Dynamic Capabilities, Innovation and the Competitiveness of Caribbean Firms

by Clint Hurley and Egbert Irving

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Agenda:

- Motivation for the Study
- Research Aims
- Dynamic Capabilities and Innovation
- Innovation, Competitiveness and Firm Performance
- Innovation Types and Firm Performance
- Innovation Strategy and Firm Performance
- Research Highlights
- Limitations and Future Research

Motivation for the Study



GDP Growth (annual %) Source: World Development Indicators, The World Bank

 Recent relative underperformance of Caribbean economies. Caribbean small states
 Carific Island small states
 Pacific Island small states
 Small states (Countries in small states forum: excludes the high-income small countries)
 Other small states (Includes the highincome countries: Bahrain, Brunei Darussalam, Cyprus, Estonia, Iceland, Malta, Qatar, and San Marino.)

Motivation for the Study



- Competitive firms are important to national prosperity (Porter 1990, SSF The World Bank 2014)
- Firms in the Caribbean, whether due to their external circumstances or internal factors are not generally very competitive and need to improve productivity and innovation (The Economist Intelligence Unit 2015)

Research Aims



 To examine which type of innovation is most significantly associated with the competitiveness of Caribbean firms.

2. To examine which innovation strategy is most significantly associated with the competitiveness of Caribbean firms.

(Latruffe 2010)

Part of a larger investigation of the relationship between a Caribbean firm's strategic management choices and firm competitiveness using the IDB Compete Caribbean Programme's PROTEqIN 2014 Database

Dynamic Capabilities & Innovation



- Dynamic capabilities are the skills, processes and structures that support adaptation when conditions change by:
 - opportunity sensing
 - opportunity seizing
 - reconfiguring tangible and intangible resources as circumstances demand

(Eisenhardt and Martin 2000, Teece 2007)

 Innovations allow organizations to adapt to changing markets, technology and competition dynamics by producing new products, processes and systems

(Lawson and Samson 2001, Lee and Kelley 2008, Salunke, Weerawardena, and McColl-Kennedy 2011)









Approaches to Innovation



Innovation, Competitiveness & Firm Performance



(Schumpeter 1934, Drucker 1985, Kanter 1989, Porter 1990)

*Sales Growth used in the study because it does not depend on the size of a firm therefore making it a more generalizable measure. Additionally it is usually a goal of business owners unlike employee growth (Dobbs and Hamilton 2007, Gibrat 1931)

Innovation Types and Firm Performance



Innovation Strategy & Firm Performance



	Full Sample	%	Innovation Sample	%
N (Firms)	1,966		506	
Firm Size				
Small (<20 employees)	964	49.0	189	37.4
Medium (20-99 employees)	730	37.1	204	40.3
Large (100 or more employees)	272	13.8	113	22.3
Firm Age				
< 10 years	367	18.7	73	14.4
10 years or more	1599	81.3	433	85.6
Sectors				
Manufacturing	660	33.6	291	57.5
Services	1,306	66.4	215	42.5

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- 1. Just about ¼ of the firms innovate
- 2. Almost ½ of the firms employ 20 or less persons and the majority employ less than 100
- 3. The majority of firms are 10 yrs. or older and a greater proportion of the older firms are innovating
- 4. There are twice as many services firms than manufacturing firms yet a larger number of manufacturing firms are innovating

2014 Global Innovation Index

% of country's firms innovating

Barbados41Guyana80Jamaica82Trinidad90

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- Barbados 41 Guyana 80
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- % of country's firms innovating
 - 31.7% (2)57.5% (1)

2014	Global Innovation Index	% of country's firms innovating
Barbados	41	31.7% <mark>(2)</mark>
Guyana	80	57.5% <mark>(1)</mark>
Jamaica	82	
Trinidad	90	23.5% <mark>(</mark> 3)

2014	Global Innovation Index	% of country's firms innovating
Barbados	41	31.7% <mark>(2)</mark>
Guyana	80	57.5% <mark>(1)</mark>
Jamaica	82	20.7% <mark>(4)</mark>
Trinidad	90	23.5% <mark>(3)</mark>

Research Highlights: Innovation Types

	Yes	% (Row)	No	%(Row)
Product/Service Innovation	418		88 ading	17.4
Process Innovation	250	49.4	ype 256	50.6
Marketing Innovation	274	54.2	232	45.8
Organizational Innovation	182	36.0	324	64.0

Research Highlights: Innovation Types

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Organizational Innovation	182	36.0	324	64.0

• There is no significant association between any of the four types of innovation and firm performance as measured by sales growth.

