

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

ASSESSING THE ECONOMIC JUSTIFICATION FOR GOVERNMENT INVOLVEMENT IN SPORTS FACILITIES AND EVENTS IN NEW ZEALAND

A thesis presented in fulfilment of the requirements for the degree of

Doctor of Philosophy

in

Economics

at Massey University, Manawatu Campus,
New Zealand

Samuel Andrew Richardson

2010

ABSTRACT

The major objective of this research is to critically examine the justification for government involvement in the construction of sports facilities and the hosting of major sport events in a New Zealand context. There has been an increased focus on the appropriateness of the involvement of government (at all levels) in such projects. Almost all sports-related projects, including facility construction projects or the hosting of events, have been justified by ex-ante economic impact studies that predict the creation of jobs and income generation as outcomes that accrue to host economies.

The research within this thesis seeks to answer several questions that contribute to the overall research objective. Firstly, a case study example of Wellington's Westpac Stadium is analysed with a view to examining whether local and regional government involvement in the construction of the stadium was justified on economic impact grounds. The research then focuses on evaluating the ex-post economic impacts of sports projects in a panel context across New Zealand. Realised outcomes of facility construction and the hosting of internationally oriented events are estimated through the development of models for territorial local authority (TLA) sector-specific employment and real GDP.

The research then considers a potential explanation for why governments continue to subsidise events and facilities, why ex-ante projections of economic impacts often fail to materialise, and why some ex-post analyses have found negative realised outcomes. A game theory model is developed in which cities compete to host an event, with a subsidy as part of the hosting arrangement. The final analytical contribution of this research involves the estimation of consumer surplus benefits from a demand model for representative rugby in Wanganui. The consumer surplus benefits are then compared to the cost of local council involvement in the upgrade of the playing facility to evaluate whether the council's involvement was economically justified.

Findings of the research suggest that the economic impact argument for government involvement in the construction of sports facilities and the hosting of internationally oriented events is generally not justified, and that the measurement of benefits are needed to evaluate the desirability of government intervention in such projects.

DEDICATION

I dedicate this thesis to my wife, Laura and my children, Andy, Evie and Holly, who matter more to me than they will ever know.

This thesis is also dedicated to the loving memory of my late grandfather, Ross Richardson, and my late grandmother, Anne Andrews.

ACKNOWLEDGEMENTS

Acknowledgement is unquestionably due to Professors Allan Rae and Anton Meister for their supervisory skills. It was under their guidance that this thesis emerged and evolved. I thank you both for your willingness to venture into the unknown with me, and for your keen attention to detail. Your contribution has been invaluable.

I must also thank my present Head of School, Professor Martin Young, who freed me up from a teaching semester in 2010 and for a week in August 2010 to enable me to complete the write-up of this research. This time has been of enormous value.

Special thanks is also due to my colleague and good friend Dr Kevin Heagney, whose perseverance with me during times when I was not prepared to listen will always be remembered. It is fair to say that without Kevin's persistence, this thesis may well not have materialised. Thank you for your friendship and your unfailing willingness to help.

Acknowledgements must be extended to Professor Hamish Gow, and Drs Christoph Schumacher, Faruk Balli and Hatice Ozer-Balli for their helpful suggestions, support and advice during the writing of this thesis. I must also thank participants at Departmental seminars for their helpful suggestions and support. My sincere appreciation must also go to Katherine Granich for her proof-reading skills from which this thesis has benefitted.

I wish also to thank Garth Barlow and Haig Elgar, past secretary and CEO respectively of the Wanganui Rugby Union, for allowing me access to historical data via the Wanganui Rugby Football Union Annual Reports.

Special thanks must also go to my parents and my grandparents – they have always been a constant source of strength. Finally, a special mention is due to my amazing wife, Laura, and my three beautiful children, Andy, Evie and Holly, the most special people in my world. Your love and support has helped me get to this point. Thank you from the bottom of my heart.

