

# **Public Higher Education, the Knowledge Economy and Regional Development in Costa Rica**

*By*

Rosibel Víquez-Abarca

Doctor of Philosophy

School of Geography, Politics and Sociology, Faculty of Humanities and Social Sciences

August, 2012

## Abstract

This thesis concerns, firstly, the role of public higher education institutions, in particular the Distance Learning University (UNED), in the new economy model being encouraged in Costa Rica and, secondly, the role that public higher education could play in an alternative model of development which is more socially and regionally balanced.

Until the 1980s, Costa Rica possessed a well-governed and stable political-economy but imbalanced at the same time since it promoted uneven development between the central region on the one hand and the peripheral regions on the other. Since the mid-1990s, the country has developed a strategy to move from an export-led growth economy to one based on foreign direct investment. In such a scenario, the Knowledge-Based Economy model was introduced as an option to speed up the pace of development.

Nonetheless, the new model has faced several changes to the original plan. It moved from an open economy attracting high technology investment to practically any kind of foreign direct investment (FDI). The resulting model has implied negative consequences in terms of sustainability and social development. One consequence is a minimum impact on the skill level of the work force. Another consequence has been a low level of investment in infrastructure (particularly in peripheral areas). Additionally some of these activities favoured by the new model imply damage to the natural environment. The present research shows that the new model of the Costa Rican economy still encourages uneven development, generating different trajectories of growth not only among the regions but also inside them.

In terms of the public universities, the institutional transformation that is taking place globally prompts these institutions to solve the problems of the labour market through supplying the necessary trained people.

Three key questions were addressed in this thesis, in order to present a perspective on the Costa Rican process: (1) Has Costa Rica become a more Knowledge-Based Economy in the last 30 years?; (2) What role have public universities played in this and what role has UNED specifically played?; and (3) How could UNED contribute in order to accomplish a more regionally-balanced Knowledge-Based Economy model?

Drawing on quantitative data and interviews with actors from different sectors, the research demonstrates that Costa Rica has been endorsing an open economy, where the attraction of FDI is related not only to high technology industry, as the Knowledge-Based Economy model assumes, but to change in all of the traditional economic sectors of the country. Paradoxically, the companies of the new economy are looking for those qualified to technician-level, rather than to those with higher-level qualifications.

In terms of the institutional transformation, public universities in general and UNED in particular are immersed in stress promoted by at least four contradictory internal and external discourses. One is the entrepreneurial university discourse which is a properly discourse of the KBE, close to utilitarian approaches. Second is the university as entrepreneur's promoters. The third is the university as a central government partner to attract FDI. The fourth is the traditional discourse of state-funded educational institutions' mandate for education to build collective responsibility and social justice. Finally, in terms of an alternative role, the thesis presents an option for the public universities to challenge the territorial inequalities implicit within current strategies by focusing more on the peripheral territories.

Dedication

To Adriana and Beatriz,  
my never ending inspiration.

## Acknowledgements

I would like to acknowledge first to my supervisors Andy Gillespie for his patience and guidance, Andy Pike for his inspiration and Esteban Castro for his keenness; their opportune guidance put me on the road.

Alison Stenning and Paul Benneworth as initial supporters and Janet Townsend for invaluable counsels. To La Hora Latina members, particularly Monica Moreno, Rosaleen Howard and Patricia Oliart for their guidance. Similarly to Daniele Paragano and GianpieroTorrise, for their useful ideas on the analysis. To Penny Kelly and George Kania for their timely succour, Chris Yeomans for his help with the document and Pauline for her friendship. Everybody in the PhD room because they were always ready to lend a hand. My everlasting gratitude to Jane and family, Gisela and Cesar, Raksha, Ann and Keith, Anthonia, Angela, Valerie, Brenda, David and Erin and Jaime and family, your guidance and companionship enriched this experience. In the UNED many thanks to don Rodrigo Arias, Fernando Bolaños and Nuria Leitón, and all my workmates in the CIEI and Ana Beatriz Murillo for her help. Especially recognitions to Luis Paulino Vargas for his excellent distance learning supervisions and loyalty, to my friend and colleague Mauricio Leandro and his family for their invaluable contributions. I would also like to express my thankfulness to my family and friends, principally my endless gratitude to my dad. Special thanks to Carlos for his support during the process. Lastly, to my daughters Adriana and Beatriz, this has been possible thanks to you girls.

I want to acknowledge expressly the Distance Learning University (UNED of Costa Rica) as the main sponsor of this research through the Institutional Scholarships Council. To Newcastle University for contributing with a scholarship as well. Overall, I want to express my gratitude to all persons who contributed with interviews, information, data, documents and their inestimable knowledge to complete this thesis.

The content of the thesis is only my responsibility.

## Table of Contents

Chapter 1. Blessings and Calamities of the Knowledge-based Economy .....	1
1.1 Rationale of this topic .....	1
1.2 Main theoretical concepts .....	6
1.3 Brief presentation of research questions and methodology .....	8
1.4 The structure of this thesis .....	9
Chapter 2: Universities in the Knowledge-based Economy: the challenge of uneven regional development in a developing countries context.....	13
2.1 Introduction.....	13
2.2 The Knowledge-based Economy: a definition.....	14
2.2.1 The role of the KBE in international economic policies .....	17
2.3 <i>Regions and territorial innovation models</i> .....	21
2.3.1 Region, regional development and regionalism .....	21
2.3.2 Territorial innovation models in the KBE: the learning region.....	25
2.3.3 Critical review of territorial innovation models .....	29
2.4 <i>Universities in the KBE</i> .....	30
2.4.1 Generative role: the third academic revolution .....	34
2.4.2 Developmental role: engagement in regional associative governance .....	37
2.4.3 Universities in the KBE: diverse roles .....	40
2.5 <i>The Knowledge-based Economy in developing countries</i> .....	45
2.5.1 Development and regional development definitions .....	46
2.5.2 The KBE in developing countries: resources concentration .....	50
2.5.3 Social region model.....	57
2.5.4 The role of public universities in the KBE .....	66
2.5.5 Universities and regional development policies.....	70
2.6 <i>Summary</i> .....	71
Chapter 3: Methodology .....	76
3.1 <i>Introduction</i> .....	76
3.2 <i>Justification</i> .....	77
3.2.1 Methodological contribution .....	78
3.3 <i>Research Process</i> .....	79
3.3.1 Methodological approach: .....	81
3.4 <i>Data collection: quantitative and qualitative approaches</i> .....	84
3.4.1 The quantitative approach .....	85
3.4.2 The qualitative approach .....	88
3.4.3 Limitations of the qualitative approach.....	92

Chapter 4: Costa Rica in context.....	93
4.1 Introduction.....	93
4.2 Central America.....	94
4.2.1 History.....	94
4.2.2 Geographical region.....	97
4.2.3 Economic and political integration.....	100
4.2.4 Inter-regional and international challenges.....	102
4.3 Costa Rica.....	104
4.3.1 Costa Rica, a brief presentation.....	104
4.3.2 Historical perspective on Costa Rica's style of development.....	107
4.3.3 Economy and territory: regional uneven development.....	111
4.4 Science and Technology.....	116
4.5 Environment.....	117
4.6 Higher education.....	120
4.6.1 Public Universities.....	121
4.6.2 Private universities.....	124
4.6.3 Inequalities in education in Costa Rica.....	125
4.7 A brief presentation of UNED.....	127
4.8 Summary.....	130
Chapter 5: The Knowledge-Based Economy in Costa Rica.....	132
5.1 Introduction.....	132
5.2 Costa Rica's economic changes.....	133
5.2.1 The KBE in a developing country context.....	139
5.3 The territorial dimension of economic activities.....	140
5.3.1 Inter-regional differences.....	143
5.3.2 Intra-regional differences: a peripheral primary sector.....	148
5.3.3 Intra-regional differences: the bordering ring of secondary sector activities.....	156
5.3.4 Intra-regional differences: the new distribution of the expanding tertiary sector.....	161
5.4 The Costa Rican economic scene transformation.....	167
5.4.1 The labour market after 2000: effects by region.....	167
5.4.2 The dynamic of the FDI-HT.....	178
5.4.3 Different kinds of FDI: differentiated territories.....	187
5.4.4 The official definition of competitiveness.....	192
5.5 The 1980s and the inflection point of the institutional change.....	195
5.5.1 The institutional configuration of the KBE in Costa Rica.....	204
5.5.2 The warp and the weft in the KBE-CR tapestry.....	207
5.5.3 The hierarchies of the weft.....	209
5.5.4 Alliances inside the KBE-CR tapestry.....	210
5.6 Conclusion.....	217

Chapter 6: The role of public universities in the KBE-CR .....	221
6.1 Introduction .....	221
6.2 The starting point of the public universities in Costa Rican society .....	222
6.3 Teaching as labour professionalization .....	226
6.4 Public universities as entrepreneurs: A quadruple helix dynamic .....	234
6.5 Public universities as suppliers of knowledge .....	241
6.6 Universities as communities developers .....	249
6.6.1 UNED University Centres .....	250
6.6.2 University Extension Direction of UNED .....	252
6.6.3 The third task in the UNED Schools: social action-teaching activities .....	253
6.6.4 The link research-community .....	256
6.6.5 The territorial dimension of public universities .....	258
The achievement examples .....	261
The review of the process .....	267
6.7 Conclusions .....	268
Chapter 7: Regional development in the knowledge society .....	272
7.1 Introduction .....	272
7.2 The institutional uncertainties of the regional level: the absence of a devolution process .....	274
7.3 An alternative for regional development: ecological models .....	281
7.4 The challenge of the regional imbalance resolution .....	285
7.5 Difficulties of social innovation system with territorial dimension .....	290
7.6 A glossary for social innovation system .....	300
7.6.1 Natural Capital: environmental resource .....	300
7.6.2 Institutional Capital: relationships and organizational provisions .....	301
7.6.3 Human Capital: qualified people to solve the development demand .....	301
7.6.4 Business Capital: investment in infrastructure and economic support .....	304
7.7 Summary .....	306
Chapter 8: A new approach for knowledge economy in developing countries .....	309
8.1 Introduction .....	309
8.2 Findings of this research .....	310
8.2.1 An open economy with a multi-faced reality .....	310
8.2.2 Non-monolithic public universities elucidating an imperfect market .....	314
8.2.3 UNED: the university of the differentiated territories .....	316



<i>8.3 An alternative conceptual framework of KBE for developing countries</i> .....	317
8.3.1 The broken rural and urban division: a new differentiated territories concept .....	318
8.3.2 A new definition of competitiveness .....	319
8.3.3 The “old” and the “new” economy .....	320
8.3.4 Intellectual property discussion .....	320
<i>8.4 Recommendations for further research</i> .....	321
8.4.1 The limitations of the quantitative approach .....	321
8.4.2 Recommendations for further research .....	321
 Bibliografy .....	 323
<i>Annex 1</i> .....	<i>337</i>
<i>Annex 2</i> .....	<i>338</i>
<i>Annex 3</i> .....	<i>339</i>
<i>Annex 4</i> .....	<i>350</i>
<i>Annex 5</i> .....	<i>357</i>
<i>Annex 6</i> .....	<i>357</i>
<i>Annex 7</i> .....	<i>357</i>
<i>Annex 8</i> .....	<i>358</i>

## List of Maps and Graphs

Map 4.1. Political map of Central America 1732-1785 .....	95
Map 4.2. Historical and Geographical Maps of Central America .....	97
Map 4.3. National Parks, Biological Reserves and Protected Areas .....	119
Map 4.4. Expansion of public and private universities from 1970 to 2007 .....	126
Graph 4.1. Attending Public and Private HEIs and Quintile of income. ....	127
2003-2005-2006 .....	127
(Percentages) .....	127
Map 4.5. UNED: University centres location .....	130
Graph 5.1. Export (Free On Board) by principal products 1970-2008 .....	134
(Percentages) .....	134
Graph 5.2. Structure of the GDP from 1950 to 1991 .....	137
(Percentages by sector) .....	137
Graph 5.3. Participation in Gross Domestic Product by sector .....	138
(Absolutes of Millions of colons at 1991million colon value) .....	138
(1991-2008) .....	138
Graph 5.4. Percentage of participation on Exports by Costa Rican planning regions ....	141
(2003-2008) .....	141
Graph 5.5. Percentage of Workers* in Primary Sector by Region .....	144
(Census data of 1973, 1984 and 2000).....	144
Graph 5.6. Percentage of Workers* in Secondary Sector by Region .....	146
(Census data of 1973, 1984 and 2000).....	146
Graph 5.7. Percentage of Workers* in Tertiary Sector by Region .....	147
(Census data of 1973, 1984 and 2000).....	147
Graph 5.8. Change in number of workers in Primary Sector by Cantons .....	150
(1984-1973 and 2000-1984) .....	150
.....	150
Map 5.1. Percentage of Participation of the workers in the Primary Sector by canton. ..	154
Under and Over the National Average.....	154
(1973, 1984, 2000) .....	154
Graph 5.9. Change in Number of Workers in Secondary Sector by Cantons.....	157
(1984-1973 and 2000-1984) .....	157
Map 5.2. Percentage of Participation of the workers in the Secondary Sector by canton.	
.....	159
Under and Over the National Average.....	159
(1973, 1984, 2000) .....	159
Graph 5.10. Change in Number of Workers in Tertiary Sector by Canton .....	162
(1984-1973 and 2000-1984) .....	162
Map 5.3. Percentage of Participation of the workers in the Tertiary Sector by Canton. .	164
Under and Over the National Average.....	164
(1973, 1984, 2000) .....	164
Graph 6.1. Formal education years pass by the workforce.....	227
(1976, 1990, 2008) .....	227
Graph 6.2. Graduates of HEIs by total, public and private universities .....	228

(1995-2005) .....	228
(Absolutes) .....	228
Graph 6.3. Distributions of the HEIs graduates* for career by region. ....	231
The first five careers mentioned .....	231
(2009) .....	231
(Relatives) .....	231

## List of Tables and Diagrams

Table 2.1. Conceptualizing the role of universities as part of the associative regional governance .....	32
Table 2.2. Universities' mission according to Entrepreneurial University model.....	35
Diagram 2.1.University-Industry Relation .....	36
Table 2.3.Universities engagement demarcated by university-region characteristics .....	38
Table 2.4. Universities regional associative governance demarcated by region characteristics.....	39
Table 2.5.Approaches to development since 1945 .....	46
Diagram 2.2.Dynamic of capitals distributions, negotiation and investment .....	59
Diagram 2.3.Higher education, Knowledge-based Economy and regions .....	72
Diagram 3.2.Interpretation of chart and variables definition.....	87
Table 4.1.Socio-economic indicators for Central American countries .....	98
Table 4.2.Projection of Percentage of Urban Population in Central America a/ .....	99
Table 4.3.Structure of the total employed population, by sector of economic activity .....	
From 1995 to 2007_(Percentage of total employed population) .....	103
Diagram 5.1. Graph quadrants explanation .....	149
Table 5.1. Percentage of workers for type of activity by region (2008).....	168
Table 5.2. Information about employ participation by Costa Rican regions (2010) .....	170
Table 5.3. Percentage of participation in types of activities .....	
by sex and country of origin. ....	172
Table 5.4. General Statistical Information presented by Costa Rican regions_(2010)....	174
Diagram 5.2.Conditions and interactions within the FDI-HT process .....	179
Table 5.5. Costa Rica Foreign Direct Investment by Sector that receive the investment.....	
From 2000 to 2007_(in Millions of USA\$) .....	188
Diagram 5.2.The KBE-CR Network. By groups, nets and levels of participation .....	206
Diagram 5.3. Solution for KBE-CR Network working .....	
Financial, technical and institutional capital network.....	211
Table 6.1. Distribution of graduates from public and private universities by careers .....	
(2001-2005) (Percentages).....	229
Diagram 6.1. Social actors participation in the Costa Rican scientific context .....	235
Diagram 6.2. The Inter-universities Regionalization Programme .....	259

## List of Acronyms

Acronym	Name in Spanish	Translation
BCIE	Banco Centroamericano de Integración Económica	Central American Bank for Economic Integration
CAATEC	Comisión Asesora en Alta Tecnología	High Technology Advisory Committee
CAMTIC	Cámara de tecnologías de Información y Comunicación	ICTs Chamber of Costa Rica
CCSS	Caja Costarricense de Seguro Social	Costa Rican Social Security System
CECI	Centro Comunitario Inteligente	Intelligent Community Centre
CEGESTI	Centro de Gestión Tecnológica.	Centre for Technological Management and Industrial Informatics
CENAT	Centro Nacional de Alta Tecnología	National Centre of High Technology
CENIBIOT	Centro Nacional de Innovaciones Biotecnológicas	National Centre for Biotechnological Innovations
CIEI	Centro de Investigación y Evaluación Institucional	Institutional Research and Evaluation Centre
CINDE	Coalición Costarricense de Iniciativas de Desarrollo	Coalition for Development Initiatives
CITTED	Centro de Investigación y Transferencia de Tecnología y Educación para el Desarrollo	Research Transference of Technology and Education for Development Centre
CNP	Consejo Nacional de Producción	National Production Council
CONARE	Consejo Nacional de Rectores	Public Universities National Rectors Council
CONESUP	Consejo de la Educación Superior Privada	Council for Private Universities
CORBANA	Corporación Bananera Nacional	National Corporation for Bananas
COSEL	Comité Sectorial Local	Local Sector Committee
CRI	Comisión Regional Interuniversitaria	Inter-universities Regional Committees
CSRA	Comité Sectorial Regional Agrícola	Agricultural Sector Regional Committee

