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**Hamilton
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**The Regional Economic Impact of the 2009 New Zealand
National Masters Hockey Tournament**

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Abstract

This paper analyses the direct and subsequent flow-on expenditure resulting from the week-long National Masters Hockey Tournament held in Hamilton, New Zealand in March 2009. During the tournament, information was collected on the expenditure from a sample of participating players and officials and from the host association, Waikato Hockey. The information was averaged over all participants and used in a regional economic model. The economic impact of the 2009 tournament was also compared to the outcome for the Hamilton tournament held previously in 2003. Total direct expenditure in the Waikato region from the 2009 tournament was approximately \$2.5 million compared to \$1.2 million in 2003. The 2009 expenditure led subsequently to an extra \$1.13 million of value-added to the regional economy mainly in the hospitality and accommodation sectors.

Keywords

input-output
regional economic impact
masters sport
hockey
New Zealand

JEL Classification

C67, R11

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1. Introduction

The National Masters Tournament, held annually, is the largest competition arranged by Hockey New Zealand. This paper analyses the direct and subsequent flow-on expenditure resulting from the tournament held in Hamilton, New Zealand, from March 1 to March 7, 2009. Competitions - which involved some 161 matches - were held at the Gallagher Hockey Centre and at St Pauls Collegiate School's ABN Amro Craigs Hockey Centre. Table 1 shows that 57 teams from across New Zealand participated comprising 40 percent male and 60 percent female competitors. Just five teams were based in the Waikato with a further two combined with Waikato. The majority of teams therefore had to travel and stay in Hamilton for the tournament.

Table 1: 2009 New Zealand National Masters Hockey Tournament
Teams by Association and Gender

Association	Number of Teams	
	Men	Women
Auckland	3	5
Canterbury	4	3
Counties Manukau	0	3
Hawkes Bay	1	1
Kaimai	0	1
Manawatu /Wanganui	1	1
Nelson	2	2
North Harbour	4	5
Northland	2	3
Northland/Waikato	0	1
Poverty Bay	1	0
Southern	0	1
Tauranga/BOP	1	3
Waikato	3	2
Wellington	2	2
Totals	24	33

Despite the connotations of Masters sporting events being highly social occasions, this event was a serious tournament. National teams were selected from tournament performances and there were trophies and medals to be won. Host associations can earn significant income if they provide appropriate facilities and encourage participants to socialise after games. The social side becomes more prominent towards the end of the week, particularly where teams are not eligible to play in the finals.

With New Zealand's population aging, and with approximately one in eight New Zealanders aged 65 and older, masters-aged sporting events are becoming more popular. Competitors often have relatively high discretionary income allowing them to participate in sporting events. Masters events are an additional way to keep fit, keep in touch with friends and a way of travelling around one's country and internationally.

The main purpose of this report is to identify the economic impact of the event on Hamilton, the host city, and on the surrounding districts. We shall call this area 'the core Waikato economy'. It includes Hamilton City, the Waikato District Council region (including the towns of Huntly and Ngaruawahia) and the Waipa District Council region (including the towns of Cambridge and Te Awamutu).

2. Methodology

There are a several ways of conducting an economic analysis of sporting events. These approaches include examining the direct expenditure caused by the event, using or constructing multipliers, using a social accounting matrix (Wagner 1997), constructing satellite tourism accounts, which 're-organises the national system of accounts to identify the contribution of tourism to a state or national economy' (Stynes n.d), and input-output modelling (Miller and Blair 2009). Computable general equilibrium (CGE) models, which assess economy-wide impacts of a change in expenditure on an economy (Dwyer *et al.* 2005), is another approach. 'The CGE model treats the economy as an integrated system - one where markets impact on each other - as resources are redistributed to a particular market from other markets' (Dwyer *et al.* 2006, p. 60).