Research Highlights: Innovation Strategy

	Innovating Alone	% (Row)	Innovation in Partnershin	% (Row)
N (Firms)	247	48.8		51.2
Firm Size			∠≈ 50	0/50
Small (<20 employees)	72	38.1	117	61.9
Medium (20-99 employees)	110	53.9	94	46.1
Large (100 or more employees)	65	57.5	48	42.5
Firm Age				
< 10 years	38	52.1	35	47.9
10 years or more	209	48.3	224	51.7
Sectors				
Manufacturing	127	43.6	164	56.4
Services	120	55.8	95	44.2

Research Highlights: Innovation Strategy

	Innovating Alone	% (Row)	Innovation in Partnership	% (Row)
N (Firms)	247	48.8		51.2
Firm Size)/50
Small (<20 employees)	72	38.1	117	61.9
Medium (20-99 employees)	110	53.9	94	46.1
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Manufacturing	127	43.6	164	56.4
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• Collaborative innovation has a significant association with sales growth as compared to engaging in innovation alone.

Conclusion

1. The results suggest that an innovation strategy of partnership is of greater importance to Caribbean firm performance than the type of innovation conducted.

Limitations

1. Exploratory study which only tested for associations.

Future Research

- 1. Utilize a multidimensional measure of firm competitiveness.
- 2. Examine causal relationships and industry related effects.
- 3. Explore the interactions between the different innovation types.
- 4. Investigate whether the category of innovation partner matters.



World Bank Small States

Caribbean:

Pacific Islands:

Other:

- Antigua and Barbuda
- Bahamas, The
- Barbados
- Belize
- Dominica
- Grenada
- Guyana
- Jamaica
- St. Kitts and Nevis
- St. Lucia
- St. Vincent and the Grenadines
- Suriname
- Trinidad and Tobago

- Fiji
- Kiribati
- Marshall Islands
- Micronesia, Fed. Sts.
- Nauru
- Palau
- Samoa
- Solomon Islands
- Tonga
- Tuvalu
- Vanuatu

- Bahrain
- Bhutan
- Botswana
- Brunei Darussalam
- Cabo Verde
- Comoros
- Cyprus
- Djibouti
- Equatorial Guinea
- Estonia
- Gabon
- Gambia, The
- Guinea-Bissau

- Iceland
- Lesotho
- Maldives
- Malta
- Mauritius
- Montenegro
- Namibia
- Qatar
- San Marino
- Sao Tome and Principe
- Seychelles
- Swaziland
- Timor-Leste

Approaches to Innovation

- Innovation Strategy: Alone vs Partnership
- Innovation Type:
 - Product Innovation- a totally new product from new materials; an adaptation or improvement of an existing product (Langley, Pals, and Ortt 2005)
 - Process Innovation- the improvement of the internal business processes and operations of the firm (Cumming 1998)
 - Marketing Innovation- the degree to which firms acquire, disseminate, and respond to information gleaned from customers, channels and competitors (Bakar and Ahmad 2010).
 - Organizational Innovation introduction of new decision making systems, business practices, methods of organizing the workplace, and new approaches to external relationship management (Polder et al. 2010)

Characteristics of Strategic Management in Developing Countries

- Much of the innovation activity measured is so incremental that it has little impact on productivity or commercial outcomes i.e. causal links break knowledge activities => innovation outcomes => commercial success
- The prevalence of Non-Market Strategy: A way to pursue strategic goals through political and social leverage (soft power or influence)
- Factor market constraints: skilled labour supply, capital markets, research clustering prevent knowledge activities and innovation outcomes from being translated into commercial successes
- Product market constraints: limited competition affects resource productivity and the entrepreneurial orientation of firms
- Institutional voids and high transaction costs affect financial returns of investments

