – including breast and bowel cancer, arthritis, osteoporosis and mental health.

A recent report from Australia estimates that for every 1% of the Australian population that becomes sufficiently active each year, 122 deaths from coronary heart disease, non-insulin dependent diabetes and colon cancer would be avoided[12]. In a 1993 BERL study of the economic impact of sport in New Zealand, it was shown that the 1994 mortality from coronary heart disease, colon cancer and diabetes would be reduced by about 15% to 22% if the whole adult population of New Zealand became physically active[13]. Avoiding deaths such as these reduces health care costs and increases these people's contributions to the national economy.

The derived benefits are not generated solely from strenuous physical activity. In 1995, a panel of experts, convened by the United States Centers for Disease Control and Prevention and the American College of Sports Medicine, recommended 30 minutes of moderate-intensity exercise each day to achieve the health benefits of physical activity[14]. This benchmark has been adopted by the National Heart Foundation of Australia and the Department of Health in Britain.

Increased participation in sport and physical recreation can help to reduce health care costs to both individuals and society by improving health and reducing disease. Total health care costs do not relate solely to the *direct cost* of medical care. There are two other areas that generate additional costs to individuals and the economy. Firstly, *direct non-medical costs* represent those that are incurred in addition to the medical problem, including expenditure on transport, dietary requirements, the financial impact on family members and workplace rehabilitation programmes. Secondly, *indirect costs* are those

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11 *"Active Living Enhances Health"*, Canadian Fitness and Lifestyle Research Institute, Ottawa, 1995.

12 Stephenson, J., Bauman, A., Armstrong, T., Smith, B., & Bellow, B., *"The Costs of Illness Attributable to Physical Inactivity in Australia,"* a report prepared for the Commonwealth Department of Health and Aged Care and Australian Sports Commission, 2000.

13 *"The Economic Impact of Sport in New Zealand"*. BERL, 1993.

14 Pate, R., Pratt, M., & Blair, S., *"Physical Activity and Public Health: A Recommendation for the Centres for Disease Control and Prevention and the American College of Sports Medicine,"* Journal of the American Medical Association, 273, 402-7, 1995.

that are incurred from absenteeism and losses of productivity due to a person not being able to perform at 100 percent because of a medical problem.

A recent report has investigated the different levels of *direct cost* of medical care for physically 'active' and 'inactive' persons in Hong Kong[15]. The researchers found that medical costs excluding health insurance were about 36% higher for inactive persons compared to active persons ($347 compared to $254 per month). Active persons showed better results than inactive persons in terms of: (a) number of hospital visits; (b) length of hospital stay; (c) sick leave days; (d) number of doctor visits; (e) medical costs per person; (f) medications per person; and (g) health care insurance over a one-month period. Although the authors acknowledged that more research is required to detail the linkage between sport and health care costs, they stated that it is "logical that participating more actively in sport can help to minimise the health care expenditure due to achieving good health level. Such details will certainly provide us with valuable information for re-arrangement of health and sport spending in the future".

Other studies have taken a 'modelling' approach to the health costs of physical leisure. A survey of health costs from inactivity in the state of New York by the Centers for Disease Control and Prevention found that 59% of adults in New York were inactive based on their definition. The authors estimated that the total cost of this inactivity was over US$3bn with most of this cost being borne by taxpayers and employers[16]. The Australian Sports Commission has estimated that if an additional 10% of the adult population in Australia regularly participated in 'moderate and effective' exercise, then AU$600m would be saved from the Government's health budget each year[17]. In a similar study, BERL estimated that in New Zealand savings in terms of reduced health expenditure, additional years of life gained and decreased incapacity could yield savings of NZ$163m per year if policies managed to get all New Zealanders participating in active leisure[18].

The effects measured on direct health expenditure in Hong Kong reported above indicate that on average, health expenditure is $4,164 per annum for inactive people, and $3,048 per annum for active people. If further research shows this to be a causal relationship, then an inactive person who became active would reduce their expenditure from $4,164 to $3,048 per annum, or by $1,116 per annum. The average spending on sport and active recreation is approximately $3,450 per head per annum which is considerably larger than the average health cost savings. However, the incidence of this

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15 Louie, L., & Hui, S., *"A Study between Sport Participation and Individual Health Care Expenditure on Hong Kong Adults,"* Research Centre for Physical Recreation and Wellness, Hong Kong Baptist University.

16 *"Physical Inactivity in New York State. An Economic Cost Analysis,"* Health Management Associates. Prepared for the New York State Physical Activity Coalition, 1999.