Input-output (I/O) modelling was chosen for this investigation. I/O 'analysis begins with an estimate of the injection of spending into the economy. This would come from event expenditure itself and would also include generated visitor expenditure and the injected expenditure of event organisers and sponsors' (Dwyer *et al.* 2006, p.59). For this study it was more appropriate to use a regional input-output model rather than a model that reflects changes at a national level. As Miller and Blair explain, a regional focus will better reflect the structure of the regional economy rather than use the average of the national economy and it will also be able to reflect 'transactions that cross the region's borders' (Miller and Blair 2009, p69) 'This technique attempts to show the flow of economic transactions through the economy within a given time span, usually a year. It is a further refinement of the basic multiplier processes in that it seeks to show the inter-relationship between defined sectors of the economic system' Ryan (2003, p.180).

The I/O model used in this report was the 112-sector model of the Core Waikato economy constructed by Warren Hughes (from the Economics Department, University of Waikato) using data from Statistics New Zealand. Expenditure spent directly by the hosts (Waikato Hockey Association) and expenditure from the participants to the tournament will be used in the model. Because the 112-sector economic impact model was created for the Core Waikato Economy, outcomes from our analysis may not correspond with other New Zealand regions.

The economic impact from the tournament arose from two sources. First, there was the expenditure by the Waikato Hockey Association (WHA) as the tournament organisers. This expenditure included equipment hire, printing brochures for tournament participants, security services, advertising, accommodation for officials and general entertainment expenses. Income for this expenditure came from the tournament participants (for example, turf fees), sponsorship and income from food and drink sales.

The second source of economic impact on the Waikato economy came from the expenditure by tournament participants and supporters during their stay in the region. If the tournament had not been held in the Waikato Region, this expenditure would not have occurred; thus, the expenditure represents a net gain for local businesses. Tournament participants completed a questionnaire to indicate how much they spent during the tournament on accommodation, transport, food and drink and entertainment. Four survey forms were given to each team with managers encouraged to ensure that three-to-four players completed the survey. To ensure a higher participation, survey forms were handed out on the second to last day of the tournament when many semi-finals were being played and hence when more people were at the grounds watching the games.

3. Results and Discussion

The tournament programme lists 741 participants. This number, however, is likely to be an under-estimate, as some of the teams may not have listed all their players by the printing date of the programme. This is clear from the calculation whereby dividing 741 players by 57 teams gives 13 players per team, whereas some teams had 16 players plus a coach and a manager. Of the 741 players and officials, 12 percent, or 86 people provided survey responses regarding their expenditure.

Table 2 lists the number of respondents by region. It shows ‘over-representation’ from Canterbury (23 percent), and Northland (15 percent), and an ‘under-representation’ from Wellington and Waikato, with few, if any, respondents from some regions. As 93 percent of the respondents were non-Waikato players, we have expenditure information mainly from participants from outside the Waikato region.

The gender and age distribution of the sample shown in Table 3 indicates that 62 percent of the respondents were women and 38 percent were men. This outcome is similar to the gender distribution of teams shown in Table 1.

Table 2: 2009 New Zealand National Masters Hockey Tournament
Questionnaire Respondents by Region

Region	Number from Region	Percentages of Region	Proportion of All Players by Region
Auckland	12	14	14
Canterbury	20	23	12
Counties-Manukau	2	2	5
Manawatu	3	3	4
Nelson	6	7	7
North Harbour	14	16	16
Northland	13	15	10
Southern	1	1	2
Tauranga	7	8	8
Wellington	2	2	7
Waikato	6	7	11
Other	0	0	5
Total	86	100	100

Table 3: 2009 New Zealand National Masters Hockey Tournament
Number of Questionnaire Respondents by Age

Age Distribution	Number		
	Female	Male	Total
35 - 39 years of age	11	0	11
40 - 44	12	6	18
45 - 49	13	8	21
50 - 55	13	10	23
55+	4	9	13
Totals	53	33	86

Figure 1 shows the distribution of respondents against estimated total participation. It shows that there was a greater response from players in the older age groups for both women and men. Officials at the tournament were also invited to take part in the questionnaire but none returned a completed questionnaire.