EARTH	Escuela Agronómica de la Región Tropical Húmeda	Agronomical School for Tropical Hummed Region
FEES	Fondo especial de la Educación Superior	Higher Education Public Funding
FOMUDE	Proyecto de Fortalecimiento Municipal y Descentralización	Municipal Strengthening and Devolution Project
GAM	Gran Area Metropolitana	Metropolitan Area
GAT	Grupo de Acción Territorial	Groups of Territorial Action
ICAFFE	Instituto del Café	Institute for Coffee of Costa Rica
ICT	Instituto Costarricense de Turismo	Costa Rican Tourism Institute
IDA	Instituto de desarrollo Agrario	Institute of Agrarian Development
IFAM	Instituto de Fomento y Asesoría Municipal	Institute of Support to Local Governments
INBio	Instituto Nacional de Biodiversidad	National Biodiversity Institute
INEC	Instituto Nacional de Estadística y Censos	National Institute of Statistics and Census
JAPDEVA	Junta Administradora de puertos de la Vertiente Atlántica	Port Authority Board of Directors and economic development of the Atlantic
LAICA	Liga de la Caña de Azúcar	Sugar Cane League
MAG	Ministerio de Agricultura y Ganadería	Ministry of Agronomy and Livestock
MEIC	Ministerio de Economía, Industria y Comercio	Ministry of Economy, Industry and Commerce
MERCOMUN	Mercado Común Centroamericano	Commune Market of Central America
MICIT	Ministerio de Ciencia y Tecnología	Ministry of Science and Technology
MIDEPLAN	Ministerio de Planificación	Ministry of Planning
MINAET	Ministerio de Ambiente, Energía y Telecomunicaciones	Ministry of Environment, Energy and Telecommunications
OdD	Observatorio del Desarrollo	Observatory of Development
O-MIPYMES	Observatorio de Micro, Pequeñas y Medianas Empresas	Small and Medium Enterprises Development Observatory
OPES	Oficina de Planificación de la Educación Superior	Planning Office of the Higher Education
OTTVE	Oficina de Transferencia Tecnológica y Vinculación Externa	Technological Transference and External

PARLACEN	Parlamento Centroamericano	Link Office Central American Parliament
PGL	Programa de Gestión Local	Local Development Training Programme
PRE	Programa de Relaciones Externas-UNED	International Relationships Program-UNED
PROCOMER	Promotora de Comercio Exterior	Foreign Trade Corporation of Costa Rica
PROMES	Promoviendo Mercados Sostenibles	Promoting Sustainable Markets
PROSIC	Programa de la Sociedad de la Información y el Conocimiento	Information and Knowledge Society Programme
PRU-GAM	Programa Regional Urbano de la Gran Area Metropolitana	Regional and Urban Program for the Metropolitan Area
SEP	Sistema de Estudios de Posgrado	Postgraduate Studies System
SEPSA	Secretaría Ejecutiva de Planificación Sectorial Agraria	Supervisory Office of Agricultural Planning of the Ministry of Agriculture and Livestock
SICA	Sistema de Integración Centroamericano	System for the Central American Integration
SINAC	Sistema Nacional de Areas de Conservación	National System of Conservational Areas
SINAES	Sistema Nacional de Acreditación de la Educación Superior	National System of Higher Education Accreditation
TCU	Trabajo Comunal Universitario	University Community Work
ITCR or Tec	Instituto Tecnológico de Costa Rica	Technological Institute of Costa Rica
UCR	Universidad de Costa Rica	University of Costa Rica
UNA	Universidad Nacional	National University
UNED	Universidad Estatal a Distancia	Distance Learning University
VIPLAN	Vicerrectoría de Planificación	Planning Vice-rectory
ZEE	Zona Económica Especial	Especial Economic Zone

# **Chapter 1. Blessings and Calamities of the Knowledge-based Economy**

## **1.1 Rationale of this topic**

This research focuses on the analysis of three specific dimensions characterising the relationship between public higher education, a Knowledge-Based Economy (KBE), and regional development in Costa Rica. The first dimension of analysis has to do with the official claim that Costa Rica has lately moved towards a Knowledge-based Economy (KBE) and whether that claim goes beyond election-time idealism or not. The second dimension interrogated concentrated the role public universities could have played in the event a process like that effectively happened. Finally, the particular role that the Distance Learning University (UNED by acronym in Spanish) played or could play in the future under a KBE in Costa Rica is interrogated.

It is important to explain briefly the reasons the researcher had to choose this topic. In terms of historical context, around the early 1940s Costa Rica embarked on a significant transformation of its productive model, from an economy based on agricultural production to another mainly based on the manufacturing of goods and services. That transformation was accompanied by the development of a welfare state which in turn based its success on a decisive emphasis on public education to promote and consolidate an educated middle class. The role of higher education for the transformation of the Costa Rican economy was essential in shaping the economy and thereby promoting a less unequal society until the 1980s.

The consequences of relatively early investments in higher education are evident, profiling Costa Rica as a successful country in the Latin American context, in terms not only of economic stability but in terms of conditions of social and political stability as well.



Nowadays, Costa Rica retains relatively high levels in terms of health, education, housing and social security, all inherited from the welfare state model and a relatively balanced style of development (Rovira, 1987).

Since the 1980s, governments have departed from the original idea of strengthening a welfare state with ideological support from universities. By the turn of the century the gap between government actions and universities' roles was evident. Politicians openly supported a neoliberal model of the state and were moved mainly by the tone of globalization. In turn, universities were internally divided into groups with contrasting visions of what the economic model should look like.

Under the rule of the Washington Consensus, there was a shift in the Costa Rican government's political projects accompanied by a marked downsizing in the role which had historically been played by universities. Rules for planning in higher education were based on a market approach instead of population-based priorities. The new economic model promoted concentration of activities in small territories which exacerbated the uneven distribution of wealth in Costa Rica in favour of the central region. At the same time, the new economic model promoted a private infrastructure supporting the institutional strategy that a neoliberal economy requires.

The 1990s were characterised by the promotion of the relatively novel idea of KBE as a strategy to capitalize on a wide base of educated workers by producing goods and services with high added value.

The first analytical dimension in this thesis interrogates whether the Costa Rican economy in fact moved into a KBE or not. As detailed in Chapter 5, instead of a KBE, Costa Rican governments have promoted an open market economy based upon the attraction of foreign direct investment (FDI). The strategy certainly has produced an increase in net income due mainly to some high-profile companies such as Intel and some associated service providers. Nonetheless, this strategy has not promoted sustainable value-chains in internal markets.

As a consequence, a significant portion of the internal labour market has moved from primary and tertiary public sector to a heterogenic tertiary private sector. This new tertiary sector includes a variety of occupations including lower skilled employees working in tourism to skilled employees of multinational service companies.

Chapter 6 deals with the second above-mentioned analytical dimension that concerns the role both higher education and UNED, in particular, have played in the labour market's change. It is stated that universities are not monolithic entities. Public universities in particular have always gathered very diverse ideological positions which in turn are translated into very diverse political discourses. This thesis analyses how those discourses develop and how tensions are inherent to the whole process. Four different discourses have been identified at UNED and the other public universities considered. These four internal and external discourses correspond with internal and external representatives' recognition of public universities roles.

A first discourse is aligned with what could be properly considered a public universities role in a KBE model. It is materialised fundamentally through the selling of services. This discourse assumes the responsibility of universities in providing qualified labour as a contribution to solve deficiencies in the labour market. As an example of this discourse most universities provide labour with skills in spoken English, computer applications or business administration with an emphasis on human resources.

A second discourse supposes that universities should promote entrepreneurial by empowering students to manage microbusinesses. According to this view, universities have the responsibility of getting students ready to start their own businesses instead of being employees working for someone else. As an example of this vision, some universities organize their training in partnership with banks.

A third discourse delineates universities as partners of the central government for the development of the new economy. The discourse materialises by the participation of universities in inter-institutional public-private groups aimed to attract foreign investment.

A fourth discourse survives from the original mandate for public universities in Costa Rica. The engagement of public universities with social needs was conceptualised during the welfare state model. This discourse openly opposes any neoliberal logic by promoting an active role of public universities to enhance the quality of life of vulnerable groups of society (e.g. small farm owners). Social interest moves universities' actions which in turn are recognized by communities as essential components of development.

As said, coexistence of the four different discourses has not happened free of frictions. There have been internal contradictions and tensions among them. This research also interrogates the pertinence of making a valid association between KBE and territorially equilibrated development. Derived from a personal conviction motivated by working at UNED, the researcher is convinced that public universities should never stop their original role related to social commitment.

The role of public universities as integral components of the KBE structure evidenced that universities not only need to rediscover their commitment but also to differentiate themselves from the new market-driven economy. Unlike generic concepts like social responsibility, the proposed engagement of public universities with their context is a radically contextualized one.

As exemplified in Chapter 2, technology does not promote a geographically equilibrated development by itself since FDI in general and FDI related to high technology in particular have become agents of concentration of economic growth. Regarding that fact, Chapter 5 discusses the territorial dimension of the open economy in Costa Rica. Rather than six planning regions, a multiple core-peripheries distribution of the national territory was found.

The cores were concentrating most resources which in turn deteriorate otherwise valuable resources located on the peripheral regions outside the Central Region. Peripheries are associated with low education and limited local resources communities. Those underserved geographies become differentiated territories, relegated to the neoliberal model.

At this point, a critical review of the learning regions concept is pertinent. As explained in detail in Chapter 2, according to the KBE model, the learning region concept is based on territorial proximity in order to maximize technological innovation. Nonetheless, to grasp the territorial dimension of the present research, an alternative model to the one of learning regions was considered necessary.

The alternative theoretical concept of the social region articulates better the idea of a regional development for peripheral territories which have been relegated of the new economy model. In this document, the concept of social region is adopted. This is the term because social region elaborates on a system of social innovation with participation of a local productive sector in a determined region. That way, the characteristic concentration of opportunities of a market-driven economy characteristic of the learning region is broken in favour of community-wide efforts.

The present research considers the social region to be a valid model to reverse the territorial fragmentation that occurs in multi-peripheries under a neoliberal economy (See Chapter 5). A clear choice for universities working with those communities is helping to design social innovation systems for local production. In other words, universities are natural partners that can work along with small domestic economies supporting and nurturing their alternative economies. Such a role is linked to the generation, preservation, and transfer of knowledge. This role is related to scientific responsibility. It is clearly a resistance to the law of the market in favour of those groups historically forgotten by mainstream development strategies.

## 1.2 Main theoretical concepts

The Literature Review has been organized around the concept of the Knowledge-based Economy, which proposes that knowledge and learning act together at local and regional levels across innovation networks to produce development. Regional innovation policies have been considered the option to link local and regional economies and guide attempts to connect the local context with global tendencies.

In this thesis, a region is a recognized area or a territorial unit, having unity or uniformity in economic and social features that differentiate it from other regions. Regional development is the social and economic dynamic to maximize the resources in a specific region, in order to promote a better quality of life. The objective is that the regional development should be “balanced, cohesive and sustainable” (Pike et al, 2006: 255) in order to solve regional inequalities. On this point, territorial innovation models are part of the strategies to promote development. Learning regions are the key proposal to resolve regional development in the specific context of the KBE.

Furthermore, the literature review presents basic concepts related to the role of the universities as it has been defined by the KBE framework. This role could be generative and developmental (Gunasekara, 2006), helping to identify endogenous and exogenous resources and merge regional characteristics with knowledge intensive business services to activate the regional economy. Knowledge is here understood within a KBE framework as a commodity, as a resource for the formation of human capital and as a contribution to the social and cultural based development of effective democratic governance, rather than a public good (Charles, 2006). On that point, concepts like the third academic revolution and associative governance will be discussed.

However, the idea of the new economy proposing technology and infrastructure as necessarily promoters of development has to be critically evaluated.

The critical review within the regional development literature has pointed out that the positive spill-overs are assumed to be a consequence of the presence of technology and infrastructures. This point will be discussed in relation to regional differences (Christopherson and Clark, 2009).

Conversely to the promoters of the presence of the big firms and global networks, the critical review pointed out that in the context of a developing country, technology and big firms are promoting uneven development in the context of the new economy (Fernández, 2001; Cimoli and Correa, 2002; Scott and Garofoli, 2007; Vásquez-Barquero, 2007; Christopherson and Clark, 2009). It is also important to consider that some discourses in the new economy such as the power of local networks have to be contextualized, in order to avoid depoliticizing development (Harris, 2002) conceptualizations.

In a developing country, the new economy is usually related to the presence of FDI. The consequence of the exogenous investment is related to territorial fragmentation. It is because for instance, FDI changes the traditional labour market into a new dynamic, with consequences such as the rise of the new economic sectors.

On that point, the research about the role of universities in regional economic development provides an opportunity to explore interactions and connectivity between social actors in the regions and their eventual role in promoting both internal coherence and more external connections (Moulaert, 2000).

Simultaneously, this context challenges universities with different internal and external demands. The revision of both, the role of the university in providing missing linkages to help regions to address external pressures (Benneworth and Charles, 2005), and an eventual proactive response will be explored in the evidence and discussed in the conclusions.

The literature review provides the theoretical framework to define the KBE concept and its proposal for regional development, the role proposed for the universities and the debate related to the strengths and inconsistencies of the KBE for a developing country context. These elements help to define the research question and the main arguments of this study, such as the different discourses prompting universities nowadays.

The final section of the literature review presents concepts related to social innovation and the social region in contrast to market-based territorial models. The community based ontology as an option for an alternative interpretation of KBE in a developing country context is also indicated (Moulaert and Nussbaumer, 2005a; Coraggio, 1993). A review of the public universities' role in developing countries (Hinkelammert, 2005) will close this section.

### **1.3 Brief presentation of research questions and methodology**

Given the image of Costa Rica as a developing country with the potential for the KBE model implementation, this research takes the opportunity to explore three research questions:

Question 1: Has Costa Rica become a more knowledge-intensive economy in the last 30 years? What has a knowledge-intensive economy meant for a small developing country such as Costa Rica? Has the KBE had a territorial manifestation in Costa Rica?

Question 2: What role have HEIs played in this process (of becoming more knowledge-intensive)? What role has UNED specifically played? And then,

Question 3: How would UNED contribute in order to accomplish a more regionally balanced Knowledge-intensive economy model?

A mixed method approach was needed, incorporating both statistical spatial analysis and in-depth interviews using a case study method.

The research was conducted from a multi-analyses perspective, including statistical spatial analysis to explore the socio-economic process in Costa Rica over 30 years, as well as qualitative sources to investigate the social actors' perspective, not only of universities but also other institutions, local organizations and private sector representatives. The interactions among them will also be explored. The case study was the methodological option to mix the qualitative and quantitative resources in order to answer the three research questions.

#### **1.4 The structure of this thesis**

Based on the aims and research questions, the Literature Review in Chapter 2 will focus on the discussion of the main theoretical proposition. The chapter will be organized from the Knowledge-based Economy model presentation, drawing in the origin and principal arguments of the KBE. Then the regional development literature will be reviewed, from the knowledge society perspective. The learning region as a territorial innovation model will also be included.

The main proposals for higher education institutions' roles will be the third point of the review. The recent incorporation of higher education institutions as part of regional development structures offers the opportunity to find the strengths and weaknesses of the universities' participation in a regional role. The proposal of the entrepreneurial university as well as the perspective of engagement and regional associative governance is discussed.

Finally, based on the context of this research, a section related to the pertinence of the KBE in a developing country framework will be presented. In this section relevant concepts are reviewed from a critical perspective. The discussion about differentiated territories as a key conceptual proposal to understand the reality of peripheries in the new economy dynamic is relevant.



A review of social innovation models, to promote knowledge management in a less unbalanced form of regional development will be done. Alternative literature about the social region model for social innovation with a community approach will be included, in order to consider contrasting approaches for regional development.

In Chapter 3 the methodological approach will be discussed. The theoretical presentation of a case study method is included, as well as the quantitative and qualitative evidence collection techniques to answer the three research questions. The methodological contribution of applying qualitative approach to study the KBE will be also pointed out.

Chapter 4 will be a background presentation. In this chapter relevant information about Costa Rica will be presented in order to explain the historical process of the country will be presented. This chapter will explain how Costa Rica built a successful model via the welfare state. Conversely, the absence of a proper devolution process, encouraging uneven regional economic growth between the central region and the peripheral ones will be discussed.

After the 1980s, the welfare state was steadily replaced by an open market economy. The 1990s and the 2000s will be identified as the inflexion point, when the government defined science and technology as key for development. The economy was based on an export-based model, intensely centred on the attraction of FDI. Finally, the chapter will present the 2000 country brand, presenting Costa Rica as a green and intelligent country, based on environmental sustainability, science and technology and education as key elements for development.

