Triple Helix Influence on Competitiveness: Qualitative Study Comparing Wine Clusters in Brazil and Chile

Eduardo Armando (FIA, Brazil)
João Maurício Gama Boaventura (FEA/USP)
Emanuela Todeva (BCNED)
Cristina Espinheira Costa Pereira (FEA/USP)
Ana Claudia Azevedo (FEA/USP)

XIV International triple Helix Conference,
25-27 September 2016, Heidelberg, Germany

Introduction

OBJECTIVES

To <u>compare</u> the level of competitiveness and to <u>explain</u> the sources of this competitiveness that reside in complex <u>heterogeneous stakeholder networks</u> and 'Triple Helix' interactions:

Brazilian Wine Cluster in Serra Gaúcha

Chilean Wine Cluster in Valle del Maule

Wine Clusters

- Agriculture and farming industry
- Amalgamation of small family type of businesses and warehousing and trading facilities on industrial scale
- Brands, fashion, international certification for quality
- Domestic and international distribution and consumption
- Multi-industry connectivity (tourism, food processing, alcohol and beverages, packaging
- Multi-stakeholder agglomeration

Wineries Brazil and Chile - Overview

	Serra Gaucha, Brazil	Vale del Maule, Chile
2011 Exports Liters of wine	705,000	732,000,000
2011 Exports US$	3.06 million	1.04 billion
% of country production	90%	47%
Area dedicated to cultivation of vines	31,363 ha	50,574 ha
# of properties	12,037	5,396
Property average area	2.6 ha	9.37 ha
Production in million liters 2011	279.6 (100%)	479.8 (100%)
Fine wine	46.8 (17%)	455.3 (95%)
Table wine	232.8 (83%)	24.5 (5%)
# of municipalities in the cluster	18	30
# of new companies	43 (2004 to 2006)	29 (2000 to 2010)
Total population in the region	769,617	991,542
# of individuals associated with the cluster	57,752 (7.5%)	67,000(6.7%)
# of exporters	23 firms	70 firms
Started cultivating wines	1875	1548

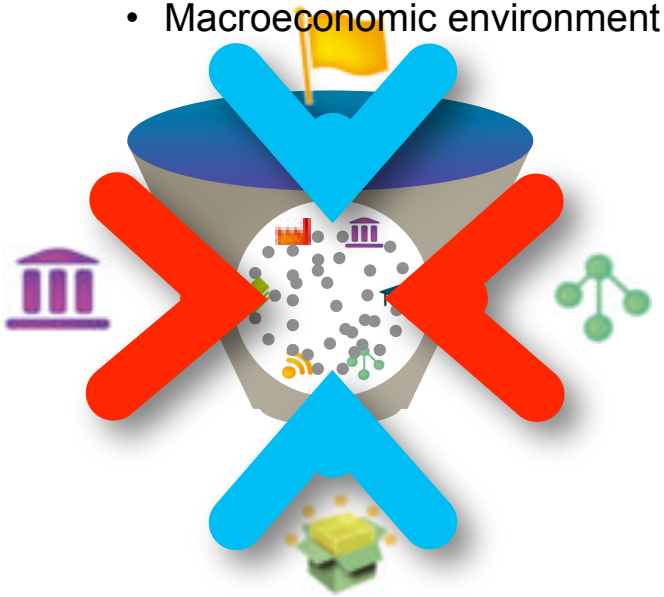
Theoretical Framework

- *The classical notion of industry competitiveness and comparative advantage*
- *The theory of post-industrial society and the notion of embeddedness of firms*
- *The triple helix model for the knowledge economy*
- *The theoretical model for* ***Competitiveness of Clusters and Business Networks*** *by Zaccarelli, Telles, Siqueira, Boaventura and Donaire (2008)*
- *The theoretical models for* ***Self-organization*** *and* ***Co-evolution in Clusters and Networks*** *(Todeva, 2010)*

Cluster Competitiveness Framework (ECO)

Business Environment
- Legacy and culture
- Geographic position
- General institutions and legal framework
- Macroeconomic environment

Policy Context
- Regional policy
- Science policy
- Industry policy
- Cluster policy and programs



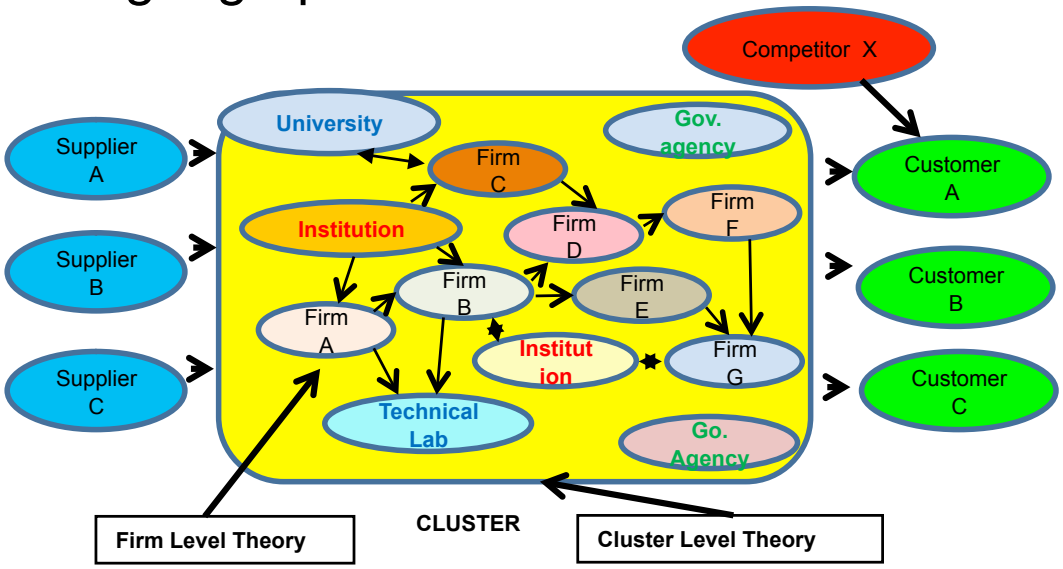
Cluster Initiatives:
- HR upgrading
- Cluster expansion
- Business development
- Commercial collaboration
- Innovation and technology
- Business environment and policy

