
Regional Resilience, Cross-sectoral Knowledge Platforms & Prospects for Growth in Canadian City-Regions

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Presentation to the Colloquium:
Cardiff, Wales, April 4 &5, 2011



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Regional Resilience under the Shadow of Globalization

- In a global world, location matters more
 - “The world is not flat, it is spiky” (Florida)
 - Innovation & research are concentrated in a places with key knowledge assets – asymmetric knowledge capabilities (Cooke 2005)
- But (older industrial) regions still face disruptive change & external shocks
 - Involves the ability of regions to adapt to changes in competitive, market, technological or policy conditions
 - Globalization of production and technological innovation “exert a formative influence over how the economic landscape changes over time” (Martin)

Competing Conceptions of Resilience

- Three models in the literature:
 - Ecological (Hollings)
 - Engineering
 - Evolutionary economics & geography (Martin, Simmie, Pike)
- Key distinction concerns the question of equilibrium
 - Return to a single point of equilibrium
 - Move between multiple points of (punctuated) equilibrium
 - Evolve along a developmental trajectory
- For economically successful regions
 - Likelihood of success being sustained depends on ability to adapt to changing circumstances & adjust to external shocks over time – “industrial mutation” (Simmie & Martin)

Resilience is Key to Ability to Adapt

- Two dimensions of regional resilience
 - Involves both the ability to adapt to major external shocks; and
 - Slower, more cumulative processes of 'resilience building', i.e. how a an economy evolves over time, and how its 'resilient capacity' influences the way it responds to shocks
- Regions face dual challenges of adaptation and adaptability
 - Adaptation involves the renewal of previously followed and successful development paths
 - Adaptability involves pursuing development along a new, related or alternative development path

Institutional Underpinnings of Resilience

- Resilience is result of more than just market forces – involves interaction of three sectors
 - Private (firms)
 - Public (governments)
 - Civic (networks and associations – governance)
- Local governments and governance are central to these processes
 - Resilient regions are ones in which markets and local institutional structures continually adapt to changing environmental conditions,
 - including changes in the policy environment introduced by senior levels of government (NAFTA, WTO)

“Regions make their own resilience, but not as they please”

- Determining factors include
 - Ability to build on specialized regional assets, including public and private research infrastructure; Unique concentrations of occupational and labour market skills;
 - Presence or absence of ‘civic capital’ at the regional and local level;
 - Ability of local firms & entrepreneurs to adjust business strategies in response to changing circumstances.
- Path dependence plays a contingent role in determining outcomes,
 - framed by the strategic choices of local actors and the degree to which local institutional structures constrain or support the realization of their goals (Wolfe)

Specialization versus Diversity as Sources of Regional Resilience

- Growth potential of regions depends on specialized knowledge base (asymmetric knowledge capabilities)
 - Specialization in knowledge-intensive service activity generates strong economies reinforced by importance of computer and communication networks in large metropolitan centres
- Diversity more significant for high tech (analytic) industries & specialization for capital goods industries (synthetic)
- Stage of product life cycle affects innovation
 - Firms develop new products in diversified creative urban environments, but relocate to specialized cities for mass production to exploit cost advantages (Duranton and Puga)
- Does resilience mean different things in different city-regions?

Diversity and Variety as Sources of Regional Resilience

- Variety influences regional resilience in several ways:
 - Degree of sectoral variety reduces vulnerability to external shocks
 - Diverse regions better able to recover from shocks than more specialized city-regions
- Diversity across complementary industries sharing a common science base stimulates innovation
 - Degree of local competition for new ideas within a city also stimulates innovation (Audretsch and Feldman)
- Revealed related variety and 'strange attractors' are important sources of resilience –
 - firms move into the 'adjacent possible'
 - Resilient regions and dynamic entrepreneurs identify and target 'white space' (Matthews, Cooke)

Dynamic Cities are Globally Networked, Regionally Based

- Moving beyond specialization vs. diversity
 - Cities reconstituted as 'Schumpeterian hubs' of innovation and creativity (Veltz)
 - Emerging 'cognitive-cultural' economy (Scott)
 - *Does this involve related variety or just concentration of key sectors?*
- Shift from sectors and clusters . . .
 - to networks and knowledge platforms
- From local innovation capabilities . . .
 - to global knowledge networks
 - Global pipelines trump local buzz!
 - RIM Blackberry – 400 parts, 200 suppliers – where are they?

Obstacles to Resilience in Older Industrial Regions

- Dilemma of lock-in for older industrial centres
 - Remain invested in technologies and industries in which they are efficient
 - Pittsburgh, Hamilton, Akron, Windsor
- Older regions may lag in R&D and research infrastructure
 - Preference for incremental over radical innovation
 - Lower R&D intensity
- Older regions may civic networks and social institutions needed to forge new governance coalitions
 - “Why the Garden Club Couldn’t Save Youngstown” (Safford)
- Resilient regions build new ‘development coalitions’ (Keating, Bradford)

Innovation in Toronto's ICT & Financial Services Industries

- Strength of Toronto's ICT and Financial Services industries presumed source of resilience through recession and downturn
- Offset economic impact of losses in automotive and manufacturing
- Targeted as potential growth sector for future development of the city
- Focus on emerging 'white spaces' in growing industry (BCG Report)



Diversity & Related Variety in Toronto's Urban Economy

- Presumption of strong demand & supply linkages between finance & ICT
 - Large deposit institutions are heavy consumers of ICT infrastructure – Canadian telecoms & global providers
 - Rely on global or multinational consultants & suppliers
 - 100 firms that provide highly specialized e-commerce and IT security services to financial institutions
 - Algorithmics, Certicom, G&D Systems Canada, Rypple
- Large deposit institutions also innovate in-house
 - Interac – alliance of 5 major financial institutions
 - BMO –Cebra, Merx
 - Symcor started as alliance between BMO, RBC &TD
- Key challenge is mobile banking – who will lead?