Following the context setting chapter, Chapter 5 will be focused on the first research question. The first part explores the economic transformation of the country since the 1970s to identify if a more knowledge-based intensive economy model has been applied in Costa Rica.

The second part will ask about the territorial manifestation of the economic model. Finally, the third part of this chapter will discuss the institutional characteristics of the new economy. The main argument in Chapter 5 is whether the economic transformation of Costa Rica is directly connected to the attraction of FDI, in opposition to a proper knowledge-based economy, Costa Rica is an open economy.

In terms of territorial impact, Chapter 5 will demonstrate an exacerbated territorial fragmentation. The old inequalities between central and peripheral regions have been rising and they were aggravated by the FDI. In the central metropolitan region, the FDI is related to value-added exports, the main export line of the country. In contrast, other regions attract other kinds of FDI. These other FDIs are related to primary sectors such as pineapple plantations or tertiary sectors such as big hotels and real estate. As a consequence, historical territorial development inequalities have increased quickly. The peripheries became differentiated territories, relegated from the new economy.

Additionally, rather than the six planning regions proposed since 1973, Chapter 5 will show the country's territorial distribution of economic sectors had fragmented inside the regions. A multiple pattern of small core and peripheral territories, related to the presence of different kinds of FDI will be shown.

In terms of institutional impact, Chapter 5 will suggest the substitution of the public structure by the rise of a para-institutional structure as a condition of the so-called new economy. Two important consequences will be also discussed. First, the role played by private institutions as substitutes for the role of the State. Secondly, the rise of a new kind of private productive sector, more transnational than in the past, which is constituted by footloose companies with few possibilities for local value chains with local roots.

In Chapter 6 the second research question will be addressed. As non-monolithic structures, universities have been playing many roles. It will be proposed that the roles of public universities are related to four internal and external discourses.

One of these discourses put forward the social commitment of public universities, while the other three are related to solving the new economy sectors demands. The roles universities have played range from entrepreneurial universities as members of a triple or quadruple helix model, to roles related to local governance and engagement in poor communities.

As a consequence, multiple roles of higher education institutions were detected. Some of these roles respond to multinational companies and global economy dynamics, while others are related to micro, small and middle-sized enterprises and mostly local market actors.

Chapter 7 will explore the contemporary dynamic at a regional level, investigating the role that a distance learning university such as UNED could play, offering the alternative of a different interpretation of the national territory, with another kind of KBE-CR, based on endogenous necessities and capitals. The imminent necessity to redefine KBE to be pertinent for a developing country context is discussed.

Conclusions will be presented in Chapter 8, including the summary of arguments and evidence presented in the three empirical chapters. Theoretical suggestions for a knowledge-based development with a community approach will be discussed. The inclusion of concepts such as competitiveness for territories will be proposed.

Chapter 8 will cover the concept of universities' scientific responsibility with science and communities (Hinkelammerth, 2003). For higher education institutions the difference between production, protection and transference of knowledge in a market approach and the preservation and dissemination of knowledge in a social, innovation community approach will also be discussed.

## **Chapter 2: Universities in the Knowledge-based Economy: the challenge of uneven regional development in a developing countries context**

### **2.1 Introduction**

This chapter sets out a review of the Knowledge-based Economy (KBE) concept, what it means in a developing country context and how from a KBE perspective higher education institutions could be part of a more balanced regional development process.

While some authors promote the KBE, others consider it as a new form to explain old ideas about knowledge participation in the context of the so called global economy (Hudson, 2009); an “imaginary economy” proposed by a cultural political economist (Jessop, 2004); a result of statistical presentations (Godin, 2006) or as the precursor to changes in the nature of higher education institutions (Robertson, 2008), not applicable for developing countries contexts.

The structure of the chapter includes six sections. Section 2.2 points out that the KBE has been related to the production and transference of knowledge as a good in the new economic model. In section 2.3 the role of higher education institutions as social actors in regional development and innovation systems is examined. Universities have been proposed as partners of the regional development networks, in particular via notions such as the triple helix model, engagement and regional, associative governance. Section 2.4 discusses basic notions about regions, territorial innovation models and the learning region. In Section 2.5 a community-based perspective, the social region model, is used to explore options addressing uneven regional development (Harvey, 2000).

The section integrates main points such as social networks, differentiated territories and competitiveness in a developing countries context. The critical review of the regional development framework is also of importance. Conclusions for this chapter are detailed in section 2.6.

## **2.2 The Knowledge-based Economy: a definition**

The Knowledge-based Economy perspective proposes that knowledge and learning act together at local and regional levels across innovation networks to produce development. Knowledge technologies are used to produce economic benefits. This kind of economy, according to Castells (2008), is new in terms of what it is that can generate wealth. Knowledge becomes a commodity -in this economy.

While the neo-classical economy perspective emphasises labour and capital as the only two factors of production, the so-called new economy is distinctively characterised by the intensive use of knowledge, using information and communication technologies (ICTs). In other words, technologies play a key role. In this economy, flows of information, consolidation of clusters for specialised firms and ICT possessions are the main resources, contrary to the past economies where the main resources were capital and labour (Castells, 1991).

Basically, a KBE is one in which knowledge is created, acquired, transmitted and used effectively by all economic actors, in order to produce wealth, via the intensive use of technology and networks.

According to Foray (2000), KBEs are those in which:

“The proportion of the knowledge-intensive jobs is high, the economic weight of information sectors is a determining factor, and the share of intangible capital is greater than that of tangible capital in the overall stock of real capital.” (Foray, 2000: ix)

In order to clarify the concept, Foray (2000) pointed out the difference between “*the economics of knowledge*”, which he defined as the emergence of the thematic of knowledge as a discipline, and the historical development of a particular period of economic activities which is named “the Knowledge-based Economy”. As he explains, knowledge is a good and its production and reproduction are crucial at the moment. He suggests that its historical and institutional conditions determine its treatment and process in a decentralized economy. As a consequence, economies that increased their production were processing and transferring more knowledge and information than in the past.

He considers that there were four pioneers of the economics of knowledge: Simon in 1982 because he studied the role of information technology; Hayek in 1945 because of his contribution to the topic of the mass dissemination of knowledge; Arrow in 1962 for his research on the problems of allocating resources to create knowledge defined as a public good, and studies on endogenous technical change; and Matchup in 1984 who used the terms of knowledge and information equally - especially when he studied systems of communication of information (Foray, 2000: 2).

The KBE definition has been related to a broad concept. For instance, Leydesdorff (2009) considers the KBE to be an umbrella concept; a metaphor which permits the integration of the elements of the new economy. Knowledge is fundamental as a factor that has aided production. It has led to the development of high-tech investments, and at the same time industries have been adding well trained labour that has raised productivity and quality in many activities, especially in new ones which depend on transferring new knowledge.

He also points out that few concepts, formulated within an evolutionary economy perspective, have been as politically successful as the KBE metaphor. On that point, he quoted David and Foray (2002) to say that the KBE is more a continued change than a pointed discontinuity.

Moreover, Godin (2006) pointed out that the KBE idea comes from “National Systems of Innovation”, the book published by Lundvall in 1992. He suggests that the KBE’s history can be divided in two different periods. The first was in the early 1960s and was characterised by the relation with statistics about new trends in the economy. The second period was in the 1990s and was not related to statistics but to political discourses.

Godin (2006) summarised the trajectory of different contributions of the KBE, saying that Lundvall has been the main author of national systems of innovation (NSI), while Foray has been the main theorist of the KBE. Both of them contributed with the idea about the interaction between different institutions as a key element for the KBE, especially in terms of transferring knowledge, which is one of the main issues in the KBE. The distribution of value added activities in developed economies today does not come only from goods or allocating capital in productive uses, but also from productivity and innovations, two outcomes of putting knowledge to work. In fact, innovation systems gained importance in the new economy.

Lundvall (1992) explains that, even though the transnational dimension of the new economy and regionalisation may perhaps be interpreted as processes that reduce the importance of national innovation systems (NIS), the NIS can still play a role supporting innovation and learning, especially because of the complexity of the present context, which demands strong coordination among different actors and because these new tendencies are more transnational than national. The old system can help to create the new one (Lundvall, 1992:4). This point of view will also be explored in the next section of this review from the perspective of the role of public universities.

Regarding the territorial dimension of the KBE, Cooke (2002) pointed out that knowledge economies consist of “localized and regionalized, clustered, collective learning systems. In themselves these are relatively rare phenomena.” (Cooke, 2002:187). He suggests that the KBE produces exactly the opposite to the predicted death of geography, because more and more workers are sucked into large cities. This point will be explored below, in the regional development section.

In summary, the KBE can be understood from different perspectives. For Lundvall (1992), the KBE is about the role national innovations systems can play in the new economy, by the new role of the state as a coordinator for knowledge and learning processes. For Foray (2000), knowledge is the main element and it has become a new discipline named “economics of knowledge”, Cooke (2002) included the territorial dimension of the KBE and Leydesdorff (2009) operated the triple helix model. The next section discusses how international organisations are promoting the KBE.

### ***2.2.1 The role of the KBE in international economic policies***

An important characteristic of the new economy is that knowledge is used to produce knowledge. As a consequence, knowledge is a commodity rather than a resource (Cooke, 2002). On that point, multinational funding organizations such as the World Bank and the Organization of Economic Cooperation and Development (OECD) have been promoting the idea of the KBE as a key strategy for development.

According to OECD (1992), the four basic elements of a KBE are the creation and diffusion of knowledge, the global interaction of economic activity, the information economy and the economic structure and productivity. The macro-economic policy continues to be essential, as well as the contribution from human capital, labour market reforms, the role of innovation and the impact of information and communications technology.



The OECD countries were evaluated in the new economy indicators. As part of findings, variables such as investment in Research and Development (R&D), payments towards basic research, the building up of the information and telecommunications technology infrastructure and more flexible financial services were evidenced. All these variables were also to the increasing contribution of these activities to the economy and employment. However, these changes are not occurring equally across all countries in the OECD. Some countries are leading the transition towards the Knowledge-based Economy, while others are lagging. Consequently, in 1999, the OECD began a project in order to identify the causes of growth disparities in the OECD, specifically in terms of the factors and policies that can strengthen growth performance and the role of factors such as innovation, knowledge, human and social capital, service industries and start-up firms.

As a result, the OECD recognised “new” factors in knowledge-driven economic growth, but old economic laws still work, and some countries are more adaptable than others in the transformation process. Governments do have a role in innovation; rapid innovation and strong growth performance were partly the result of effective policies. Lagging countries have often not yet implemented the reforms needed for stronger knowledge-driven growth. Improving growth performance will take time.

There has been a similar discourse in the World Bank. In 1999 it created both the Knowledge for Development Program (K4D), in charge of providing policy advice and training, and the World Bank Institute (WBI), the development section of the World Bank. The World Bank establishes that the KBE is about placing knowledge and innovation policies at the heart of development strategies for countries at all levels of development.

In other words, the KBE is the strategy for all countries, even the developing ones, which permits them to be included into the global economy, self-equipped with highly skilled and flexible human capital. It is the principal resource needed to compete in global markets<sup>1</sup>.

There are important variables as part of a plan for a country to implement the KBE model: the emphasis on Education & Training, the Information Infrastructure scope, the Economic Incentive & Institutional Regime, and the Innovation System. (Aubert, 2006:6)<sup>2</sup>In addition, knowledge can be understood in at least four forms: know-what, know-why, know-how, and know-who (OECD, 1992).

Know-what refers to the knowledge about facts and is the closest to what is usually called information. Know-why refers to scientific knowledge of the laws and principles of nature and as such underlies technological development and product and process advances in most industries. Access to this knowledge is often structured in specialized organizations such as universities or laboratories and firms have to interact with these organizations either through recruiting scientifically trained labour or establishing joint activities with them. Usually, know-what and know-why are recognized as codified knowledge.

Alternatively, know-how refers to skills or the ability to do something. It is typically developed within the individual firm and industrial networks which are relevant in order to find ways to jointly combine this kind of knowledge with other firms. In addition, know-who refers to information about who knows who, that is the basis of special social networks that make it possible to reach experts and use their knowledge. This dimension is usually

---

1 Retrieved from

<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTEDUCATION/0,,contentMDK:20161496~menuPK:540092~pagePK:148956~piPK:216618~theSitePK:282386,00.html> 1-03-09

2 Retrieved from <http://www.investintunisia.tn/document/292.pdf>

identified as “human capital”. Know-how and know-who are categorized as tacit knowledge.<sup>3</sup>

In addition, Nonaka and Konno (1998) explained the tacit and codified knowledge interactions use four mechanisms in order to work together: socialization, externalization, internalization and combination.

In 1994, Abramowitz and David suggested that codified knowledge should be the centre of the analysis because while tacit knowledge concerns individual and organizational capability and technological advances, codified knowledge is the force and shape that allowed the expansion of the Knowledge-based Economy (Leydesdorff, 2009:2). This point though has been questioned because tacit knowledge is considered more important for competitive needs than codified knowledge (Goddard and Chatterton, 1999). This point will be discussed in the final section of this review.

In summary, the roles of the OECD and the World Bank as promoters of the KBE have been very important. The adoption and promotion of kinds of knowledge production and mechanisms of interchange have been part of the KBE model dissemination. The KBE model has an emphasis on the relevance of the labour market, as an economy based on highly qualified “human capital” (Aubert, 2006) in a flexible market which consequently promotes regional competition (Christopherson and Clark, 2007). In fact, many authors have identified globalization with a “regional revival” (Maskell and Törnqvist, 1999:18).

The next section discusses the model considered as the main option for regional development in KBE. An introduction of basic concepts and a brief review about territorial innovation models will be presented and after that, the learning region model is included as an example of regional development.

---

<sup>3</sup> Retrieved from [http://www.cyberartsweb.org/cpace/ht/thonglipfei/tacit\\_explicit.html](http://www.cyberartsweb.org/cpace/ht/thonglipfei/tacit_explicit.html)

## **2.3 Regions and territorial innovation models**

A brief historical review is important to understand some concepts. In the late 1980s and early 1990s, academic discussion about local and regional development first addressed the topic of regional development (Fernández et al, 2008). That moment is important because of the multiple proposals of regional development presented. This section takes advantage of some basic concepts discussed at that moment.

### ***2.3.1 Region, regional development and regionalism***

The first important concept is the region itself. A region could be defined as a recognized area having unity or uniformity in economic and social features that differentiate it from other regions. These characteristics make it possible to identify the region from geographical and historical perspectives (Hall, 1985), to explore its social and economic transformations, the effects that national or even global changes have on it and its prospects, related to a new economic geography.

Regions in Human Geography can be delimited by different methods, depending on the questions that want to be answered (Hudson, 2007). Different divisions can operate in the

same place<sup>4</sup>. They can co-exist simultaneously, depending on local, regional or national strategies. As a result, different boundaries can also be recognized each time, for instance, depending on the different role that the regions play in a national context across their history.

A region can also be considered from three different roles: 'in' region which means a contingent or neutral container, 'to' region which means a region as an object and 'by' region which refers immediately to goals and agendas of collective actors in information process (Cornford et al, 2006). Note the passive role attributed sometimes to the region when it is just the territorial support of something, versus the active role.

According to Dunford and Greco (2006) a region can be defined as a territorial unit in order to study uneven territorial development. In addition, Thrift (1996) pointed out that "[...] the context is a necessary constitutive element of interaction, something active, differentially extensive and able to problematize and work on the bounds of subjectivity." (Thrift, 1996: 3). Based on that, this research defines the region as a territorial unit which provides a context (active and differentiated) to explore and understand the reality of uneven development. The internal dynamic of social, economic and political conditions of the region is also important.

Regional development is a framework that contains notions about territory, endogenous and exogenous resources, both top down (national) and bottom up (local) drivers, devolution and regional policies. The regional development definition adopted in this research is multilevel including the local, regional, national and also global level, and they may have different implications in each of these levels. As a result, the debate about regional development is not only about theories but it is also about scales. The appropriate scale for

---

<sup>4</sup> A term used in geography that describes the factors that make the location of natural and human-made phenomena unique. Retrieved from <http://www.babylon.com/define/48/Geography-Dictionary.html>

this kind of research is far from resolved (Doleroux and Parto, 2005) and the ideal model does not exist.

As explained before, the idea in this review is to consider regional development in its social and economic dimensions within a historical scope (Coraggio, 1983).

Because of that, Pike et al.'s (2006) definition is broad in order to present the topic properly:

“Regional development seeks the establishment of conditions and institutions that foster the realisation of the potential of the capacities and faculties of the human mind in people, communities and, in turn, in places (Williams 1983). [...] The ‘development’ of localities and regions should be part of a more balanced, cohesive and sustainable project. Reducing the social and spatial disparities and inequalities between and within localities and regions is integral to this understanding of development.” (Pike et al, 2006: 255)

Maskell and Törnqvist (1999) identified at least three different types of regionalization: decentralisation, related to authority moving from state to the regional level, separatism related to identity and cultural conditions and also regionalism which is defined as a process “to create a region that does not yet exist, or perhaps more accurately, try to strengthen an already existing but underdeveloped regionalism in an area” (Maskell and Törnqvist, 1999:18). The relevance of this quote is again to recognize different dimensions of regionalisation: decentralization is related to power, while separatism and even regionalism are related to identity.