TABLE OF CONTENTS

ABSTRACT	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS.....	v
TABLES.....	ix
FIGURES	xi
1 THESIS INTRODUCTION.....	1
1.1. INTRODUCTION.....	1
1.2. THE NEW ZEALAND SPORTING LANDSCAPE.....	1
1.2.1. <i>Internationally Oriented Events Hosted in New Zealand</i>	2
1.2.2. <i>The Major Events Development Fund</i>	3
1.2.3. <i>Facility Construction in New Zealand</i>	5
1.3. RESEARCH OBJECTIVES AND QUESTIONS	5
1.4. WESTPAC STADIUM: THE IMPACT ON THE WELLINGTON REGIONAL ECONOMY.....	7
1.5. FACILITY CONSTRUCTION AND THE HOSTING OF INTERNATIONAL EVENTS IN NEW ZEALAND: EX-POST IMPACTS ON LOCAL ECONOMIES	8
1.6. THE SUBSIDISATION OF EVENTS AND FACILITIES: A GAME THEORY APPROACH	8
1.7. INTANGIBLE BENEFITS AND THEIR ROLE IN GOVERNMENT FUNDING OF SPORTS FACILITIES: A CASE STUDY OF WANGANUI RUGBY	9
1.8. THE ORGANISATION OF THE THESIS	9
2 LITERATURE REVIEW.....	11
2.1. INTRODUCTION.....	11
2.2. INDEPENDENT RESEARCH INTO ECONOMIC OUTCOMES OF SPORTS FACILITIES AND EVENTS	12
2.2.1. <i>Income Generation</i>	14

2.2.2. <i>Job Creation</i>	16
2.2.3. <i>Earnings</i>	18
2.2.5. <i>Real Estate Values</i>	18
2.2.6. <i>Mega-events</i>	19
2.2.7. <i>Intangibles</i>	22
2.3. EX-ANTE VERSUS EX-POST ANALYSIS OF SPORTS FACILITIES AND EVENTS	25
2.3.1. <i>Economic Impact Analysis</i>	25
2.3.2. <i>Computable General Equilibrium Analysis</i>	30
2.3.3. <i>Ex-Post Econometric Analysis</i>	30
2.4. THE ECONOMIC JUSTIFICATION FOR GOVERNMENT INVOLVEMENT IN SPORTS FACILITIES AND EVENTS: WHAT SHOULD BE CONSIDERED?	32
2.5. SUMMARY	37
3 METHODOLOGY.....	39
3.1. INTRODUCTION.....	39
3.2. CONCEPTUAL FRAMEWORK.....	39
3.3. METHODS ADOPTED: A BRIEF SUMMARY.....	43
3.3.1. <i>Ex-Post Analysis of Economic Impacts</i>	43
3.3.2. <i>Modelling the Strategic Nature of Facility and Event Subsidisation</i>	45
3.3.3. <i>Measuring the Consumers Surplus Benefits of Provincial Rugby Attendance</i>	45
4 WESTPAC STADIUM: THE IMPACT ON THE WELLINGTON REGIONAL ECONOMY	47
4.1. INTRODUCTION.....	47
4.2. FACILITIES: THE INTERNATIONAL EXPERIENCE	48
4.2.1. <i>United States</i>	48
4.2.2. <i>Europe</i>	50
4.2.3. <i>Australia</i>	51
4.3. WESTPAC STADIUM: THE CATALYST FOR CHANGE	52
4.3.1. <i>The First Five Years: An Evaluation</i>	57
4.4. MODELS AND DATA	59
4.4.1. <i>Employment Models</i>	60