Figure 1: 2009 New Zealand National Masters Hockey Tournament
Proportion of Female and Male Respondents

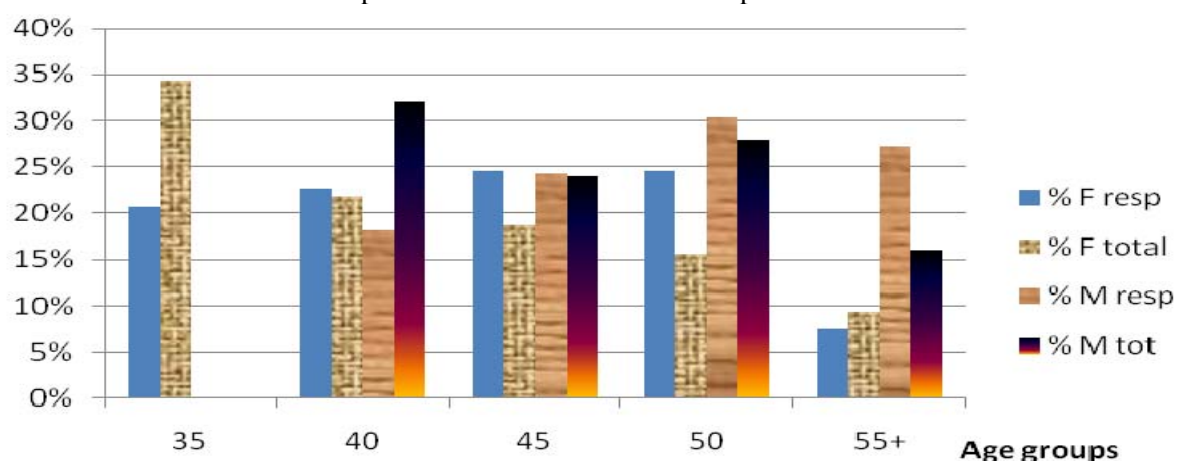


Table 4 lists the expenditure incurred by the Waikato Hockey Association in hosting the tournament. Total direct expenditure was \$93,146, with equipment hireage (including two marquees) and supplies for sale to participants being the largest items. Other expenses included programme printing, electricity and turf fees. Turf fees have been treated as an expenditure item as participants paid them to the Waikato Hockey Association for hiring the Gallagher Hockey Centre and the ABN Amro Craigs Hockey Centre at St Pauls Collegiate school.

Table 4: 2009 New Zealand National Masters Hockey Tournament
Expenditure by Waikato Hockey on Setup and Operation Costs

Expense	Total Spent
Hireage	\$31,321
Entertainment	\$1,350
Medical Expenses	\$1,125
Food and Drink Expenses	\$20,993
Security	\$2,161
Tournament Souvenirs	\$15,494
Tournament Expenses	\$20,702
Total	\$93,146

Source: Waikato Hockey Association.

The total economic impact of the Hockey Associations' expenditure on the core Waikato economy as estimated from the 112-sector economic model is shown in Table 5. The revenue multiplier of 2.11 implies that every dollar spent by tournament organisers created another \$1.11 of revenue in the regional economy.

Table 5: 2009 New Zealand National Masters Hockey Tournament
Impact of Tournament Organisational Expenditure on the Core Waikato Economy

Expenditure Round	Revenue (\$ Millions)	Net Household Income (\$ Millions)	Value Added or GRP (\$ Millions)	Employment Persons
Direct or First Round	0.09	0.02	0.04	0.63
Flow-on Rounds	0.10	0.01	0.04	0.43
Total Impact on Core Waikato	0.19	0.03	0.08	1.06
Revenue Multiplier	2.11	1.50	2.00	1.68

Net Household Income shows the amount of the original expenditure that is gained by households as income. In terms of this investigation, the benefit to the regional economy is \$30,000 in additional net household income. Value added is the total value of goods and services created by the regional workforce. The total impact on Gross Regional Product (GRP) is \$80,000 a multiplier of 0.08/0.04 or 2.00. This suggests that for every dollar of GRP created a further \$1.00 in the regional Waikato economy.