On that point, Rodriguez-Pose and Sandall (2008) pointed out that when the decentralization process is promoted by regional actors, there is frequently an engagement with devolution of resources and defence of the regional identity. By contrast, national agencies focus less on the process of devolution of authority and responsibility, and

economic topics tend to be more important than others in their discourse. Pressure for competitiveness and even the concept of government is relegated by the concept of economic needs.

In other words, the relevance of the integral conceptualizations and the attention to uneven development is a constitutive part of the regional development definition and its implementation. It must be a highly structured concept (Markussen. 1983: 34) which includes the territorial dimension and comprises the historical, sociological, economic and political context.

Related to regionalism, Markussen also pointed out that “it is a social phenomenon about which it may be possible to make some theoretical statements and endow with an abstract meaning.” (Idem:35). Three consequences of this conceptualization are: firstly, it has to be studied in reference to a specific context, secondly, the regional analysis can be more rigorous by avoiding the fetishism of space, and thirdly, the consideration of the relation between region and State has to be included. (Idem: 50)

The third consequence pointed out by Markussen is very important in this research, because the national project promoted by the State has to be the basis of all regional projects. Particularly in small countries where the territories are totally depending on the national project and the importance of the multi-scalar relation on the regional actuation is irrefutable. It is very important because, despite Markussen’s call for attention, *regionalism* is still dispossessed of context.

The recent rise of regionalism is also interpreted as part of capitalism’s strategies, as a consequence of the crisis of Fordism (Brenner et al, 2003). This will be important in this case study as well, because of the paradox of the absence of a devolution process, which gives the control to some department of the central government but, at the same time, the absence of a state-national project with a local dimension which generates a no-man’s land phenomenon in peripheral regions in particular.

Related to the role of the state mentioned here, Brenner et al. (2003) explained that the crisis of the national scale which started in the 1970s has not been resolved and the multi-scalar notion is evident, joined by local and transversal social movements, complemented by state institutions which regulate the capitalism dynamic constantly across multi geographical scales (Brenner et al, 2003: 21). This point will be discussed in the conclusions because the regulatory role of the state in developing countries is still necessary, given the vulnerability of the economy in relation to multinational companies.

In summary, regionalism includes an obligation to include the context (Markussen, 1983) with consideration of power relations and identity dimensions as part of the key elements (Maskell and Törnqvist, 1999; Rodriguez-Pose and Sandall, 2008). No doubt both the national and regional levels are pressured of the economic role of the regions in a national or even in an international context. Simultaneously, regionalism is about the role of the state in small countries where regions have not a proper government and the multi-scalar dynamic of regional development does not exist because there is not authority there to manage small territories inside the whole country. This point will be discussed below, in the final paragraphs. This section continues with Moulaert and Nussbaumer's (2005b) presentation about territorial innovation models, to finish with the learning region concept as an territorial model proposed by the KBE model.

### ***2.3.2 Territorial innovation models in the KBE: the learning region***

Moulaert and Nussbaumer (2005b) pointed out that nowadays many different kinds of territorial innovation model exist. They divided these models into four groups: the first is the French model of 'Milieu innovateur', the second is the industrial-district model, the third is the regional innovation system, and the fourth is the new industrial space and its derivations such as spatial clusters of innovation. According to these authors, these models are more advanced than the neoclassical ones, because they take into consideration the role of institutions as key factors in an economic context.



Concurrently, the implementation of territorial innovation models are based on regional innovation policies (RIPs). RIPs have the mission to include regions in context, in particular in the global dialogue. RIPs are also explained as formulated “to stimulate, in medium-sized towns, the external manifestations of neighbourhood, variety and accessibility” (Maillat, 1998).

This author pointed out that:

“regional policies vary between policies of redistributing or re-allocating activities or resources (financial transfers) and policies aimed at stimulating regional potentials or even, more recently, policies of specific resource creation (know-how, innovation stimulation, encouragement of entrepreneurship) (Maillat, 1998:1)”.

For example, RIPs have been the instrument used by planners and developers to link local and regional economies and to guide attempts to connect the local context with the global tendencies. Traditionally, RIPs mean a specific chapter in institutional goals, connected to territory. On the contrary, RIPs must be essential configuration of any public policies document.

Tödting and Tripl (2005) explain that innovation policies do not have an ideal model. On the contrary, innovation depends upon what kind of regional location it is in. For example, possibly in the European context, less developed regions have to define innovation in terms of organization capabilities; at the same time older industrial regions have to work with new economic activities; while metropolitan regions have to prioritize fragmentation as their principal problem. These authors also suggested that,

“policy approaches for such regions will differ with respect to the weight given to the stimulation of incremental/radical innovations, the orientation on endogenous/exogenous companies and knowledge suppliers, and the fostering of internal/external networking” (Tödting and Tripl. 2005:1204).

In other words, there are specific differences in what kind of process, why and how regions achieve innovation. This also means that each region requires different approaches and even though some strategies are derived from a successful experience, it does not mean that they are applicable elsewhere. Following this explanation, this section presents the learning region model, as an important example for the KBE principles applied to the topic of regional development.

The learning region has been explained by foundations such as innovation, institutional policies, learning and institutional relations, which are defined as relevant in order to achieve development via learning processes in the region (Cooke and Morgan, 1991; Morgan and Nauwelaers, 1999, Maskell and Törnqvist, 1999). Maskell and Törnqvist (1999) pointed out that the learning region model is a consequence of the way in which firms react to the global opening of markets.

Maskell and Törnqvist have explained that this process is also about natural and effective relations and social networks in specific contexts with different motives. As a consequence, learning regions are maybe not only national, but also cross-border because some territories have historical preconditions, which facilitate these types of interchanges. This point is relevant because it explains how a learning region is able to obtain advantage from all resources to integrate processes in the global market.

Øresund Region is presented by Maskell and Törnqvist (1999) as a paradigmatic example of a cross-border learning region, where local and regional actors, both private and public, have been active in promoting the region by working in new forms of institutional agreements. Different social actors, such as firms, chambers of commerce, trades unions, political parties, universities and cultural organisations are working together (Maskell and Törnqvist, 1999: 35).

Rutten et al. (2003) synthesise all the characteristics of the learning region, defining it as a paradigm, because more than talk about policy, a learning region is about “specific institutional configurations”, which are frequently supported by regional authorities:

“Learning regions, as institutional configurations, facilitate learning among regional actors. In terms of space, learning regions therefore connect to the economic space of actors rather than to administrative regions. [...] the learning region is about establishing innovation networks between regional actors.” (Rutten et al, 2003:8)

Rutten et al (2003) insist on the role of interchange in the learning regions. They also add:

“A learning region provides knowledge and innovation services, strong interfaces and exchange mechanisms between the business community and the knowledge infrastructure, horizontal and vertical collaboration on innovation within the business community, a pro-active innovation policy from regional authorities, and collaboration between regional actors at an institutional level. What successful regions have in common is their ability to create and share knowledge among and between regional actors” (Rutten et al, 2003:9).

In summary, a learning region could be defined as a metaphor that integrates the most important elements of the KBE such as production and transference of knowledge, but at the same time, the territorial dimension gives an important contribution. Øresund Region, for example, (Maskell and Törnqvist, 1999) is not only about technology transference. It is also about identity and the recognition of human and social elements which are cross-border.

The learning region as a cross-border model is significant. It is because the effort of uneven regional development is a cross-border task. We will return to this point in the final section of this chapter. Territorial models also include some negative issues which require a separate analysis that will be done in the next section.

### *2.3.3 Critical review of territorial innovation models*

The last section contains concepts related to the territorial innovation models proposed to promote regional development. However they have specific characteristics circumscribed to their applicability. Even though, their theoretical approach generates criticism.

For example, Moulaert and Nussbaumer (2005b) identified the territorial innovation model's weakness in their ontology and their development conceptualization.

According to them, these models have market-based economic ontology and a technological view of development. They consider that market mechanisms are not useful in a context with great disparity and great deprivation, where a different approach is necessary. They also mentioned:

“the extent to which market allocation mechanisms will manage to satisfy human needs will depend on the distribution of wealth and income. [...] when there is great disparity in income and wealth, markets will no longer reveal most of the needs of deprived groups, who will have to increasingly rely – when they can do so – on Local Exchange Trade (LET) based on reciprocity, self-sufficiency (e.g. self-production of food, clothing) or state redistribution. But access and quality of these systems will vary significantly between countries, regions and localities” (Moulaert and Nussbaumer, 2005 b:49).

These authors also pointed out that all the territorial innovation models mentioned above are similar. For instance they use some key words like innovation, the role of institutions and the role of competitiveness; all are based on a market approach and all of them assume economic growth as synonymous with quality of life. On the other hand, the omissions of the natural setting, culture or political conditions are part of the weaknesses of these models.

In fact, assuming that economic growth is equivalent to a better quality of life is a problematic characteristic of these models. Another controversial point is the inclusion of some non-economic variables (Hadjimichalis, 2007) such as culture, social capital or

networks. These variables are considered part of the economic progress (Moulaert and Nussbaumer, 2005b) which is a peculiarity because at the same time, the social dimension of development is obviated in these models, in preference to a market approach. This will be discussed in the last section of this chapter.

In summary, the KBE shows its territorial dimension in the learning region model. It is proposed to promote development or even to reduce inequalities between regions, through the use of knowledge and technology.

As a consequence, regional innovation policies were formulated “to stimulate, in medium-sized towns, the external manifestations of neighbourhood, variety and accessibility” (Maillat, 1998), encourage the link between local and regional economies and to connect the local context with the global tendencies.

There are some important issues related to the institutional dimension of the KBE. Some authors consider that the rise of regional policies and the new role of regions have opened opportunities for new social actors such as universities (Goddard and Chartterton, 1999; Benneworth, 2007; Benneworth and Hospers, 2007). The study of the KBE in this dimension is very important to this thesis, given the role higher education institutions in general and the university in particular play in the institutional framework of the KBE in regional development. This will be explored in the next section.

## **2.4 Universities in the KBE**

This section discusses the institutional dimension of the universities in the context of the KBE. Universities have been part of the national innovation systems as recognized partners for central government initiatives. Inside the KBE model, the institutional dimension of universities changed. It moved from a traditional role attributed to universities to new social and even economic duties. Simultaneously, the heterogeneity among and inside universities

has to be considered. Rather than a singular role, universities play different kinds of roles inside the KBE model. These roles are diverse and have different interpretations.

First, there is a change in the university realm. The new economy advocates suggest the enhanced role of the university (Etzkowitz and Leydesdorff, 1997) as well as the important contribution of the university as part of the regional structures. A different perspective considers the transformation of the university role as part of the economic development, changing its internal nature following fluctuations in the market (Nayyar, 2008).

This point will be explored in the empirical chapters. Second, it is not possible to think about universities as monolithic structures anymore. As Gunasekara (2006) pointed out:

“Universities are complex institutions comprised of individuals and coalitions that can be very difficult to coordinate and manage, and, at best, it is problematic to make general assumptions about the tractability of the management task relating to a focused knowledge capitalization strategy” (Gunasekara, 2006:730).

Even though Gunasekara’s thesis makes use of the concept of university as institution, the existence of differences among institutions and even inside university structures are accepted. These differences are evident not only among schools but also in teaching, research, and social action -also called the third task-. The heterogeneous composition of the university is considered here as an important characteristic related to autonomy. This point will be relevant to Chapters 6 and 7 of this thesis.

There is also a particular interest in the territorial manifestation of the universities in the KBE. In contrast to regional agencies, universities are not circumscribed to a specific territory. Paradoxically, the KBE model confronts universities with the assumption of a very important participation with an explicit territorial dimension, given the specific demand in terms of labour market participation.

The territorial dimension of universities has important implications; basically universities can have multiple territories simultaneously. As Goddard and Chatterton (1999) described,

in the United Kingdom for instance, regional roles for universities demand a new part because they are not just teaching and researching institutions, but they have a ‘third role’ which means that they act directly in the regions, working together with regional agencies in what they called a learning system.

Universities are part of the regional structures created to promote development. Regional development and regional innovation policies include frequently the role played by the universities.

Actually, regional development strategies can be implemented by social actors, working together in order to achieve development. Universities are considered part of these social networks as experts in production and transference of knowledge. In fact, universities play an increasing role in the regional context as the economy becomes more regionalized (Goddard and Chatterton, 1999).

Gunasekara (2006) studied the literature related to universities and regional associative governance, which is described as a systemic model based on the capacity of the universities to consolidate networks in order to work at regional level. The author proposed two main categories in order to classify the roles of universities. While the triple helix literature defines a generative role, the OECD literature defines a developmental role. The next table shows the main elements for these two roles.

***Table 2.1. Conceptualizing the role of universities as part of the associative regional governance***

<b>Triple Helix view of the universities role: generative</b>	<b>OECD university engagement view of the university role: developmental</b>
Universities pursue generative growth opportunities directly through knowledge capitalization activities,	Universities shape the development of regional institutional and social capacities.

<p>such as spin-offs, licensing and participation on company boards. Universities analyse gaps in regional innovation environments and play a leading role in organizing networks for the development of a regional innovation strategy.</p>	<p>This is accomplished by fostering regional networking and institutional capacity, through staff participation on external bodies; provision of informed and unbiased information and analysis; brokering networking between national and international contacts and key regional actors.</p>
--	---

Source: Gunasekara (2006:730)

According to the information included in table 2.1, the triple helix model incorporates the role of universities capitalizing their knowledge and organizing networks for regional innovation strategies, which is essentially an economic role. The OECD view supposes that universities can support regional capabilities, which could be considered as more social, cultural or political roles.

As Gunasekara (2006) explained, these two different roles, identified as generative and developmental, could be fundamentally because the role of a university in its region is related to structural, institutional and social factors. But at the same time its role can be moulded by national policies, regional identity and by the hierarchy of universities themselves (Gunasekara, 2006:731). The inclusion of economically and non-economically activities affects the definition of regional roles of universities (Gunasekara, 2006:730). Conceptual weaknesses in models of universities roles are problematic, particularly when it is fundamental to the regional roles. The sections 2.4.1 and 2.4.2 below are about the university` roles. The discussion about conceptual weaknesses will be included in the final section of this chapter.

Finally, section 2.4.3 focuses on territorial innovations models (Moulaert and Nussbaumer, 2005b) as a general theoretical context.



Then, the learning region model proposed by the KBE as a territorial model to promote development with universities' participation is presented, in order to explain some specific characteristics of a regional development model with universities' contribution.

In summary, it is important to understand the internal complexity of the universities as institutions recently involved in actuation with generative or developmental roles in specific territories. This actuation with territorial dimension can be presented from many different perspectives. The conceptual review of some regional development models is also important, in order to clarify universities' roles.

The next sections address these generative, developmental and territorial models' definitions as useful frameworks to explore universities' participation in the KBE.

#### ***2.4.1 Generative role: the third academic revolution***

The generative role is the first category proposed by Gunasekara. According to him, the triple helix model is based on a generative role for the universities. Here it is important to mention that the triple helix model specifically is presented as the model for the universities' participation in the KBE (Etzkowitz and Leydesdorff, 1997; Leydesdorff, 2009). Leydesdorff (2009) pointed out that institutions in regional development are based on the interchange between universities, industry and government. This model proposes the existence of different layers that allow interaction among social actors in a new way. In an innovation system, functional and institutional layers permit agreements, interactions and transference of knowledge. This author also explains that not only market mechanisms and economic exchanges, but also political control is required in order for it to function properly.

Three sub-dynamics are reproduced as functions of the KBE: (1) wealth generation in the economy; (2) novelty generation by organized science and technology and (3) governance of the interactions among these two sub-dynamics by policy-making in the public sphere

and management in the private sphere. The economic system, the academic system and the political system can be considered as relatively autonomous subsystems of society which operate with different mechanisms (Leydesdorff, 2009: 4). Etzkowitz and Leydesdorff (1997) also proposed:

“Universities seem to be going through a second academic revolution: the economic function of the university is increasingly institutionalized in addition to the differentiation between higher education and research” (Etzkowitz and Leydesdorff, 1997:158)

The second academic revolution introduces the third task which can be understood as the link between university and society. This concept of university change has been promoted particularly since the late 1990s. In fact, there is also a third academic revolution, referred to as entrepreneurial universities (Etzkowitz and Viale, 2010:1). In this case, the generative role defines the third task as the entrepreneurial university. The next table presented by Etzkowitz (2011) is an important synthesis of the universities’ mission transformation process in order to achieve the second revolution.