4.4.2 Data	63
4.5. RESULTS	66
4.5.1. <i>Facility Construction Effects</i>	67
4.5.2. <i>Post Construction Stadium Activity: The First Five Years</i>	70
4.6. CONCLUSIONS	73
5 FACILITY CONSTRUCTION AND THE HOSTING OF INTERNATIONAL EVENTS IN NEW ZEALAND: EX-POST IMPACTS ON LOCAL ECONOMIES	75
5.1. INTRODUCTION.....	75
5.2. FACILITY DEVELOPMENTS IN NEW ZEALAND.....	76
5.3. THE EVENTS	81
5.4. MODELS AND DATA	85
5.4.1. <i>Facility Construction Models</i>	86
5.4.2. <i>Event Models</i>	89
5.4.3. <i>Data</i>	98
5.5. RESULTS	100
5.5.1. <i>The Effect of Facility Construction on Local Economies</i>	101
5.5.2. <i>The Effect of International Events on Local Economies</i>	112
5.5.3. <i>Events, Facilities and Local Economies: Does Location Matter?</i>	118
5.6. CONCLUSIONS	126
6 THE SUBSIDISATION OF EVENTS AND FACILITIES: A GAME THEORY APPROACH	129
6.1. INTRODUCTION.....	129
6.2. BACKGROUND	130
6.3. LITERATURE REVIEW	131
6.4 THEORETICAL MODEL.....	133
6.5. ESTABLISHING THRESHOLDS FOR SUBSIDISATION.....	136
6.5.1. <i>Identical Cities</i>	137
6.5.2. <i>Large City versus Small City</i>	142
6.5. CONCLUSIONS	146
7 INTANGIBLE BENEFITS AND THEIR ROLE IN LOCAL GOVERNMENT FUNDING OF SPORTS FACILITIES: A CASE STUDY OF WANGANUI RUGBY	149

7.1. INTRODUCTION.....	149
7.2. RUGBY IN WANGANUI: A BRIEF HISTORY.....	150
7.3. A BRIEF HISTORY OF THE NATIONAL PROVINCIAL CHAMPIONSHIP.....	151
7.4. LITERATURE REVIEW.....	152
7.5. MODEL AND DATA.....	154
7.5.1. <i>Data</i>	159
7.6. RESULTS.....	163
7.7. MEASUREMENT OF CONSUMER SURPLUS AS ECONOMIC BENEFITS.....	171
7.8. CONCLUSIONS.....	177
8 CONCLUSION.....	179
8.1. INTRODUCTION.....	179
8.2. MAJOR FINDINGS AND POLICY IMPLICATIONS OF THE RESEARCH.....	179
8.2.1. <i>Major Findings of the Research</i>	179
8.2.2. <i>The Sequential Development of Sports Facilities: How the Research Informs the Framework</i>	182
8.2.3. <i>Policy Implications</i>	184
8.3. CONTRIBUTIONS OF THE RESEARCH.....	185
8.4. LIMITATIONS OF THE RESEARCH.....	186
8.5. SUGGESTIONS FOR FUTURE RESEARCH.....	188
REFERENCES.....	190

TABLES

Table 4.1: Allocation of Components Contracts for Regional Stadium (December 1998)...	54
Table 4.2: Annual Attendance at Westpac Stadium, 2000-2009	56
Table 4.3: Predicted Ex-Ante Impacts Versus Estimated Ex-Post Impacts.....	57
Table 4.4: Estimated Employment Effects on Wellington Region, 2000-2004.....	58
Table 4.5: Variable Definitions and Summary Statistics.....	64
Table 4.6: Unit Root Tests for Stationarity.....	66
Table 4.7: Stadium Construction and Employment – Estimated Parameters.....	68
Table 4.8: Post-Construction Activity and Employment – Estimated Parameters.....	71
Table 5.1: Stadium Construction Details in the North Island, New Zealand, 1997-2009.....	77
Table 5.2: Stadium Construction Details in the South Island, New Zealand 1997-2009.....	79
Table 5.3: Sporting Mega-Events hosted in New Zealand, 1997-2009	82
Table 5.4: Host cities for 1999 FIFA U-17 Soccer World Championships (Men)	83
Table 5.5: Host cities for 2005 British and Irish Lions Tour.....	83
Table 5.6: Host cities for 2008 FIFA U-17 Soccer World Championships (Women)	83
Table 5.7: Economic Impacts of Selected Major New Zealand Sports Events.....	84
Table 5.8: Location-specific dependent and independent variables (<i>x_{it}</i>).....	90
Table 5.9: Facility construction-specific variables (<i>FCON_{it}</i>).....	91
Table 5.10: Location-specific dependent and independent variables (<i>x_{it}</i>).....	96
Table 5.11: Event-specific variables (<i>EVENT_{it}</i>)	97
Table 5.12: Territorial Local Authorities Used in Model Estimation.....	98
Table 5.13: Augmented Dickey Fuller (ADF) Panel Unit Root Tests	99
Table 5.14: Construction Sector Employment Results – Parameter Estimates (FCON)	102
Table 5.15: Construction Sector Employment Results – Parameter Estimates (Facility Types).....	103
Table 5.16: Construction Sector Employment Results – Parameter Estimates (Individual Facilities).....	104