Direct expenditure accounted for an equivalent of 0.63 full-time equivalent (FTE) jobs in the Core Waikato economy in 2009 spread over several sectors. When subsequent expenditure is taken in consideration, another 0.43 FTE jobs are created. The total impact on the Waikato economy in employment is 1.06 FTE jobs, although all activity was realised in the week of the tournament. The employment multiplier is then derived as 1.06/0.63 or 1.68.

The second source of economic data is from individual expenditure. Figures 2 and 3 show the range of this expenditure (\$50 to \$400 for the week) on food, bars and restaurants in addition to spending at the tournament venues. The average expenditure in each category was multiplied by the total estimated participants (741 people) to gain an estimated level of total expenditure. This is summarised by category in Table 6.

Figure 2: Range of Expenditure on Food
By Individual Respondent, Dollars

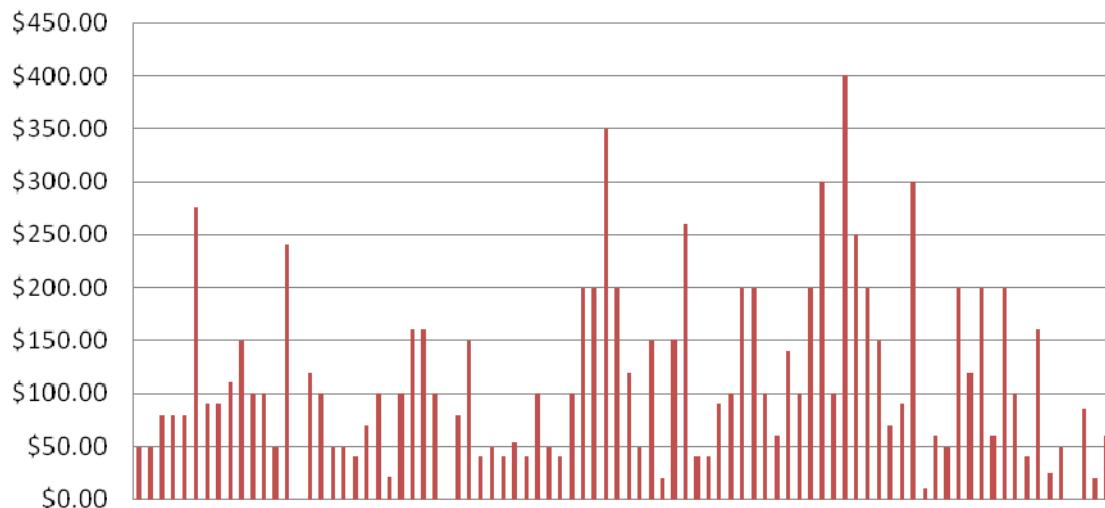


Figure 3: Range of Expenditure in Bars and Restaurants
By Individual Respondent, Dollars