***Table 2.2. Universities’ mission according to Entrepreneurial University model***

Teaching	Research	Entrepreneurial
Preservation and dissemination of knowledge	1 <sup>st</sup> Academic Revolution	2 <sup>nd</sup> Academic Revolution
New missions generate conflict of interest controversies→	Two Missions: teaching and research	Third Mission: economic and social development; old missions continued

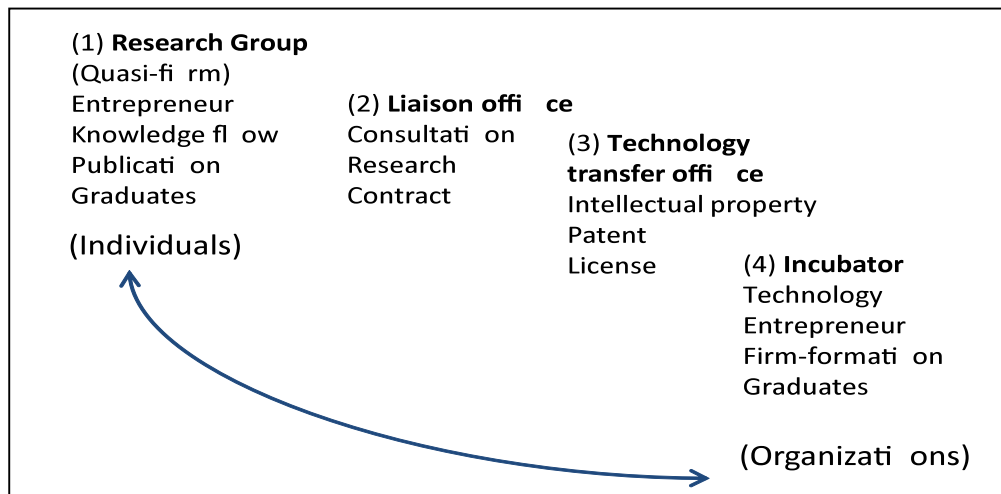
Source: Etzkowitz (2011:2)

To Etzkowitz (2011), the entrepreneurial university is taking advantage from the old dichotomies of the universities as ivory tower-technological institution or teaching-research separation.

The basic characteristic of the entrepreneurial university is the search for applied research results as was documented in Schumpeter's model about an agronomy department experience (Etzkowitz, 2011:1).

Etzkowitz (2011:4) explains that entrepreneurial universities as models are going through four momentums in a two-way line: (1) Research group, (2) Liaison office, (3) Technology transfer office (4) Incubator. The next diagram presents the components of each momentum in this dynamic.

**Diagram 2.1. University-Industry Relation**



Source: Etzkowitz (2011:4)

According to Etzkowitz (2011), this dynamic has mutual benefit for both university and industry as part of the knowledge based society; this dynamic is reducing the distance between universities and industries. There is also a transition from research groups, which are individual initiatives, to universities as incubator which include an organizational strategy (Etzkowitz, 2011:4). This transition will be explored in Chapter 6 in this thesis.

It is necessary to consider, however, that the triple helix model has an important limitation, because of the unbalanced participation of the triple helix members (Gunasekara, 2006).

This is certainly the case in small developing countries in Latin America, where industry is not the main supporter of research and innovation. There is also a difference in terms of who are the social actors that participate in the KBE dynamic. For example, the triple helix changes into a four-helix model because of the participation of the so-called civil society. This point will be also explored in the final section of this chapter and reviewed in Chapter 6.

#### ***2.4.2 Developmental role: engagement in regional associative governance***

The developmental role is the second category defined by Gunasekara (2006). It shapes the development of regional, institutional and social capacities by promoting networks between local, regional, national or even international contacts. For example, engagement is one of the developmental concepts mentioned.

Universities' engagement is defined as the strategies that can be approachable to economy and society (Goddard, 2000); while associative governance means the promotion of cooperative regional structures rather than hierarchical ones in order to promote networks and stimulate development (Cooke, 2002 quoted by Gunasekara, 2006).

Regarding universities and their regional participation, the engagement concept is closely related to structural, institutional and social factors. At the same time, characteristics of each university, characteristics of each region and the regional policies and local networks have defined universities' roles (Boucher et al, 2003:887). The next table synthesises Boucher et al.'s (2003) findings related to engagement. This table shows the complex dynamic of universities' actuation, demarcated by the characteristics of the specific region where they are located.

*Table 2.3. Universities engagement demarcated by university-region characteristics*

<b>University in core and periphery</b>	<b>Type of engagement</b>
Single player universities in peripheral regions	Encouraging entrepreneurship, science and technology transfer
Multiplayer universities in peripheral regions	Regional consortia, cultural networks, regional promotion, telematics networks
Traditional universities in core regions	Strategic planning and knowledge transfer, sustainable development education and training
Newer technologically oriented universities in core regions	City regeneration, widening access to non-traditional students

Source: Boucher et al (2003:892)

According to the information cited in the table above, the quality of engagement ranges from encouraging entrepreneurship to strategic planning, depending on an inclusive dynamic between the university's institutional characteristics and the regional location (core or periphery).

No doubt, the engagement of the universities in "knowledge-based regional development" (Boucher et al, 2003:888) is recognised by many researchers on the topic of regional development and higher education institutions' participation (Benneworth and Hospers, 2007) as being a very important point. The next table shows the role of universities in regional associative governance when the university is located in a non-core region. The information is based on Gunasekara's (2006) study in Australia, but the general recommendations may be pertinent for peripheries in general.

**Table 2.4. Universities regional associative governance demarcated by region characteristics**

<b>University in non-core regions</b>	<b>Role in regional associative governance</b>
Peri-urban university	Trilateral research partnership with public agencies and community organizations, staff participation in regional governance and providing information and analyses to facilitate community innovation and institutional capability building Participation: <b>developmental in focus</b>
Provincial city university	Collaborative research with public agencies which are part of regional governance, co-leadership of regional innovation to develop an Innovation Campus, information and analyses of regional issues Participation: <b>regional governance process</b>
Rural university	Heritage as vocational education providers create short-term barriers and narrow conceptualization of regional governance. Problems to get funding. A local governance structure, based on trust is usually strong and horizontal but <b>universities are not part of the local network</b>

Source: Gunasekara (2006:732, 734-738)

The information quoted in the table above, related to the role of the universities in non-core regions illustrates how regional and university characteristics interact and define regional governance possibilities. For instance, the peri-urban university's roles were focused on specific actions, while in the provincial-city university the staff is involved in regional governance. On the contrary, in the rural context where some universities were technological institutions in the past, with a narrow concept about regional participation and low financial funding, they are not involved in the local networks, which at the same time are based on trust.

### ***2.4.3 Universities in the KBE: diverse roles***

This sub-section addresses, from a critical point of view, the changes in the nature of universities. There are three equally controversial points. One is the discussion about the universities' participation in the market of knowledge and education, nationally and internationally. The second point is the universities' transformation in terms of administration, in some cases related to the autonomy of universities to make decisions about resources in general, but also about research and teaching priorities. This changes the nature of universities from a more academic context to that of knowledge production, protection and commercialization in a global market. The third point is the territorial dimension of universities' actuation.

Related to the national and international knowledge markets, Marginson (2008b) pointed out that the differentiation of universities is the most important point at the moment, generating virtuous circles for some (the already big institutions) and negative circles for others. This dynamic of virtuosos and negative circles affects for example peripheral universities in general because the dynamic to participate in funding competition is related to national and international research networks, rather than local initiatives (Gunasekara, 2006; Boucher et al, 2003). As a consequence, universities have to consider market conditions more than social needs to define their priorities.

Sutz (1997) pointed out that according to the global approach, the concrete change in the recent universities' actuation is related fundamentally to the strategy to transfer knowledge:

“In the old days, the transfer of the knowledge produced by the university to its end-users took place through intermediate agents, typically the professionals working in enterprises or government bodies and through high technology enterprises symbiotically related to the university”(Sutz, 1997: 10).

She pointed out that in the new role of the universities, they now go into the market and trade their products directly.

Moreover, Etzkowitz (2011) is agreeing with the universities' transformation when he explained the entrepreneurial university model presented above in section 2.4.1. He pointed out:

“Creation of an entrepreneurial university involves a cultural transformation of academia to play a more active role in society at several levels. Most fundamentally, it involves faculty viewing their research and teaching activities in a new light, seeing how they can contribute to economic and social development as well as to education of students and advancement of knowledge. Moreover, the university itself becomes an active leader and innovator in its region, taking the lead in organizing cooperative innovation projects with other local actors” (Etzkowitz, 2011:1).

In terms of administrative transformation, Pérez (1992) pointed out that universities have been called upon to accomplish different social roles across their history, in order to adapt and to respond to the social context demands. She pointed out that for example, nowadays universities in developing countries in general and in Latin America in particular, are part of the institutional transformation, in order to achieve expansion. On that point, there is the necessity for the introduction of technology, new organizational styles and the improved quality of human resources. The objective is the preparation of a better labour force to confront the challenge of the new economy. She also pointed out that the flexibility of the institutions is crucial, in order to take the experience of the past to transform it into a new role.

For that reason, the institutional transformation is not only about flexible management but also about change in institutional priorities to respond to university indicator rankings (Robertson, 2008). For example, Didrikson (2003) pointed out how some conditions of this new university context included positive consequences such as improving national and international networks, while negative consequences appeared as well, such as the rapid increase of privatization with lack of access by the poorest.



For example, in developing countries, public universities have been limited in their possibilities to react to the increasing demand and so it is met by private universities that at the same time coincide with high economic cost for study. As a consequence, only high deciles of the population have access to higher education.<sup>5</sup>

However, the international development policies promote the KBE as a new option to accomplish development even for developing countries (Aubert, 2006). Its basic idea considers knowledge as a fuel and learning as a lubricant for the economic productive process (Lundvall, 1992).

In terms of territories, KBE principles have been interpreted as organized in learning regions and clusters (Cooke, 2002) with innovation policies as an expression for institutional actions and the definition of roles for new social actors in regional development, not only regional agencies but also higher education institutions (Leydesdorff, 2009; Goddard and Chatterton, 1999) acting together.

There is also the discussion about engagement and organizational transformation, as part of the challenge promoted by neoliberal globalization and the KBE context. Marginson (2008a) studied the Australian context of higher education and he also mentioned that the criteria to transform universities are not only national but international parameters. He illustrated this point mentioning:

“new cross-border developmental strategies of institutions, such as cross-border networks, online education and cross-border mobility of institutions, the rise of the comparative perspective, global comparison between institutions and between national systems, to central place in national policy thinking; and also national strategies designed to enhance global performance.” (Marginson, 2008a: 19)

This tension has been presented in international higher education conferences where the opinions are not monolithic.

---

<sup>5</sup> See Report of Education. Costa Rica 2007.

For instance, the Global University Network for Innovation (GUNI) organized a Conference made in Barcelona in 2006 and the World Higher Education Conference 98+10 (WHEC 98+10)(GUNI Report, 2008)<sup>7</sup>where they were working on three signal points: quality, social relevance and international cooperation as key elements in the higher education transformation, but the opinions varied concerning the new roles of universities. In general these conferences supported a balanced proposal between economic, social and human development, highlighting that the relevance of knowledge in the economy nowadays has given the universities more access to financial support and more opportunity to work in social action initiatives as well (GUNI, 2008).

Finally, related to the territorial dimension of the universities' actuation, many explanations about why the region and regional development are such important concepts in economic geography have emerged recently. Hudson (2007) pointed out that these concepts have been part of academic and political discourses. He also pointed out that the spatial dimension of economies is crucial to some academic proponents such as Krugman or in applied research such as Porter's studies. Hudson (2007) also quoted Lovering (1999) to point out that this importance of the region and regional development concept is characteristic of the neoliberal globalization context (Hudson, 2007: 1150).

Tunnermann and de Souza (2003) pointed out that the knowledge society, "far from promising a significant advance and an autonomous development of universities as social institutions with a commitment to the lives of their societies, suggests the opposite and the universities change their nature" (Tunnermann and de Souza, 2003:1)

On this point, some authors are thinking about placing western universities out of the market approach discourse (Hinkelammert, 2003).

---

<sup>7</sup> See GUNI: <http://www.guni-rmies.net/>

Hinkelammert said that the World Bank objective is to reduce all education, in particular higher education, to a process for labour force training.

By contrast, this author pointed out universities can confront ideas about social and economic sustainability with a new economic order, where responsibility and hope are the basic concepts.

In summary, this section has offered a conceptual framework for the second question of this research. Universities confront many demands such as to promote the flow of ideas for innovation, facilitation of linkages, promotion of nodes in regional innovation systems, facilitation of a most appropriate environment for knowledge creation and diffusion (production and transfer) or even innovation of institutions' management among others, in order to be part of the new economy context.

Universities' roles have been organized in at least two approaches in order to resolve these demands. However, as non-monolithic institutions, diverse roles have been displayed. There are roles related to promoting the incentives and rewards, encouraging research and innovation activities to link to the productive private sector needs in a market approach perspective. There are also different roles, defined by the capacity of universities to act in response to the needs of community, focusing on the third task. Undoubtedly, assumptions of one of these roles promote internal and external debate.

In terms of regional roles, there is an important interaction among the various actors in regional innovation systems. However, as was presented above, the relation between universities and regions depends on the kind of university and the characteristics of the region itself. For example, generally speaking, the relationships between multinational enterprises and universities in core regions are usually installed beyond the regional or even national scale. However in non-core regions, universities and micro, small and medium (M-SMs) enterprises work together to create value added economic activities focusing on local economies.

The promotion of the KBE and its implications in the definition of universities' policies is also evident in developing countries.

In this context, the role of universities in regional development initiatives is related to the KBE model as well. Because of that, the final section of this chapter is dedicated to exploring how the KBE can be redefined for developing countries context and how universities can be part of the regional development process. The premise is the KBE has been promoted following the market approach and the next section assumed the mandate of a different approach in order to make it applicable for a developing country context. This point is the basis of the third research question of this research.

## **2.5 The Knowledge-based Economy in developing countries**

The content of this section is relevant to the third question of this research. By the exploration of new strategies with respect to universities' participation, in particular the distance learning university, this research asks about the definition of an alternative KBE proposal addressing uneven regional development in the context of developing countries.

The argument in this section is that the KBE for developing countries, based on the universities' participation, has to decide on a regional development definition in order to create an alternative model, focussed on uneven development reduction.

This section starts with a development definition and its relation to a regional development definition as well. Then, the paradox of the new economy in terms of resources concentration rather than development promotion is explained based on a critical review, particularly of to effects on labour market and value chains.

### 2.5.1 Development and regional development definitions

According to Hettne (1995) quoted by McEwan (2009), development can be explained by theories, strategies and ideologies. McEwan (2009) pointed out that across history, development has been defined in correspondence with an economic model of developed countries, and communicating its directions to underdeveloped countries. It is about what underdeveloped countries have to do to accomplish development.

The next table, adapted from McEwan (2009), summarizes the development models proposed since 1945, looking at different trends in development approaches, evaluating them from a post-colonialism point of view. As the table shows, notions about developing countries have been deeply discussed. In fact, there is also a debate about which designation is appropriate for these countries: underdeveloped, developing, latecomers or peripheral countries. Again, each of these designations has been proposed by different approaches.

**Table 2.5. Approaches to development since 1945**

<b>Decade</b>	<b>Main development approaches</b>	<b>Key proponents</b>
1950s	Modernization theories: based on European model and notions of 'trickle-down'. Structuralism theories: Southern countries need to limit interaction with the global economy to allow for domestic economic growth.	
1960s	Modernization theories. Dependency theories: Southern countries are poor because of exploitation by Northern countries.	Walt Rostow ( <i>The Stages of Economic Growth</i> , 1960) David McClelland ( <i>The Achieving Society</i> , 1967)
1970s	<b>Underdevelopment countries.</b> Dependency theories. Basic needs approaches: focus of government and aid policies should be on providing for the basic needs of the world's poorest people.	Furtado Hirschman Prebisch

	Neo-Malthusian theories: need to control economic growth, resource use and population growth to avoid economic and ecological disaster. Women and development: development recognized as having differential effects on women and men.	Fajnzylber
1980s	Neoliberalism: focus on the market; governments should retreat from direct involvement in economic activities. <b>Peripheral countries.</b> Grassroots and community-based approaches. Importance of considering local context and indigenous knowledge. Sustainable development: balancing the needs of current generation against environmental and other concerns of future populations. Gender and development: greater awareness of the ways in which gender is implicated in development.	
1990s	<b>Latecomer countries.</b> Neoliberalism. Post-development: ideas about 'development' represent a form of colonialism and Eurocentricism and should be challenged from the grassroots. Sustainable development. Culture and development: increased awareness of how different social and cultural groups are affected by development processes.	
2000s	Neoliberalism: increased engagement with concepts of globalization. Sustainable development. Post-development. Grassroots approaches.	

Source: Quoted and adapted from McEwan, 2009 (McEwan, 2009:93)

In this research, the development concept assumes that different theories define development according to the ideologies in which they are based and it proposes strategies to achieve development in concordance with its historical and economic framework and with a specific geographical expression as well.

It is necessary to point out here that these theories have special characteristics according to the region of the world they refer to. In the 1970s for instance, Dependency theories were the main point of the Economic Commission for Latin America (ECLAC). The idea was to express position and participation in the economic world. No doubt that there is a particular situation named underdevelopment and it requires necessarily to produce a specific framework in order to achieve an "autonomous theorization" (Furtado 1964: 140) and to explore alternatives for countries which are identified like that.

On this point, Furtado (1964) explains that each country has a position in the economic structure and underdevelopment cannot be considered as a moment in the process but as a role in the economic structure of the world. In fact, even developed countries confront uneven development between them and, inside each country, between the regions.