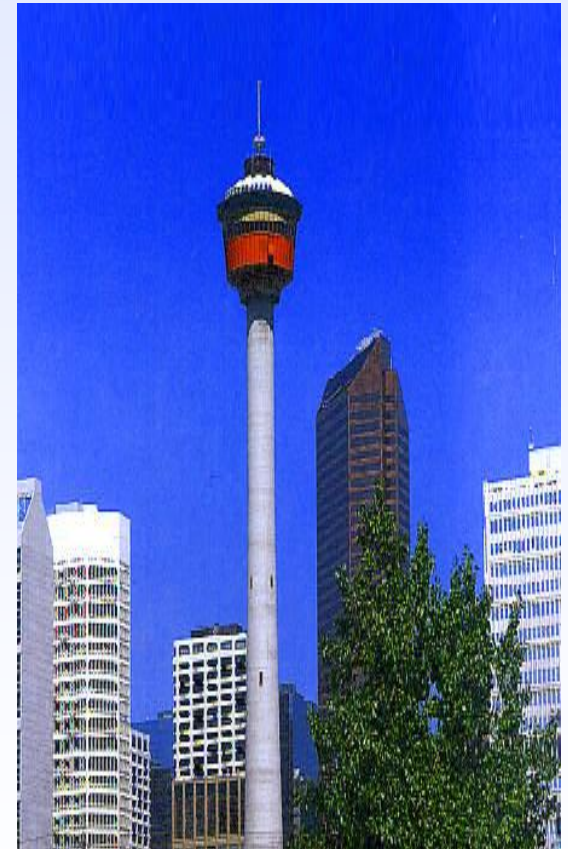
Sources of Resilience in Toronto

Financial Services

- Co-location of ICT and Financial Services is a product of factors that anchor each sector
 - Interaction between them is less significant
- Key ingredient for cross-sectoral knowledge flows
 - Depth and breadth of labour market depends on strength of educational institutions
 - TFSA – Centre of Excellence in Education for Financial Services
 - U of T involved with new Risk Institute
- Underlying quality of place
 - Ranked among top 5 most livable cities by Economist Intelligence Unit
- Superior performance due to national regulation
 - But faces global challenges – TMX LME merger?

New Knowledge Platforms in Calgary: Canada's Oil & Gas Capital

- Economy strongly clustered in oil & gas exploration and development
- Related variety does not emerge from common science base by goal of servicing oil & gas industry
 - Managerial, technical and financial knowledge needed manage resource extraction
 - Diverse inputs, related outcomes = related knowledge diversity (integrated knowledge platform)
 - Potential spinoff into adjacent spaces – GPS, mobile technology – imaging technology from geophysical domain to medical imaging
- Lacks champion for the strategy



Innovation in Hamilton

	Steel 1	Steel 2	Steel 3
Anchor Firm	Stelco	Dofasco	Arcelor/Mittal
Market Orientation	Local	Continental	Global
Exploratory Knowledge	In-house	Licensed	Public Infrastructure
Exploitative Knowledge	Single customers	Regional	Global Supply Chain

- Innovative Firms in Health Services
 - NOT Biotech, Pharmatech
- McMaster Teaching Model
 - Clinical Practice versus Bio-Science
- Different Relationship to Community Health
 - Generates different innovation dynamic



Waterloo Model

- Highly diversified industrial economy
 - Strength in ICT's, advanced manufacturing and automotive
 - Significant financial services sector
- Strong research infrastructure
 - Two universities, plus one community college
- Big 'D', little 'R'
 - Research focused on incremental innovations or process innovation
 - Little inter-firm collaboration in innovation
- Strong civic capital & cohesive development coalition
 - Selective & targeted strategic planning
 - Strategic use of federal and provincial resources
 - Effective policy alignment

Related Variety in Kitchener-Waterloo Digital Media and Mobile Accelerator Hub



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Kitchener Digital Media and Mobile Accelerator Hub

- Joint initiative of Communitech, Centre for Digital Media and the Stratford Institute
 - Provides space for corporate & academic communities to converge
 - Combines Waterloo expertise in digital media and mobile technology & Stratford's expertise in theatre arts
 - Includes Open Text, Christie Digital, RIM, AGFA Healthcare, COM DEV & Tech Capital Partners
 - Platform innovation & networked governance
- Funded by federal & provincial research programs to leverage local assets

Evidence of Resilience in Canadian City-Regions

- Evidence points in the direction of resilience building, rather than return to equilibrium position from external shocks
- Resilience grows out of both strong sectoral knowledge base and diversified economies
- Strongly influenced by both private and public research capacity
- Moving into new knowledge platforms – through search for related variety and exploitation of 'white space'