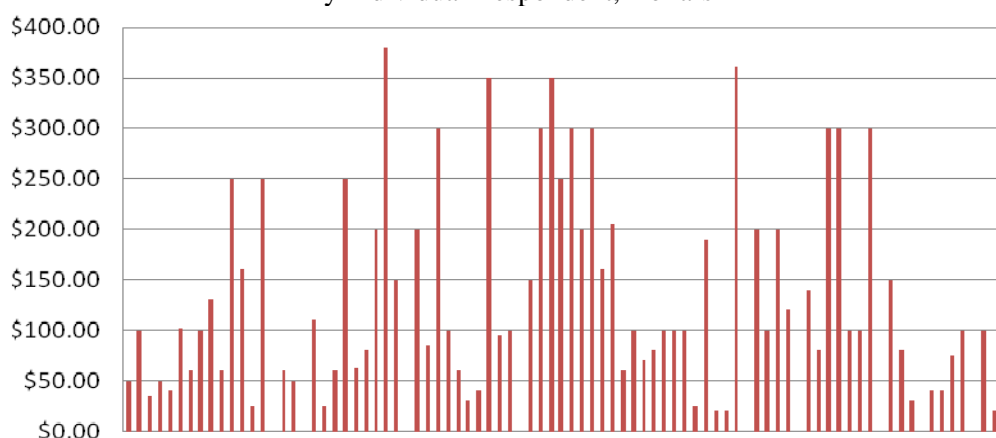


Table 6: 2009 New Zealand National Masters Hockey Tournament
Estimated Aggregate Expenditures by Participants During Tournament

Expenditure Category	Sub-Category Expenditure (Dollars)	Total Expenditure (Dollars)
General Retail	177,937	
Equipment	84,289	
Food and Drink	164,807	
Clothing	42,762	
Total Retail Trade		469,795
Accommodation		297,110
Bars and Restaurants		98,308
Taxis and Tours		71,252
Movies		21,912
Other Sport and Recreation (golf, gym, etc.)		32,326
Personal Services (hair, massage, etc.)		58,015
Total Expenditure by Participants		\$1,048,718

The direct or first round expenditures by hockey tournament participants also have flow-on effects that can be estimated from the 112-sector economic model of the Core Waikato economy. The direct expenditure from the participants is estimated to be around \$1.05 million.

The estimated expenditure by tournament participants of \$98,000 in bars and restaurants in the Core Waikato economy require supplies from sectors such as dairy processing, meat processing, beer and wine and similar food processing or manufacturing sectors in this economy. The food and drink expenditure was derived from food and drink purchased at the event as well as food brought not purchased from a restaurant or bar. General retail is derived from expenditure on retail goods of \$129,000 and the category named other consists of \$49,000 of expenditure on undefined items that were purchased in the Waikato region during the event.

In some cases, imports from other economies, such as Auckland, Bay of Plenty, Hawkes Bay will be required (for example, wine and beer from Hawkes Bay and Auckland) as the hosting region does not produce some items. The economic model takes this into account in estimating flow-on employment and other impact measures. Table 7 shows the economic impacts of the participants spending on the Core Waikato economy.

Table 7: 2009 New Zealand National Masters Hockey Tournament
Impact from Participant Expenditure on Core Waikato Economy

Expenditure Round	Revenue (\$ millions)	Net Household Income (\$ millions)	Value Added or GRP (\$ millions)	Employment (Persons)
Direct or First Round	1.05	0.34	0.53	15
Flow-on Rounds	1.26	0.20	0.52	6
Total Impact on Core Waikato	2.31	0.54	1.05	21
Multiplier	2.20	1.59	1.98	1.40

Total direct expenditure by tournament participants was estimated to be \$1.05 million. This is the direct or first round revenue impact of expenditure by tournament participants and this expenditure gives rise to \$1.26 million of flow-on revenue in other sectors of the Waikato economy. The overall total revenue impact is \$2.31 million for the Core Waikato economy.

The direct expenditure of \$1.05 million creates or maintains 15 FTE jobs in the Core Waikato economy in sectors that are affected by tourists to the region such as Retail Trade, Accommodation, and Tourism Activities. The flow-on effect from the direct expenditure creates or maintains 6 flow-on FTE jobs in other sectors making for a total FTE jobs impact of 21. For the 2009 tournament, the total impact from the hosts and participants on the Core Waikato economy is summarised in Table 8.