In addition, even though developed and underdeveloped countries confront fragmentation and uneven development inside them, the solutions seem to be different for each country. In underdeveloped countries for instance, underdevelopment “occurs in a number of forms and in various stages” (Furtado, 1964: 139). Its manifestation have for example, forms such as “1) a subsistence structure, 2) a structure oriented mainly towards exports, and 3) an industrial nucleus connected with the domestic market and sufficiently diversified to produce a part of the capital goods it needs for its own growth” (Furtado, 1964:139).

Furtado (1964:140) pointed out how these three conditions explained above are part of underdevelopment. However, the challenge to resolve external connections is totally different for each country. More struggle is required if the challenge is to resolve regional development inside the countries.

For example, foreign companies are producing export commodities while subsistence activities survive around them (Furtado, 1964:139). As Hirschman (1958) explained fifty years ago, this “dualistic character of development” is a consequence of new technologies acting upon traditional economies. It is still the case and it is probably a phenomenon present not only in underdeveloped countries but also in deprived regions in developed countries as well (Hudson, 2009).

Martinelli (1997) also pointed out that regions have their own role in the economy in terms of – for example - their link with markets. To acquire a different role is difficult or even impossible, given that virtuous circles concentrated opportunities:

“In central regions, a virtuous circle of services development is nourished by the continued interaction between services and advanced centres of decision-making and production. [...] Peripheral regions are the most disadvantaged.

The limited development of an industrial base is generally a first bottleneck for the spontaneous development of producer services” (Martinelli, 1997:80-81).

These disadvantaged peripheries are a significant challenge for new proposals on regional development. Moulaert (2000) explained that some regions have internal fragmentations which basically mean difficulties connected to their endogenous resources, while other regions have external fragmentation which means difficulties to build external connections. Both of these problems are structural in terms of the economic role that each region can play inside the capitalist global economy and they are equally negative. Consequently, regional development with a community approach also recognizes the necessity to promote internal coherence and external connections of the region.

Studying regions in a Latin-American context demands special consideration. According to Coraggio (1983), in the Latin-American context regional development studies are not only about economy but they are also about social processes.

This is because of the contradiction between spatial organization and reorganization of the social process, uneven development in peripheral regions, appropriation of land and also ideological conceptualizations about the territorial distribution of groups, all these aspects are modified by capitalist effects (Coraggio, 1983:30). Because of this, regional development is also about the study of the complex relationship between social structures and the spatial manifestation of these social structures. Coraggio’s proposals (2009) will be discussed in section 2.5.3 of this chapter.

In summary, each development definition promoted from developed countries includes a specific approach, inherited from the context where it was proposed. It is necessary to contextualize regional development, in particular for underdeveloped or developing countries context. The KBE can be considered part of recent models proposed from developed countries to promote development. Drawing on recent literature, the next section makes a brief presentation of this model from a critical perspective.



### ***2.5.2 The KBE in developing countries: resources concentration***

The theoretical framework of the KBE presented in the first section of this review is the same for developing countries. Opposing ideas to the KBE model and its territorial innovation model –the learning region- have been articulated recently by authors from developed and underdeveloped countries. A critical review of the learning region model, clusters and regional innovation systems is an example of these ideas (Fernández et al, 2008).

Christopherson and Clark (2007) pointed out that many of the learning region examples are from areas with direct and indirect subsidies to multinational companies. They also remarked that the use of public resources to support learning regions or clusters is justified by governments because of the strengthening of local labour markets, with an important role for higher education institutions and government support. This is also the case of the free economic zones installed in many developing countries.

The paradox is that rather than promoting development, these regions have concentrated resources, generate few jobs, do not promote innovation and generate uneven development (Christopherson and Clark, 2007). This phenomenon has been studied deeply in the Latin American context. For instance Fernandez et al. (2008) pointed out that regional processes explained from an industrial district model (ID), are the result of the so-called flexible accumulation which promoted local fragmentation and high concentration of resources via vertical links between firms and regions but lacking horizontal integration.

Moreover, Cimoli and Correa (2002) studied the effects of the specialization mediated by the presence of technology transfer, productivity improvements and production cost advantages in some areas and the negative effects on the neighbouring areas.

They explained that the dynamic generated is a low growth trap which is explicated by the asymmetry observed in the trade balance because of the imports of high value added products, while the production is based on non-high-value-added activities, promoting an imbalance in incomes. Simultaneously, the process of industrial specialization has been focussed in small territories. In absence of local chain, this concentration is destroying the traditional productive fabric.

In fact, the KBE is a multi-level phenomenon in terms of territories and in terms of government instances involved in this economic model implementation, because all local, regional and national levels are involved. Consequently, before explaining the KBE factors in regional and local governance, it is necessary to provide a reminder here of some characteristics associated with developing countries and their participation in the global economy.

Storper (1998) pointed out that intensive production of high technology continues to be located in a few places in the globe.

However, a new international division of labour operates nowadays, giving rise to three different groups of countries. That means, when the former country hierarchy that structured the relationship between countries almost disappeared, a new organization of countries was originated. This new organization of countries includes a group that operates with the new rules for core and periphery.

Routine production areas are usually simple production locations not requiring any wider links with core investing economies. The extreme manifestation of this is that in some industries, especially those with low fixed capital requirements, there is a nomadic division of labour, with companies alighting in a country or even most specifically, in a community for a few years and then moving on as soon as wages rise above the global minimum, with consequences for the local labour market. According to Storper (1998) Central America is an example showing the vulnerability of these economies.

In contrast, the same author explains that other countries like Brazil and Mexico play an intermediate role in the new hierarchy, while a third group improve their technological capabilities and move close to advanced economies in the world, at least in terms of economic growth. This last group is an example of the KBE in terms of learning and knowledge-based activities within the economy and in terms of inter-firm networks that can consolidate the model. Storper (1998) also considers this last group, which includes Singapore and Korea, as examples of success in the KBE model which he labels as the latecomer countries. According to Storper et al. (1998), the distance between pioneer and latecomer countries is not corresponding to developed and undeveloped countries, because the dynamic is totally different. By contrast, he proposed that institutional frameworks must be studied carefully.

#### GLOBAL MARKET RULES: LABOUR MARKET AND VALUE CHAINS

The labour market during the welfare state model in Latin American countries was very important in terms of social configuration. Hudson (2000) pointed out that many European countries have had an employment crisis, given that the neoliberal model is not focused on full employment. Barrientos (2009) mentioned that formal employment was the way to organize social services and at the end, was a vehicle for social stratification in the Latin American context<sup>8</sup>. In the new economic model, full employment is not the rule anymore, because the new rules of production and distribution are not generating sufficient jobs.

At the same time, the labour market is increasingly fragmented because of the rise of small groups with very high incomes, exacerbating social differences. As was pointed out by Storper (1998), the international division of the labour market is extremely important, in particular for countries located in the last group of the hierarchy, like Central American

---

<sup>8</sup> See information about unemployment crisis in Chapter 5.

countries which compete in the global market as providers of workers with low salaries, rather than either highly skilled workers or specialized activities.

The strategy for small countries to compete in the global market as low wageworker providers has consequences. For example, low wageworkers are usually non-qualified people. Because of that, countries which base their participation in the global labour market with non-qualified workers are not prepared to move to a different economic model such as the KBE, because the unqualified population is not capable to be incorporated into more qualified and better paid jobs.

The particularities of the KBE have influence over poor countries, not only in terms of global labour markets but in internal markets as well. For example, the KBE is strongly oriented to research and development (R&D). According to Maskell (1999), at least six weaknesses are present in small countries' attempts to compete on this basis. As he explains, these kind of activities are of high risk, high cost, the labour market is usually not sufficiently big to achieve specialization and generate jobs, endogenous growth is not absorbed by the national context and technological spill-overs are not domestic. On last point, Maskell (1999) explains that it is like fertilizing a field and the neighbours receiving the benefits. Another problem is that domestic markets usually do not consume R&D products on a large scale; and finally, "R&D-intensive industries seem to be dependent on continuous flow of science-based inputs, creating solid ties between science, producers and advanced users in these industries" (Maskell, 1999: 1). This point has been studied in the Latin American context (see for instance Cimoli and Correa, 2002) where the transferred technology has concentrating rather than being a generator for integral change in the economy. Technologies generate gaps in terms of the labour market, and destroy the traditional productive fabric without generating alternatives. This lack of alternatives happens because the focus promoted by the presence of technology in a specific place isolates it from the rest of the region, promoting internal fragmentation.

In contrast, Maskell (1999) pointed out that “It may be entirely possible to keep up a high level of prosperity while retaining a low-tech industrial specialization. Actually, the Nordic countries have obtained higher GDP per capita close to other developed countries by doing just that” (Maskell, 1999: 2). This is important to developing countries in Latin America, where the primary sector has been ignored.

Finally, the KBE is usually associated with micro, small and medium (M-SMs) high technology companies. Those companies are promoted to generate jobs for high qualified people as a solution for unemployment. However, it is a big challenge for small business in general and high technology in particular to survive in developing countries context. (State of Nation Report, 2009)

The labour market of the M-SMs enterprises is also related to two important phenomena: on one hand the informal economy of the labour market (Castells and Portes, 1989) and on the other hand, the promotion of value chains as a strategy to survive (Gereffi, 1999; Humphrey and Navas-Aleman, 2010). These two phenomena will be presented below.

With regard to informal economy, this means the rise of an important informal economy sector in developing countries, not only for low-skilled workers but also for new professionals. As Castells and Portes (1989) explain,

“the informal economy is thus not an individual condition but a process of income-generation characterized by one central feature: it is unregulated by institutions of society, in a legal and social environment in which similar activities are regulated”. (Castells and Portes, 1989: 12)

Informal economy is usually connected with the formal economy, through strong specialized networks of production and distribution. For Castells and Portes (1989) there is a problem when the informal economy is promoted as an expression of entrepreneurial spirit: “In Latin America, for example, a well-orchestrated and well financed campaign has

promoted whole sell informal economy as the best solution to these countries' endemic economic crisis" (Castells and Portes, 1989:20). For Scott and Garofoli (2007) the success of entrepreneurial initiatives is not based on individual creativities but on structural supports.

For those authors, individual entrepreneurs cannot survive if there is not a business climate supported by structural and institutional conditions, and promoted via public policies. It is proposed that the role for government (regional and national) has to be a strong one not only in terms of programmes to promote entrepreneurial initiatives but also in terms of supporting them as well. Small firms can play a positive role in the economy with government support, with basic knowledge about production and distribution processes, and also with strong social networks to support the activity as a whole. At the same time, it is necessary to define policies toward specific protection for small firms.

At the moment, the informal economy cannot be reduced just by implementation of rigid planning or by total deregulation. The informal demands public policies in order to solve its problems (Portes, Castells and Benton, 1989).

Regarding value chains, they has been intensely studied, for instance in the textile sector (Gereffi, 1999) and in the agro-industrial sector (Humphrey and Navas-Aleman, 2010). Gereffi et al (2005:5) pointed out that there are two different dynamics for value chains: producer-driven and buyer-driven:

“In producer-driven value chains, large, usually transnational, manufacturers play the central roles in coordinating production networks (including their backward and forward linkages). This is typical of capital- and technology-intensive industries such as automobiles, aircraft, computers, semiconductors and heavy machinery. Buyer-driven value chains are those in which large retailers, marketers and branded manufacturers play the pivotal roles in setting up decentralized production networks in a variety of exporting countries, typically located in developing countries”(Idem, 2005:5).

The dynamic of value chains has an important effect on labour market definition. For instance buyer-driven value chains are labour-intensive where specifications of quality, prices and markets are defined differently to the local markets.

Díaz et al. (2009) concluded that value chains are complex processes comprising more than groups of producers and consumers. Value chains comprise a rich dynamic involving many social actors with political, financial, environmental and commercial dimensions. Based on the extensive experience of coffee value chain, those authors showed the complex mechanism for a vertical and horizontal integration in the chain.

According to Stopper's classification of countries, small countries compete also by geographical position in the global labour market. That means that sometimes, geographical location can define the participation of a small country in a value chain.

The case is exemplified by multinational service companies having branches around the world.

In several sectors of the KBE, vertical integration is the rule. In emerging economies, KBE is closely related to the presence of FDI applied to high technology assembly plants. Paus (2005) also discusses the role of value chains. In summary, taking advantage of the global dynamics in general and in high technology in particular is a two-fold problem. One is related to the possibility of endogenous capabilities of the small country to compete. The second one is the option to create value chains around multinational companies, offering opportunities for local enterprises.

The dynamic of the labour market is an indicator of the economic performance of a territory. The new economy defines different rules, exacerbating internal differences between economic sectors and also inside each sector. This dynamic is evident in terms of territories as well.

Hudson (2000) called eco-Keynesian the new economic model that could be the basis for a social-economic change:

“Eco-Keynesian seeks to create a regulatory regime which will facilitate fuller employment and a more egalitarian distribution of work (both unwaged as well as waged work in the formal and informal sectors) alongside enhanced environmental quality and environmentally more sustainable patterns of production and consumption” (Hudson, 2000: 301).

As was explained before, developing economies are based on the attraction of FDI. That means that they are very dependent economies and the implementation of a different economic model, like the model described in the quote above is difficult. Even so, it is necessary to explore the applicability of alternatives in order to solve uneven development, principally because a new interpretation of territorial innovation models is required.

Some concerns are presented in the next sections: the proposal of the social region as a model for regional development, the role of higher education institutions and the role of regional policies.

### ***2.5.3 Social region model***

Moulaert and Nussbaumer's (2005b) review of territorial innovation models proposed the social region model as an alternative to other TIMs. A social region is a metaphor that proposes that in a specific region, social innovation in “culture, capital, governance, networking, innovation strategies and organizational change receiving renewed meanings. It will be essential to complete these new meanings through philosophical discussions, theoretical analysis, empirical case-study work and the synthesis of all three” (Moulaert and Nussbaumer, 2005b: 62).

The market approach promotes deregulation in favour of for profit competition. Moulaert and Nussbaumer (2005b) point out that the market approach is not able to satisfy human needs with social equity. Because of that they proposed community-based territorial development ontology in contrast with territorial innovation models with market approach:



“By abandoning or integrating the market logic for capital reproduction (and innovation) into a community logic, the range of economic activities increases since more agency principles, in addition to efficiency and competitiveness are taken into account and new criteria for production and distribution, in addition to the market-efficiency criteria, are introduced. [...] Indeed, when institutionally embedded, markets can play allocation roles in the social economy or collective service provision systems” (Moulaert and Nussbaumer, 2005b: 52).

In terms of capital and innovation, this model proposes:

“to include the tension between private, collective and public interest, and between individual and collective needs satisfaction; encompass the various types of capitals as they refer to the sphere of existence of humanity: natural, biological, socio-cultural; and support the various activities of human reproduction within each of these spheres: goods and services production, consumption, distribution (economic); governance and government (political), communication and artistic creation (cultural)” (Moulaert and Nussbaumer, 2005b:52).

Moulaert and Nussbaumer proposed a viewpoint from “top-down governing to cooperative governance” (Moulaert and Nussbaumer (2005b: 54). They explain that public, private and collective interests are in conflict with individual and collective needs satisfaction.

Capitals are not only financial but also natural, biological and socio-cultural, with social, historical and spatial scales and which are entrenched in power relations. The authors quoted Healey (1997) to incorporate the concept of ‘institutional capital’ to substitute ‘social capital’ because the first refers to knowledge resources, relational resources and mobilization capacity, which is a more clear and delimited definition than the definition of social capital used by Putnam’s definition (Moulaert and Nussbaumer, 2005b:55). The next diagram presents a summary of the different kinds of capitals, their logics, negotiation and objectives proposed by Moulaert and Nussbaumer (2005b).

*Diagram 2.2. Dynamic of capitals distributions, negotiation and investment*

<b>Kinds of capitals</b>	<b>Logics of capitals</b>	
Ecological or natural	Reproduction of ecological capital-ecosystem	<b>Dynamics of capitals negotiations:</b> Alliance - Antagonism
Institutional (rather than social capital)	Social dynamics building of norm system	
Human	Skills and knowledge growth	
Business (rather than private capital)	Investment in machinery, factories, etc	<b>Objectives of capitals investments:</b> Development - Economic growth

Source: Based on Moulaert and Nussbaumer (2005b)

Social capital is defined as institutional, and private capital as pertaining to business. However, these authors remark that borderlines between these capitals are not decisive, and overlapping is usual. At the same time, different logics of capitals are also part of the negotiation such as alliance or antagonism or even part of the objectives for investment. The key point is the recognition of these differences and the different role that each capital can play depending on the logic, dynamics and goals in a community based model. In fact, local development involves all kinds of capitals. All of them have to be part of innovation processes.

By now, it is necessary to point out that the presenter search makes use of the social region concept in order to re-join questions about planning, inequalities, innovation and regional development, in a developing countries context. It is pertinent because it is based on social innovation, meaning an inclusive concept of innovation for territories. The social region concept considers the tension between natural, institutional, human and business capitals and between public, private and collective interests.

It also considers the tension between the satisfaction of individual and collective needs, as well as between institutional transformations and the ethical dimension (Moulaert and Nussbaumer, 2005b).

To be democratic, the dynamic described above encourages coordination among social actors, solving tensions through a sustainable negotiation of different capitals. Social networks are relevant because they constitute a space for conciliating public, private and collective interests. (Moulaert and Nussbaumer, 2005b).