17 Australian Sport Commission, 1998.

18 *"The Economic Impact of Sport in New Zealand,"* BERL, 1993.

spending is particularly high, and presumably the quantity spent is also high in the 25 to 44 age groups. It is therefore likely that many people can participate in active recreation at annual costs very substantially less than this average figure, and their health cost savings could well be greater than their spending on active participation.

From a national point of view, an increase in the present participation rate of about 50% (2.82m people) to 55% (3.1m people) would shift the order of 280,000 persons (aged 15 years and over) from 'inactive' to 'active'. An average saving of $1,116 per annum would lead to total savings on health spending by these people of approximately $312.5 million per annum.

Information from further research into this relationship, and preferably also the indirect benefits of improved health will be useful in targeting groups who will benefit most from increased active participation.

6.2 Participation and the labour force

Sport and recreation is widely acknowledged to have a positive impact upon motivation and productivity in the workplace. This relationship suggests that the level of employee, business, and aggregate economic output (GDP) can be increased through participation in sport and active recreational activities. Also, a new wave of thinking suggests a linkage between the sport and recreation and the development of 'human capital'. That is, if the workforce is healthier through active participation in sport and leisure, they will be able to absorb more knowledge, and thereby improve productivity through an increase in the capacity of the labour force. Absenteeism from work affects productivity at the business and thus, aggregate national economic level. There are many case studies supporting the link between increasing sport and recreation and reduced absenteeism. Also, many of these studies have highlighted a relationship between the provision of fitness facilities or programmes and the lowering of employee turnover rates.

More comprehensive studies, such as a household survey in the UK, have observed the same positive link between sport and recreation and reduced absenteeism[19]. Similarly, a Canadian National Workplace Survey in 1992 found that over 60% of companies with fitness programmes realised improved productivity, reduced absenteeism, reduced staff turnover and fewer accidents. Another study in Canada estimated that a 25% increase in the aggregate level of physical activity participation would increase labour productivity at the national level by between 0.25% and 1.5%.

Nonetheless, most studies in this field have been case studies at the individual business or organisational level. The following tables list the benefits experienced by some

[19] Gratton, C., & Tice, A., *"Leisure Participation, Lifestyle and Health,"* Government and the Economics of Sport, Longman, Essex, 1998.

organisations after increasing the level of physical activity of their employees. Table 6.1 lists the effects measured on the levels of absenteeism:

Table 6.1 Impact on Absenteeism from Corporate Exercise Programmes

Absenteeism Effects from Corporate Exercise Programmes

Company/Survey	Program Type	Absenteeism
Survey of Top 500 Companies	Fitness	Reduced absenteeism over 5 years
Blackmores Australia	Gym	40% reduced absenteeism
Johnson & Johnson	Fitness in factories	26% reduced absence than control
Mesa Corporation	Health promotion	After 5 years absences down by 50%
DuPont Corporation	Health & fitness programmes	14% less sick days than control
Signature Corporation	Fitness	Less likely to be absent
UK Household Survey	Active sport	33-50% reduced absenteeism
Westpac Bank	Fitness	29% reduced absenteeism
Cyanamaid	Fitness	1.8 days less absence than others, saving on 50 participants 4,500p.a.

Source : Sport England (1999)

It would seem that most businesses could expect to reduce absenteeism by around 25% by introducing an active fitness programme. The actual level of absenteeism at present and the cost of the fitness programme will dictate the commercial economics of such programmes.

On a broader level of labour productivity, a range of businesses recorded increases in productivity as follows:

Table 6.2 Impact on Productivity from Corporate Exercise Programmes

Productivity Effects from Corporate Exercise Programmes

Company	Program Type	Productivity Improvements
Union Pacific Railroad	Exercise	80% more productive 75% more concentration
MDS Nordon	Wellness program	Boosted productivity & satisfaction
Johnson & Johnson	Fitness	Positive attitude
NASA	Exercise Control	Stamina, endurance & decision-making 12.5% higher than non-participants
Canadian Life Assurance	Fitness	Participants 7% more productive Non-participants 4.3% more productive
Signature Corporation	Fitness for clerical/operations	8% more productive Non-members negative productivity Frequency of exercise correlated with productivity and absenteeism
Worksafe Australia	Lunchtime exercise	Mood,productivity, cognitive functioning, reactive time, sensory motor perception, compared to control

Source : Tasman Asia Pacific, Ernst & Young (1998)

Some more specific measurements of the return on investment in fitness programmes have been made by two Canadian companies, which have been published.