Table 8: 2009 New Zealand National Masters Hockey Tournament
Total Impact on Core Waikato Economy

Expenditure Source	Revenue (\$ millions)	Net Household Income (\$ millions)	Value Added or GRP (\$ millions)	Employment (Persons)
Organisational Expenditure	0.19	0.03	0.08	1
Participant Expenditure	2.31	0.54	1.05	21
Total Impact on Core Waikato	2.50	0.57	1.13	22

As estimated by the 112-sector economy model, the 2009 Hockey Tournament created a revenue impact of approximately \$2.5 million, net household income of \$570,000 and \$1,130,000 of gross regional product and 22 full-time full-year jobs in the Core Waikato economy. Although these and the impacts in Table 7 were realized over the course of the tournament, they help to sustain business activity and jobs in the Core Waikato economy over a full year.

An investigation on the same tournament held in Hamilton was carried out in 2003, looking at the expenditure by participants in 2003 (Daldy, B.M. 2003). The 2009 questionnaire was based on the 2003 questionnaire so comparisons can be made between the two investigations. The two investigations gained similar response rates; the 2003 investigation produced a 12% response rate and the 2009 investigation had 12% response rate; the number of tournament participants; and a similar economic impact model was used to analyse the questionnaire data, although the 2003 investigation was only looking at Hamilton city.

Table 9 is the overall impact of the 2003 National Masters Hockey Tournament on Hamilton City, using an earlier 114-sector economic model of the Waikato regional economy. Figures 4 and 5 compare of the 2003 tournament and the 2009 tournament, in 2009 dollars.

Table 9: 2003 New Zealand National Masters Hockey Tournament
2003 Economic Impacts of Waikato National Masters Hockey Tournament

	Revenue (\$ millions)	Income Effects (\$ millions)	Value Added (GRP) (\$ millions)	Employment (FTEs)
Direct Expenditure	0.70	0.15	0.31	8.38
Flow-on	0.52	0.10	0.24	2.75
Total	1.22	0.25	0.55	11.13

Figure 4: New Zealand National Masters Hockey Tournament
Comparison of 2003 and 2009 Tournaments