A social innovation model based on a community approach is also useful because it includes notions about different social actors and comprises tensions between public, private and collective interest in capital negotiations. In the present research, knowledge is not only the logic of human capital; it becomes a capital to be negotiated in social innovation processes. The importance of knowledge, as a transversal notion is including in human, business, institutional or natural capital. Knowledge can transform cultural dynamic as well because of the knowledge interchange. As Moulaert and Nussbaumer said: “social networks, governance, learning and community culture which are notions of cultural dynamic in community-based ontology” (Moulaert and Nussbaumer, 2005b:60).

The present research proposes four notions for community-based ontology: social networks, governance, differentiated territories and competitiveness definition. In the next sub-sections these notions are discussed.

#### SOCIAL NETWORKS IN SOCIAL INNOVATION PROCESSES

Innovation networks are a complex concept with two different dimensions. First, they can be understood as a social process, with special interest in the interactions between users and producers of knowledge (Pike et al, 2006) and with special consideration about non-economic variables (Hadjimichalis, 2007) such as social capital and social networks.

Second, they are considered in the technological dimension as a framework to support the social dynamics of the dynamic described previously.

The present research adopted an institutional capital definition rather than social capital, similar to Moulaert and Nussbaumer (2005b). This is because, according to Bourdieu, social capital

"is the set of actual or potential resources associated with the possession of a network of relationships permanent institutionalized and with 'inter-recognition' or in other words, which has sense of belonging. This implies a sense of group identity or subculture because they have not only properties in common but also permanent links between the group members" (Bourdieu, 2001:84).

However the term social capital and even social networks can be explained by their dimensions (Widen-Wulff and Ginman, 2004), by types (Yeung, 2000) or by functions (Putnam, 2002), but all of these explanations leave out the political dimension (Putzel, 1997; Portes, 2000; Harriss, 2002 and Hadjimichalis, 2007).

Citing Putnam (2000), Portes (2000) alleged three key points: First, social capital concept ranges from explaining a collective phenomenon without a theoretical framework to a social life and social groups manifestations.

Second, he is presenting a circular concept to explain why some cities are more developed than others. Third, given the complexity of the concept of social capital, both logical clarity and analytic rigor must be applied in order to prevent spurious interpretation.

Similarly, Harriss (2002) pointed out that it is a fact that social relationships can help people to achieve goals because they put together economic and political resources as well as social influences to solve needs. But those relationships have to be located in a social context according to the social position of people who participate in it. While Hadjimichalis (2007) considers social capital as a political treatment of non-economic factors which ignores social conflict implicit in social networks.

In a word, Portes (2000), Harriss (2002) and Hadjimichalis (2007) considered the necessity of social research to include a more accurate analysis of social networks, in order to present the social dynamic and eventual conflict detected in it.

The present research analyses social networks as tapestries because they have the warp, the weft and the movement. This metaphor expresses the idea about social networks because:

- 1) They are handmade: in this context suppose participation between people who live or work together in some way for weaving the tapestry.
- 2) They are unique: each one of these tapestries shows especial distinctiveness about social groups.
- 3) Their designs express history, tradition and innovation at the same time.
- 4) They can incorporate new material and conserves its own identity.
- 5) Internal conflicts connect parts in continuous movement.

In terms of social innovation networks, the warp means structural conditions and power relations. It includes development and utilization, individual or collective. The warp is about power relations more or less organized depending upon the relations between different social groups, cities or communities. The weft is constituted by knowledge and culture. It includes information exchange, problem identification, and behaviour regulation. There are also interactions between warp and weft. In these interactions are included conflict management, trust, and identification and degree of social system closure (recognizable and unproven norms).

In the present research, a KBE social network dynamic is represented using the tapestry metaphor in Chapter 5 where concepts such as structure, content and interactions of social networks are useful, given the multi-level character of the KBE in developing countries context. That is also the case of value chains dynamic explained above and studied in Chapters 5 and 7.

## GOVERNANCE: NEW ROLES FOR PUBLIC AND PRIVATE SECTOR

An important point in the community-based approach is the democratic mechanism for decision-making, and horizontal relations between social actors. The civil society concept, defined by the opposition of state and economy (Gramsci, 1971), is also important. Organizations participating in social networks and that are not part of central or local government, industry, or even academia, are defined as civil society members.

## THE RECOGNITION OF DIFFERENTIATED TERRITORIES

The KBE has been characterised as a market approach model (Moulaert and Nussbaumer, 2005b) appropriate to developed economies but proposed as a strategy for development in developing countries. However, because of the diversity in terms of activities, needs and resources, it is proposed that developing countries and peripheral regions in general, demand a different approach.

According to Coraggio (2009), notions about region and regionalism introduced in section 2.3 are reviewed here again as part of the new conceptualization for the region.

In opposition to an indigenous conceptualization, the above-mentioned author proposed the fragmentation and differentiation of territories as a consequence of capitalism and modernism model effects. Both capitalism and modernism models divided the economic, political, cultural, and ecological spheres in different components when it is fact that they are a consubstantial part of any territorial model:

“We could propose that, while modern societies have separated - in reality and in conceptual analyses - the economic, political and cultural spheres, and all these from the ecological one, in indigenous communities they are practically and symbolically united. Accordingly, the territory, as a concept and as a reality, has been differentiated and fragmented as a result of capitalism and the modernity project.

Because the persistence of community has resisted this tendency in some regions, totally or in part, the question of regionalization cannot have a unique universal meaning, neither as an interpretation of the current situation nor as a project. It would be better to find a synthesis between the different methods of analysis and the holistic visions of each, than the narrow-minded option between one approach and the other. (Coraggio, 2009:2)

Coraggio (2009) added that capital flow generates new regionalization, less permanent than in the past, due to the rapid dynamic of the capital. Following Coraggio's (2009) conceptualization of region and regionalization it is proposed that the new economy affected the territorial distribution, fragmenting it into new differentiated territories. These territories reproduced the global model of core and peripheries into national contexts. As a consequence, some regions or areas inside the regions are included into the hierarchy of the global economy as core areas while others are excluded as peripheries.

A differentiated territory is proposed here as a crosscutting notion. It can be core or periphery, rural or urban; with agricultural, industrial or tertiary sector vocation. It is also a cross-border and multi-level because core or peripheries territories could be identified by similar characteristics across nations. Core territories respond to the historical hierarchy when new economic and political dynamics confirmed them as core. Peripheries are usually territories with historical identity such as agriculture or industry that have been relegated from the new global economic dynamic.

As was also explained in section 2.5.2, the labour market is an important dimension of differentiated territories, since they can be demarcated by geographies of labour market inequalities as well.

However, models for regional development assume that all territories can be core (Massey, 2008) via the establishment of a development plan. This is the case of a region forced to abandon a traditional productive activity in order to achieve development as core regions define it. Paradoxically, that region's cultural, economic, political, and ecological condition had been excluded from the new economy dynamic. For example, it is the case of its labour force, not trained to be included in a new economic activity.

As a consequence, in a prospective model aiming to solve uneven regional development, there is not only recognition of the above-mentioned spheres but also a global hierarchy in order to understand the time-space transformation of a differentiated territory. This is the focus of Chapter 7, where the question related to alternative forms of regional development will be discussed, in particular for peripheral territories.

#### A DEFINITION OF COMPETITIVENESS

In addition to a new consideration of regional development, a specific notion of competitiveness is also relevant. For instance Fajnzylber<sup>9</sup> presented an important contribution in ECLAC<sup>10</sup> at the end of the 1980s, based on a microeconomic point of view, with a theory for sustainable competitiveness projected as an integration of technological and institutional processes, applicable for developing countries.

Recently acquired relevance of the competitiveness concept is associated with the World Economic Forum Report (2010). According to that forum, competitiveness is defined as a result of good performance in an index composed of indicators such as: institutions, infrastructure, macroeconomic environment, health, primary education, higher education, training, goods market efficiency, labour market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation<sup>11</sup>. This report, based on Schwab, Porter and Sachs' definition (2000), is premised on the attraction of foreign investment, via the demonstration of a proper business environment.

There are important limitations related to the application of the above-mentioned index in peripheral areas. First, it was defined based on national performance; consequently the application to a sub national region or a cross-border region is not easy or is even impossible.

---

9 Retrieved from <http://www.meso-nrw.de/fajnzylber.pdf>

10 ECLAC is the Economic Commission for Latin American Countries

11 Retrieved from <http://www.weforum.org/issues/global-competitiveness>



Second, it was based on macro-economic indicators characteristic of the core countries in the core areas; consequently the specific characteristics of peripheral regions such as natural environment are not included in this definition. A negative consequence of this definition of competitiveness is clear for differentiated territories such as peripheries (Coraggio, 2009) relegated from the core areas, where competitiveness has to be interpreted in a different way.

As part of the present research's aims, the final section explores some ideas related to the role of the higher education institutions in the preparation of alternatives for differentiated territories. As shown below, as part of social innovation systems, the role higher education institutions can play in their regional context is relevant. For this research, the review is focussed on that role in developing countries specifically.

#### ***2.5.4 The role of public universities in the KBE***

The role higher education institutions in general, and public universities in particular can play in the context of developing countries to redefine the KBE, can be difficult to outline. As was mentioned in the higher education section, the globalization of higher education is transforming the nature of these institutions in many ways.

There is no doubt that higher education institutions are under great pressure from transnational business corporations (Odin and Manicas, 2004) at the moment, and developing countries are not excluded from this trend.

Negotiations for funding or more autonomy have transformed the future scenarios of many universities into a big question mark, because the funding reduction of the third task actuation and the control of research activities and innovation based on private funding make them more dependent.

However, bearing in mind the role of public universities as part of the social innovation network, three points are relevant: 1) the debate about knowledge preservation and dissemination; 2) the empowerment of the local economies; and 3) the incidence of new professionals in the labour force. The next subsections cover those three points, looking for alternative roles for universities.

#### PRESERVATION OF KNOWLEDGE

Here it is important to include a brief review in terms of tacit and codified knowledge discourses, and the relevance of intellectual property protection nowadays. The review is important in particular for this research because of the role of higher education, not only in terms of the production of knowledge, but also in its protection and transference as well. There is also some discussion about how and for whom can tacit local knowledge be protected in a small region.

In developing countries, where the relevance of commercial agreements is increasingly growing, the protection of tacit knowledge is more pertinent than ever before. However, even though the protection of local knowledge is a crucial point, it represents two issues. First, it is expensive and difficult to protect knowledge production. This is a problem in the context of Latin America, especially because patents and licences are really uncommon. Secondly, there is also a debate related to intellectual property.

Referring to tacit knowledge protection, according to Muñoz (2008) a different dimension of tacit and ancestral knowledge has to be included into both the knowledge society and across new scientific knowledge. It has value in terms of know-how (solutions) and know-why (objectives). They have to be protected as well, not only because they can be sold in terms of the market approach but also because there is an important ancestral knowledge which is at risk of disappearing.

For instance, in Latin America to preserve and disseminate tacit knowledge is part of everyday practices. This view is different from the protection and transference of knowledge in a market approach (Altabach, 2007).

There is also an important challenge related to the preservation of indigenous knowledge in indigenous language. The preservation of indigenous knowledge in indigenous language in Latin America is a matter of specific concern to indigenous peoples and not only important for Spanish or Portuguese speakers from Latin American countries. (GUNI Conference, 2008)

There is a substantial disagreement related to knowledge produced by public universities themselves. Some authors like Cooke (2002) point out that university have to protect themselves via licences and patents. However, preservation and dissemination of knowledge for public interests (Vargas, 2010) is under a huge discussion far from being resolved.

#### EMPOWERMENT OF LOCAL ECONOMIES

The neoliberal globalization process affects universities' role in terms of political and economic participation. This participation is not monolithic as has been explained across this literature review. Because of that, while some universities' departments assume a market approach role, others contribute from a different perspective. As Katz (2004) explains, globalization affects the globe and its manifestations are similar.

She also identified four processes as part of communities' reaction of the globalization processes:

[...] "Resilience, reworking and resistance, each carried out at range of scales and by number of differently situated actors. These practices work off of and in response to one another, as much as in reaction to the changes imposed and engendered by 'global economy restructuring' and its local manifestations. [...] There is also a fourth R, revanchism, which was identified as unforgiving actions, which has a pejorative perception of them. (Katz, 2004:241)

These four concepts were proposed by Katz (2004) following very important research conducted in New York and Howa Village. Its methodology contrasted the development experience differences of these two communities as “always uneven”. Resilience, reworking and resistance were explained via actions involving an increasing sense of consciousness. For instance resilience was evident in small acts adopted by the population to continue for the next day. Reworking was evident in acts that change somehow the life conditions in order to make them more feasible, whilst resistance involved practices that also reorder the everyday condition but assuming an “oppositional consciousness” (Katz, 2004:251).

It is a very specific point of this research to encourage public universities to be part of the social innovation network by supporting resistance actuation with hope and responsibility as part of their role in the future (Hinkelammert, 2003).

#### WORK AND EDUCATION

There is another discussion related to the role of the universities in terms of labour force preparation. Two demands for universities are clear: firstly to give people skills to be part of the innovation process within a market approach. The other demand is to contribute with the education for a large percentage of population denied access to the secondary schools from the 1980s. This group is confronting a big challenge to get a job because of their low instructional level.

An integrated educational programme like the strategy promoted by Finland (Hölttä, 1988), amongst others, where high school, technical, and higher education are part of an integral plan, is better than just exerting pressure on universities to train people. Distance learning universities have been recognized because of their role in relation to lifelong learning and job-education process (Tait, 2008).

Finally, related to the role that universities can play, there is the contribution to the so-called “regional associative governance”(Gunasekara, 2006) formulating proper regionally-oriented policies. The next section is focused on this topic, as the final point of this review.

### ***2.5.5 Universities and regional development policies***

The debate about what development means, especially in developing countries, included in the post-development theoretical discussion is important (see for instance Escobar, 1995 or McEwen, 2009 among others). The discussion about the pertinence and the applicability of the concept in different contexts is imperative to be included here (Pike et al., 2006; Hudson, 2007), in particular some critical points about the pertinence of the concept in a developing countries context.

The role that public universities and higher education institutions in general can play in the review and redefinition of regional policies is relevant. Christopherson and Clark (2007) pointed out that the recent demand of universities actuation at the regional level, creates a space for work because in the absence of local and regional institutional capacities, universities have become economic engines in charge of the regional development process. Christopherson and Clark (2007) added that universities can be part of the regional innovation process, but they cannot be in charge of the solution of regional problems. For example, lack of infrastructure such as transportation or telecommunications, difficulties connecting the region to the global market or inherited deficiencies of public education.

On the other hand, Christopherson and Clark (2007) connect the topic of regional policies with that of the labour force and labour market, explaining that economies such as Germany have been more effective in terms of production and distribution because of their attention to middle skill workers. This attention positively influences the regional economy as a whole.

Chapter 5 in this thesis compiles information about the specific problem of few qualified jobs demanded by the new economy, while the big masses of occupations are available for workers with only high school education. On this point, the percentage of the population deprived of access to high school mentioned in the subsection above, is part of the problems to be solved by developing countries in the near future. There are not only teaching resources but also research and social action initiatives to solve the diversity of roles that universities can play at the regional level.

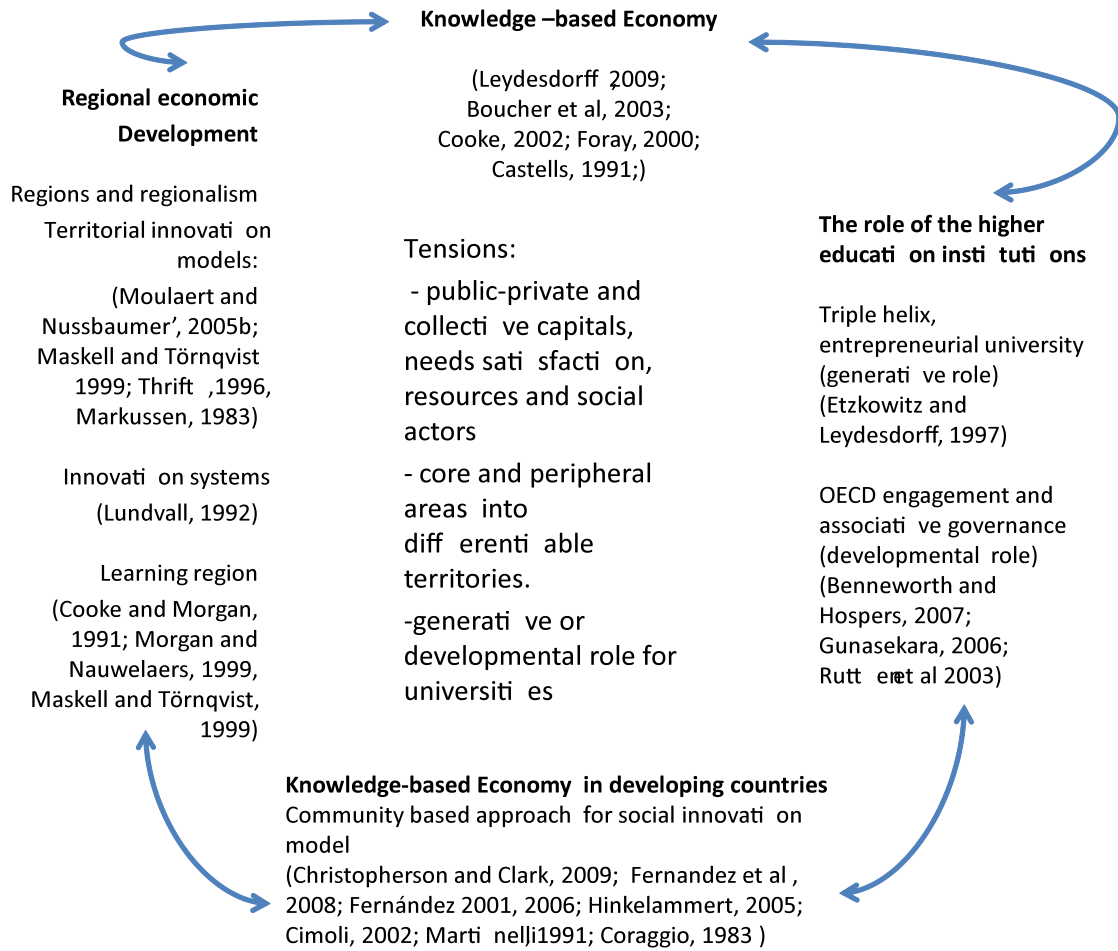
In summary, the role of universities in regional policies can be diverse. This research assumes that universities are not political organizations nor the regional institutions. However, universities have to be part of “scientific knowledge responsibility” (Hinkelammert, 2003:365).