- **Canadian Life Assurance:** The Company estimates a return of $3.40 per corporate dollar invested in their fitness programme. The returns are due to reduced turnover, productivity gains and decreased medical insurance claims. The Company also experienced an 8% lower employee turnover rate for participants compared to non-participants.

- **BC Hydro:** A cost/benefit study on the BC hydro sponsored fitness program showed a return of $2.74 per dollar spent. The benefits included $1.2 million in reduced sick leave costs per annum, $97,000 in reduced accident costs per annum, a $35,000 Workers Compensation Board rate reduction and productivity gains of $919,000. The study noted gains in employee retention and corporate image. Employee turnover among the fitness programme participants was 3.5% compared to a company average of 10.3%.

There can be significant commercial and economic benefits from corporate fitness programmes. The expanding number of exercise centres and gymnasia throughout Hong Kong, including the central business district, provides opportunities for corporate organisations to initiate such employee fitness programmes.

6.3 Active transportation

Research has found that moderate physical activity such as walking and cycling helps to reduce the risk of a range of medical conditions. Such 'active transportation' modes are easily integrated into daily life by combining it with travel time. Thus, in addition to the health benefits of physical activity, active transportation can help alleviate some of the negative effects of intense motorization including traffic congestion, pollution, and road accidents.

Because active transportation helps reduce the amount of vehicle trips and thus vehicle emissions, it can contribute to pollution control especially with respect to the reduction of greenhouse gas emissions responsible for global warming. For example, in Canada, it has been estimated that if the total working age population using active transportation modes increased from 8% to 10% (the average for Halifax and Ottawa-Hull), then the total number of vehicle trips would drop by about 100 million per annum[20].

Moreover, the reduction in vehicle emissions may have positive effects on public health due to the link between emissions and respiratory infections in children and the elderly. There is also evidence that active transportation modes exhibit lower death rates relative to automobile travel. For example, in America, the death rate was 16.16 per 100,000 for motor vehicles, compared to 2.26 for pedestrians and 0.30 for pedal cyclists[21]. Thus, a shift to more active transportation would be likely to reduce the socio-economic costs associated with death and injury from motor vehicle accidents.

An increase in active transportation may also lead to reductions in public expenditure on roading infrastructure and maintenance costs for private cars and public transportation, given that pedestrian and cycle paths can 'carry' a greater volume of people. In some cases, the provision and promotion of public walkways and cycle routes has been used to stimulate economic development in several ways including downtown re-vitalisation, rural and urban trails, and job creation through tourism and in industries, which service active transportation modes like cycling[22].

In Hong Kong however, the very efficient public transport system, the high density of population, and the tropical climate may mitigate against encouraging increased pedestrian and pedal cycle transport for commuters to their workplace. Walking for recreation however is already relatively popular, and further facilities for walking will undoubtedly increase active participation, and thus indirect economic benefit.

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20 *"Making the Case for Active Transportation"*, www.goforgreen.ca.

21 The National Center for Injury Prevention (reported in *"Making the Case for Active Transportation"*).

22 *"Active Transportation Case Studies"*, www.goforgreen.ca/active_transportation/case_studies.htm.

7 CONCLUSION

This research project has employed a range of approaches to estimate components of the economic impact of sport on the economy of Hong Kong. The conclusions are:

1. The direct economic impact of sport in Hong Kong is a contribution of $21bn to GDP per year. This is just over 1.5% of GDP, and reflects over 61,000 jobs, or nearly 2% of employment in Hong Kong.

2. The total economic impact of sport in Hong Kong including the direct, the indirect and the induced economic effects is estimated at over $26bn per year contribution to GDP, which is 2.1% of GDP. Thus the total contribution to employment is 80,000 jobs or 2.5% of total employment.

3. One of the core drivers of the economic impact is the spending by Hong Kong people participating in sport. Our investigations of the changing profile of participation in Hong Kong in recent years leads us to the conclusion that participation (and thus economic impact) will continue to grow because:

   i. Younger age groups have higher participation rates and have developed stronger habits of participation which are likely to endure;

   ii. The move of Hong Kong from a production-based to a profession-based economy has been accompanied by increasing participation in sport by people in the professions. This will continue to happen;

   iii. Short-term factors reducing sport participation in the two years 1999 and 2000 are not expected to continue;

   iv. The increasing level of income and standard of living in Hong Kong will support higher levels of participation than the present levels.

4. The indirect benefits available to Hong Kong from sport include reducing health care costs and increasing labour productivity. More accurate assessment of the extent of these benefits will require further research.

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