	Full Sample	%	Innovation Sample	%
N (Firms)	1,966		506	
Country				
Antigua - Barbuda	131	6.7	22	4.3
Barbados	123	6.3	39	7.7
Belize	122	6.2	20	4.0
Dominica	126	6.4	18	3.6
Grenada	129	6.6	22	4.3
Guyana	120	6.1	69	13.6
Jamaica	242	12.3	50	9.9
Saint Lucia	128	6.5	24	4.7
St-Kitts and Nevis	125	6.4	23	4.5
St-Vincent and the Grenadines	133	6.8	35	6.9
Suriname	120	6.1	76	15.0
The Bahamas	127	6.5	28	5.5
Trinidad & Tobago	340	17.3	80	15.8

Table 1- Comparison of Full and Innovation Samples Summary Statistics

	Full sample	%	Innovation Sample	%
N (Firms)	1,966		506	
Other manufacturing	174	8.9	67	13.2
Food	196	10.0	106	20.9
Textiles	6	.3	1	.2
Garments	41	2.1	12	2.4
Chemicals	51	2.6	27	5.3
Plastics and rubber	18	.9	8	1.6
Non-metallic mineral	49	2.5	17	3.4
products Basic metals	2.7	14	4	8
Fabricated metal	35	1.8	21	4.2
products Machinery and equipment	45	2.3	20	4.0
Electronics (31-32)	18	.9	8	1.6
Construction	136	6.9	25	4.9
Services of motor vehicles	78	4.0	6	1.2
Wholesale	95	4.8	19	3.8
Retail	466	23.7	85	16.8
Hotel and restaurants	339	17.2	44	8.7
Transport (60-64)	154	7.8	26	5.1
Information technology	38	1.9	10	2.0

Table 1 – Industry Comparison of Full and Innovation Samples Summary Statistics

	Innovating Alone	% (Row)	Innovation in Partnership	% (Row)
N (Firms)	247	48.8	259	51.2
Country				
Antigua - Barbuda	2	9.1	20	90.9
Barbados	32	82.1	7	17.9
Belize	19	95.0	1	5.0
Dominica	1	5.6	17	94.4
Grenada	3	13.6	19	86.4
Guyana	55	79.7	14	20.3
Jamaica	48	96.0	2	4.0
Saint Lucia	2	8.3	22	91.7
St-Kitts and Nevis	3	13.0	20	87.0
St-Vincent and the Grenadines	7	20.0	28	80.0
Suriname	60	78.9	16	21.1
The Bahamas	6	21.4	22	78.6
Trinidad & Tobago	9	11.3	71	88.8

Table 1 - Innovation Strategy Comparison Summary Statistics for 506 Innovating Firms

	Innovating Alone	% (Row)	Innovation in Partnership	% (Rov
N (Firms)	247	48.8	259	51.2
Other manufacturing	42	62.7	25	37.3
Food	45	42.5	61	57.5
Textiles	0	0.0	1	100.0
Garments	7	58.3	5	41.7
Chemicals	11	40.7	16	59.3
Plastics and rubber	4	50.0	4	50.0
Non-metallic mineral prod	2	15.4	11	84.6
Basic metals	0	0.0	4	100.0
Fabricated metal products	7	33.3	14	66.7
Machinery and equipment	5	25.0	15	75.0
Electronics (31-32)	0	0.0	8	100.0
Construction	13	52.0	12	48.0
Services of motor vehicles	4	66.7	2	33.3
Wholesale	15	78.9	4	21.1
Retail	40	47.1	45	52.9
Hotel and restaurants	25	56.8	19	43.2
Transport (60-64)	15	57.7	11	42.3
Information Technology	8	80.0	2	20.0

Table 1 - Innovation Strategy by Industry Comparison Summary Statistics for 506 InnovatingFirms

Innovation strategy*sales growth	χ^2	df	р
	8.68	2	.013
Note: Sample size 506			

Note: Sample size= 506

Table 1 - Innovation strategy and Sale Growth

Product Innovation *sales growth	χ^2	df	р
	1.11	1	.328
Note: Sample size= 506			

Table 1 - Product Innovation and Sales Growth

Process Innovation *sales growth	χ^2	df	р
	2.95	2	.229
Note: Sample size= 506			

Table 1 - Process Innovation and Sales Growth

Marketing Innovation *sales growth	χ^2	df	р
	3.80	1	.062
Note: Sample size= 506			

Table 1 - Marketing Innovation and Sales Growth

Organizational Innovation growth	*sales	χ^2	df	р
		1.59	2	.450

Note: Sample size= 506

Table 1 - Organizational Innovation and Sales Growth