Table 5.17: Real GDP results – Parameter Estimates (FCON)	107
Table 5.18: Real GDP Results – Parameter Estimates (Facility Types).....	108
Table 5.19: Real GDP Results – Parameter Estimates (Individual Facilities)	110
Table 5.20: Accommodation, Cafés and Restaurants Employment Results – Parameter Estimates (Events)	112
Table 5.21: GDP Results – Parameter Estimates (Events)	115
Table 5.22: Accommodation, Cafés and Restaurants Employment Results – Parameter Estimates (Distance Decay).....	120
Table 5.23: GDP results – Parameter Estimates (Distance Decay)	121
Table 5.24: Accommodation, Cafés and Restaurants Employment Results – Parameter Estimates (Amended Distance Decay)	123
Table 5.25: GDP Results – Parameter Estimates (Amended Distance Decay).....	124
Table 5.26: Effective Distance Parameter Estimates and Critical Capacities.....	125
Table 7.1: Variables, Definitions, Source and Summary Statistics	160
Table 7.2: Unit Root Tests of Time-Series Variables.....	162
Table 7.3: Model Estimation: Attendance.....	164
Table 7.4: Estimated Price Elasticities of Demand	168
Table 7.5: Estimates of Consumer Surplus Benefits Generated by Wanganui Representative Rugby (in 1999 dollars).....	173
Table 7.6: Present Values of Consumer Surplus Benefits Generated by Wanganui Representative Rugby (Average Season Estimates, in 1999 dollars).....	175

FIGURES

Figure 1.1: Criteria for Major Events Development Fund Applications	4
Figure 2.1: The Psychic Income Paradigm	36
Figure 3.1: A Conceptual Framework for Facility Development.....	40
Figure 4.1: Net Operating Surpluses (\$m): Westpac Stadium, 2000-2009	56
Figure 6.1: Net Benefits of Event Hosting.....	135
Figure 6.2: Net Benefits without a Subsidy (Lally's Example)	138
Figure 6.3: Net Benefits with a \$6m Subsidy (Lally's Example).....	139
Figure 6.4: Net Benefits with an \$11m Subsidy (Lally's Example)	139
Figure 6.5: Net Benefits with a \$13m Subsidy (Lally's Example)	140
Figure 6.6: Net benefits without a Subsidy (Large (A) vs Small (W) city).....	143
Figure 6.7: Net Benefits with an \$8m Subsidy (Large [A] vs Small [W] City)	143
Figure 6.8: Net Benefits with a \$15m Subsidy (Large [A] vs Small [W] City)	144
Figure 6.9: Net Benefits with a \$25m Subsidy (Large [A] vs Small [W] City)	144
Figure 7.1: Average Attendance at Games in Wanganui, 1972-1994	155
Figure 7.2: Attendance at Wanganui vs Taranaki (Queen's Birthday) Games.....	157