Strategic Behaviour
- Entrepreneurship
- Innovative strategies and business models
- Entry of new firms

Key- Concepts - Clusters as Supra-Enterprise Entities

(or Meta Organisations)

Clusters constitute a system of related business organizations where the integration process and the dynamics of relationships between organizations imply ***interrelated behaviour*** and ***systemic effects of amplification*** of the competitive capacity of the system and its components in relation to companies outside of it. The operations of this system resemble a '***Supra-enterprise entity',*** active within certain geographic and industrial boundaries.



Key- Concepts - 2

Self-Organization

Evolutionary and spontaneous coordination resulting from the systemic effects arising from interrelatedness within the supra-enterprise entity. It is characterized by the development of increasingly complex and competitive coordination over time."

Supra-Enterprise Governance

Cluster governance constitutes the exercise of ***institutionalized and collective strategy-oriented influence*** within the supra-enterprise entities, aimed at the vitality and competitiveness of the group. It is composed of financing, household income and relational and institutionalized coordination, affecting all the organizations comprising the supra-enterprise system.

Results for the Triple Helix

Competitiveness factors	Chile	Brazil
1 - Geographical Concentration	-	+
2 - Scope of viable business activities	+	-
3 - Specialization of companies	=	=
4 - Balance with no privileged positions	+	-
5 - Complementarity through the use of subproducts	=	=
6 - Cooperation between companies	-	+
7 - Selective replacement of companies	-	+
8 - Uniformity of the technological level	=	=
9 - Community culture adapted to the cluster	=	=
10 - Evolutionary nature due to the introduction of new technologies	+	-
11 - Cluster-oriented result strategy	+	-

Results – Triple Helix Actors

	Industry	Research & Education Establishments	Government
Valle del Maule Chile	**Area dedicated to cultivation of wine -** 50,574 ha and 5,396 properties	CTVV (Centro Tecnológico de la Vid y el Vino), CEVIUC (Centro del Vino UC), LECCC (Laboratorio Enológico de Certificación y Control de Calidad (UC del Maule) CEVID (Centro de Estudio de la Vid (U de Chile)) GIE (Grupo de Investigación Enológica (U de Chile) CITRA (Centro de Investigación y Transferencia en Riego y Agroclimatología) CTSyC (Centro Tecnológico de Suelos y Cultivos)	Ministério da Economia, Fomento y Turismo. Plan Región del Maule 2011 – 2014. Gobierno Regional del Maule. Estrategia Maule 2020. Comision Nacional de Investigación Científica y Tecnológica, CONICYT. Programa Regional . DIagnóstico de las Capacidades y Oportunidades de Desarrollo de la Ciencia, la Tecnología y la Innovación.
Serra Gaúcha Brazil	**Area dedicated to cultivation of wine -** 31,363 ha and 12,037 properties	FTSG - Faculdade de Tecnologia da Serra Gaúcha IFRS - Instituto Federal de Educação, Ciência e Tecnologia do Rio Grande do Sul. EMATER (Associação Riograndense de Empreendimentos de Assistências Técnica e Extensão Rural), ICTA Instituto de Ciência e Tecnologia de Alimentos	EMBRAPA Empresa Brasileira de Pesquisa Agropecuária Fepagro - Fundação Estadual de Pesquisa Agropecuária

3-Mode Network Interactions - Chile

1. The industry is constituted of a large number of vertically integrated businesses generating economies of scope – engaged with research and innovation actors
2. The government support is delivered through a number of research facilities and trading infrastructure
3. The innovation culture is accelerated through the number of research labs and education establishments – working with the industry

Final Contributions

1. The institutions and government agencies in Valle del Maule (Chile) perform TH integrator functions – offering services at cluster (meta-organisational) level that facilitate innovation, technology upgrade, investment and access to export markets.
2. Innovation and technology transformation in the industry comes from business start-ups and outsider investors – hence, financing and business support are critical enablers.
3. Strategic co-alignment of business needs, government support and university development are critical to capture the productivity and efficiency gains in the cluster.
4. The rich environment of educational establishments, laboratories, testing facilities and support agencies is among the main explanatory variables that connect all public and private organisations and enhances the competitiveness of the Chilean wine cluster.