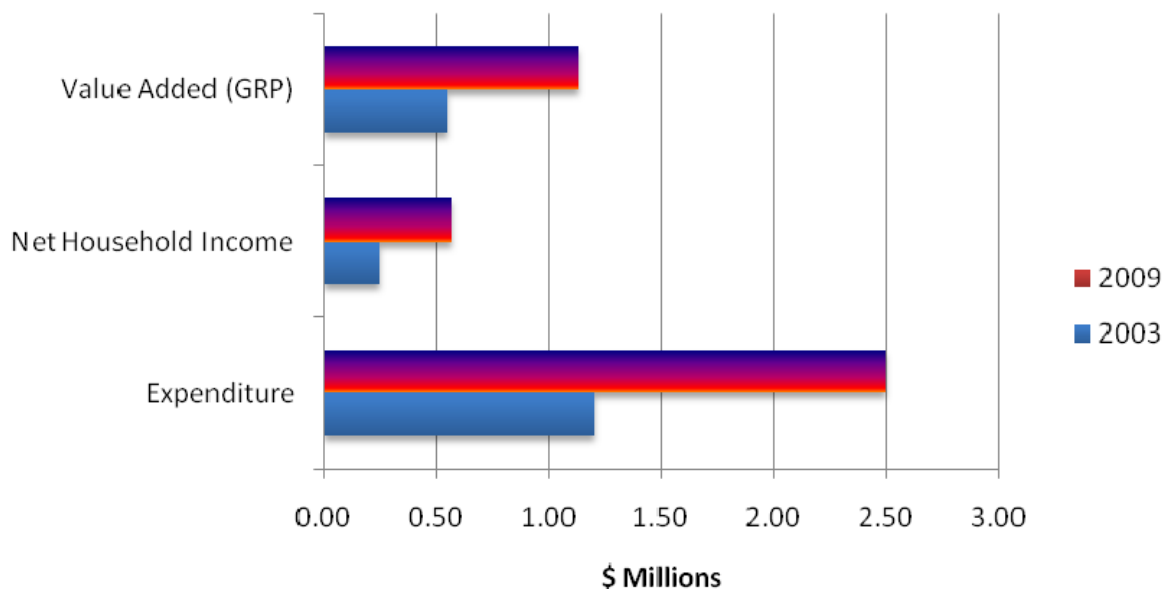
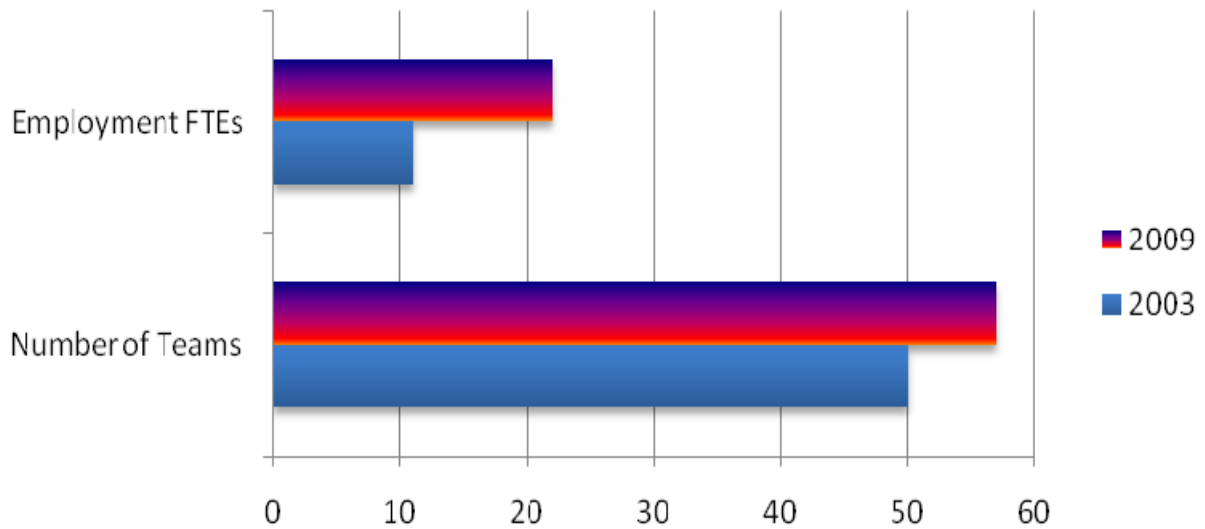


Figure 5: New Zealand National Masters Hockey Tournament
Comparison of 2003 and 2009 Tournaments



The 2003 tournament information has been converted from 2003 dollars into 2009 dollars using the Reserve Bank of New Zealand’s consumer price index inflation calculator. The 2003 tournament helped generate an estimated \$1.22 million of expenditure in the Waikato region, over the tournament week. The tournament created or maintained 11.13 FTE jobs over the course of one year. From this information, it is apparent that the 2009 tournament participants had a larger level of expenditure compared to the 2003 tournament participants. This outcome is related partly to more teams in 2009. Some limitations, however, have been identified from the results and discussion. There was, for example, an under-estimate of expenditure on food and drink as several survey respondents placed low or zero dollars on the purchase of food and drink over the week.

4. Conclusions

With an aging population, events such as the New Zealand National Masters Hockey Tournament are becoming a popular way of keeping fit, keeping in touch with friends and as a way of travelling nationally and internationally. The direct Waikato regional expenditure from hosting the 2009 National Masters Hockey Tournament was \$1.14 million. The total economic impact - direct and indirect - on the core Waikato region from the tournament was around \$2.5 million. The net value added to the region was therefore \$1.13 million. Compared to the 2003 tournament, and taking inflation into account, the 2009 tournament performed better than in terms of regional revenue and the number of full time equivalent jobs created. This information is, ultimately, useful for tournament planners, sponsors and regional authorities seeking to promote their area.

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