According to this author, in contrast to the irresponsible use of science in globalization (such as all applied systems against the natural environment and human life preservation), the role of universities is the promotion of a “new culture of responsibility” (Idem: 374).

## **2.6 Summary**

This chapter explained the theoretical foundations of this research. The strengths and weaknesses of the KBE model were explored. Some questions posed were: 1) what kind of economy is a KBE; 2) what is its interpretation of regional development models; 3) what is higher education participation in KBE; and 4) what are the requirements of this model in a developing country context. The next diagram depicts a synthesis of important concerns of this review. (Source for Diagram 2.3: Own elaboration)

**Diagram 2.3. Higher education, Knowledge-based Economy and regions**



The KBE model has been related to the production and transference of knowledge as a commodity as part of the new economic model. Leydesdorff (2009) considers KBE as an umbrella concept; a metaphor which has been also politically successful. This success is related to an intensive promotion of this model, conducted by international organizations such as the OECD and the World Bank.

There is also an important emphasis on the relevance of high-qualified “human capital” (Aubert, 2006) and the important role specified for education institutions.

The institutional dimension related to the rise of regional policies to promote regional networks is also relevant.

Tödting and Trippel (2005) explained that regional innovation policies do not have an ideal model to promote innovation. However many models have been proposed from different approaches in order to promote territorial innovation (Moulaert and Nussbaumer, 2005b). In the KBE, a learning region model has been encouraged to promote regional development. This model recommends promoting development in regions via innovation networks that can be cross-border (Rutten et al, 2003; Maskell and Törnqvist, 1999).

However, the learning region -along with other territorial innovation models- assumes economic growth as equivalent to development. This equivalence considers non-economic variables such as social networks, while paradoxically the social dimension of development is not included. An important characteristic of this model is its market approach (Moulaert and Nussbaumer, 2005b).

There is also pressure on higher education to be part of the regional institutional structure to promote development in the KBE context. Two roles for higher education were evaluated. First, under the triple helix university-government-industry model as an example of a generative role, and second, an engagement and regional associative governance model as an example of a developmental role (Gunasekara, 2006).

In terms of a generative role, Etzkowitz (2011) pointed out the third academic revolution when he explains the third mission of universities as entrepreneurs. He also described how university and industry links have to be evolving, from individual initiatives such as research groups, to organizational structures, such as incubator projects.

Gunasekara (2006) pointed out the weaknesses of the triple helix model because of the unbalanced participation of universities-governments-industries in the development process.

At the same time, the developmental role was correlated to the kind of region, university and institutional framework.



Gunasekara also mentioned important examples to explain how the core regions and core universities are not usually related to the regional or even the national context development, because research funding is progressively more connected to global firms than to national projects. Conversely, new small universities are not invited to participate in community organizations, because small communities' organizations are based on trust and universities' staff members are not part of local communities.

Both critics of the triple helix model and the engagement and associative governance model are very important as part of recent debate about universities' role in the new economy and in regional development as well. Simultaneously, the promotion of both roles confronts universities with challenges. Entrepreneurial universities contain market approach values, while associative governance roles are pressuring universities to play regional institutional roles.

Finally, section 2.5 made use of the social region model, which is a community based perspective, in order to explore options to address uneven regional development. This review pointed out the necessity for new conceptualization of social networks, differentiated territories and competitiveness in developing countries context; in order to include community based ontology.

Competitiveness has to be redefined in order to be specific about resources such as the natural environment. For example, in peripheral areas pressure for urbanization is destroying the natural environment, which is not considered a resource for competitiveness in the new economy.

Opposite to the dichotomy between rural and urban, there is a proposal to redefine the conflict as core and peripheries areas. Core and peripheries can be described as differentiated territories (Coraggio, 2003).

This category is useful for future analyses because it proposes how core-peripheries are a cross-border phenomenon and it also proposes the study of peripheries, as a differentiated territory is a crosscutting notion, given that peripheries have similar characteristics everywhere. Peripheries are territories relegated in the new economy because their historical vocation, and the fact that their population is not adequately qualified to adjust into a new economy activity.

Finally, the role of the universities is controversial because they are not monolithic institutions, and hence it is not possible to define a single specific role for them. However it is proposed here their critical responsibility in terms of scientific knowledge preservation.

## **Chapter 3: Methodology**

### **3.1 Introduction**

The present research takes the uniqueness of a distance learning university in a developing country, (UNED of Costa Rica) and explores it by conducting a case study. It is explored from a critical perspective on the KBE model.

The main goal is to illustrate a specific experience of a developing country in the context of the KBE along with the role of higher education institutions. It is of particular interest to study the role that public universities could play in the future to redefine an alternative model for knowledge management as a base for development.

To accomplish the proposed methodological approach, countrywide statistical data such as regional indexes, types of economic activities and employment rates at the canton level were firstly collected to explore labour market characteristics. Secondly, discourses from different key actors about KBE have been explored through in-depth interviews. The goal of the interviews was to explore the KBE dynamic in Costa Rica and the participation of different social actors in different networks such as universities, institutions, enterprises and community organizations. The mixed method approach, starting with secondary quantitative data to define the territorial context and then focusing the analyses on qualitative information, guides this research to a more interpretative version of the institutional dimension of the KBE.

### **3.2 Justification**

This research contains personal and professional motivations. The engagement that public higher education institutions in Costa Rica have with communities in general and poor communities also inspired some of these motivations in particular. As a social psychologist in my early professional jobs and later as an urban designer, working since the late 1980s in the private sector, local government and NGO community projects and teaching at universities, I gained a pertinent background to conduct this research. Simultaneously, universities encountered a new scenario, incorporating internal and external transformations related to the prominence of the market approach discourse.

In the early 2000s attending an enrolment process of UNED, I applied for a job in the Planning Vice-rectory. The institutional tasks in relation to territories and the declared social role of this higher education institution gave me the opportunity to integrate professional experiences with institutional tasks.

In this case study, I would like to present a distance learning university studying itself not only from the context of national demands, but at the same time, from the different roles of higher education institutions determined by global trends. The study of universities as subjects themselves (Goddard and Chatterton, 1999) or the comparative studies of the universities specificities is also imperative to understand the complex context of universities transformation (Margison, 2006; Ibarra, 2003). This research will be a contribution in a new debate related to public universities' role in terms of regional development in a small country.

### ***3.2.1 Methodological contribution***

The KBE is usually studied via the analysis of quantitative indicators such as information about infrastructure, number of new patents or information and communication technology. In fact, Costa Rica is a good case of study to illustrate KBE implementation using that kind of quantitative data. See for instance Monge and Céspedes (2002) or Ketelhöhn and Porter (2009). However, this research proposes a different approach. This research contributes through a methodological proposition to study the KBE from a mixed methods approach by mixing quantitative and qualitative methods.

This approach explores the kind of KBE model that Costa Rica is promoting, the geographical distribution of this model, the institutional framework, the role of the universities and finally, an eventual proposition of an alternative KBE model for a developing country. This thesis explores the KBE in Costa Rica as a social tapestry where the study of its warp and weft elucidated the roles of different social actors.

Being a researcher with the authority to define the field of this research (Katz, 1994:68), the main interest was to establish the political interpretation of the KBE assumed by the decision makers such as central government and universities authorities. Considering institutional documents and a background review, the first list of key informants was defined, including academics identified because their work in science and technology topics and also seven Ministries of the central government. The Ministries were Economy, Industry and Commerce, Ministry of Planning, Ministry of Science and Technology, Ministry of Work and Social Security, Ministry of Competitiveness, Ministry of Agriculture and livestock, and Ministry of Education. The only Ministry that did not conceded the interview was the Ministry of Education. Instead, he sent an electronic copy of a book about Costa Rican analysis that he was editing.

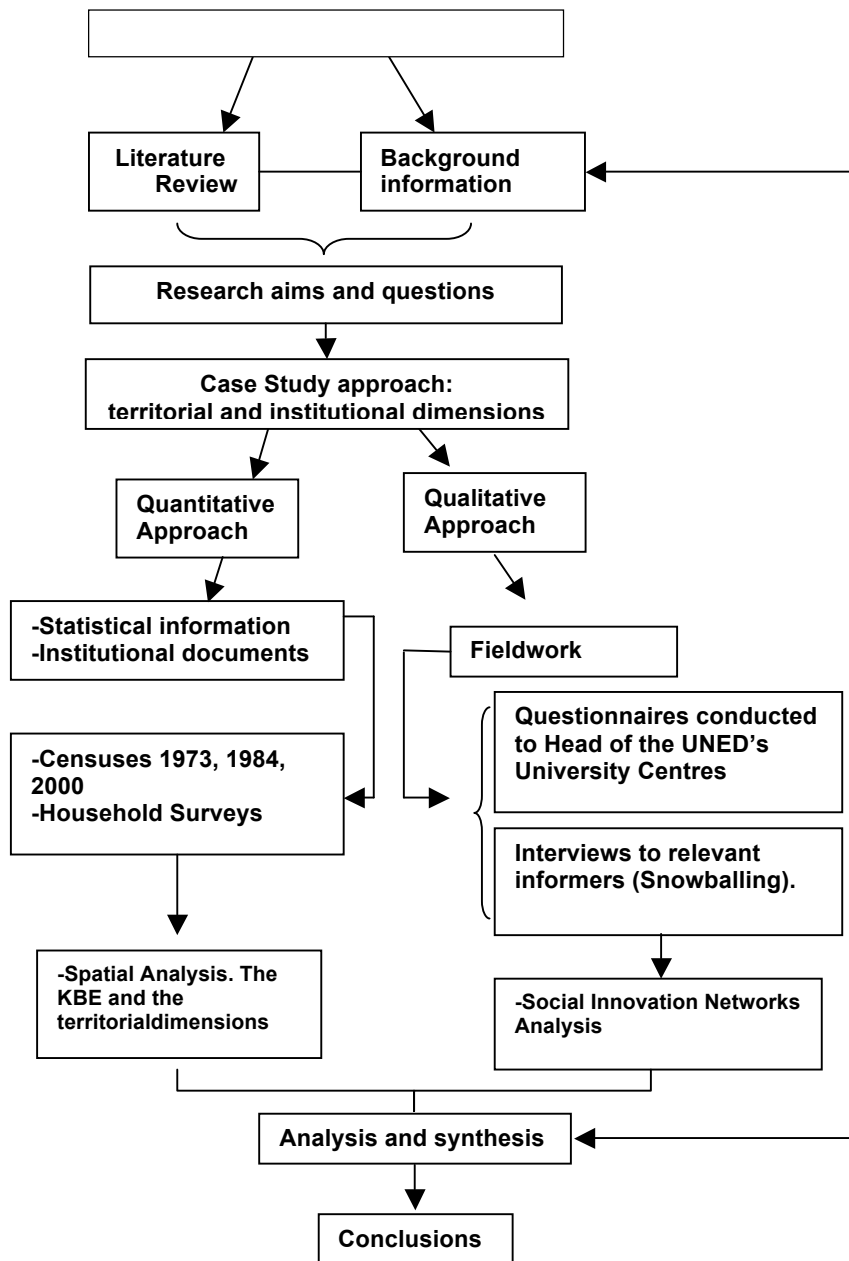
The academics were the State of Nation Project of CONARE, the Programme of information and Knowledge Society of UCR (PROSIC), former Director of National Centre of High technology, (CENAT), and an academic founder of XXI Strategy which is a ONG recognized in the topic. Regarding private sector representatives, they were directors of national chambers or academics related to the KBE promotion in private organizations, recognized lectures of public universities. As will be explained below, the snowball technique was implemented. As a result, these key informants referred further people to complete the KBE network.

Being a woman and a staff member of UNED was both, a strength and weakness of the research process. But in conducting the interviews my status as a PhD student in the United Kingdom and as a staff member of UNED was helpful since the participants accepted these two conditions as respectable enough to concede more than one hour of their time. Personal experience as a market researcher in the past was also important in conducting the interviews with ministries of the central government, managers of the private sector and academics as well. At the same time, my experience as a social psychologist allowed me to conduct group interviews with professional teams and to visit communities' organizations.

### **3.3 Research Process**

Diagram 3.1 shows the different phases of the present research. A description of each phase is presented here.

**Diagram 3.1. Research Process**



This diagram shows in a very simply schematic the process followed to conduct this research. It is very difficult to represent the complex dynamic implicit in this research, considering the topic.

Two aims for the present research were identified:

1. To comprehend the dynamic of uneven regional development in a developing country particularly when its innovation system is based on the KBE.
2. To explore the role public higher education institutions could play as part of a social innovation system in order to promote a different understanding for regional development with a community approach.

In order to explore the phenomenon explained above in a specific context, three research questions were examined:

Question 1: Has Costa Rica become a more knowledge-intensive economy in the last 30 years? If so, what has knowledge-intensive economy meant for a small developing country such as Costa Rica? And has KBE become a territorial manifestation in Costa Rica?

Question 2: What role have HEIs played in the process of Costa Rica becoming more knowledge-intensive? What role has UNED specifically played? And then,

Question 3: How would UNED contribute in order to accomplish a more regionally balanced Knowledge-intensive economy model?

### ***3.3.1 Methodological approach:***

#### WHY A CASE STUDY METHOD

According to Gomm and colleagues (2000), a Case Study Method is intended to generate ‘naturalistic generalization’ or ‘transferability’ (Gomm et al, 2000:4). The combination of different kinds of data allows triangulating contrasting ideas (Eisenhardt, 1989).

Yin (1993) pointed out that a case study method is applicable when the study of the phenomenon under scrutiny involves its context. The chosen methodological approach allows working with fuzzy information from contextual evidence.



A multiplicity of sources permits contrast and internal critical testing. Tellis (1997) considers that combining multiple techniques has several advantages including a) research development (one approach is used to inform the other, such as using qualitative research to develop an instrument to be used in quantitative research), b) increased validity and reliability (confirmation of results by means of different data sources), and c) the researcher can use quantitative and qualitative information respecting the phenomena under study.<sup>12</sup>

For the present research, a Case Study was considered as an option because its aim is to produce knowledge from a contextualized experience or phenomenon and it is based on narrative. It can be differentiated by spatial, temporal, or even by conceptual definitions. This means that Case Studies have empirical dimensions, self-identity across the processes, and produce a context-dependent knowledge. Murakami (2008) also describes it as a heuristic because “it is a creative and effective method to help to solve a problem, using science and experience” at the same time.

#### WHY COSTA RICA COULD BE A CASE STUDY?

As discussed in the introduction, Costa Rica is considered a state with “relative success” (Morales and Baranyi, 2005) and its achievements during the welfare state model (education, health, telecommunications, bank, democratic scheme, economic variety) could be enough to consider options for making an effort to circumvent uneven development. For instance, it is a small country with a per capita GDP (PPP) around \$10,000, 5 million inhabitants and 51,100 Km<sup>2</sup>. The literacy rate is 97%. Education has been a priority for decades, with free and compulsory primary schooling, free secondary schooling and four public universities coordinated by National Public Universities National Rectors Council (CONARE by acronym in Spanish).

---

<sup>12</sup>Tellis (1997) retrieved 10 March 2008 from <http://www.nova.edu/ssss/QR/QR3-3/tellis2.html>

Costa Rica can also be considered a suitable case study because of its high technology exports being the premier contributors to economic performance (Ketelhöhn & Porter, 2009).

In order to coordinate efforts toward a KBE, Law Number 7169 was enacted in 1992. This law created a Ministry of Science and Technology that defines the links between science, technology and their role in the socio-economic position of the country. While economic activities are changing, with strong dependence on FDI, knowledge capital becomes increasingly important to economic activity and productivity growth. Since the 1990s, the central government promotes a knowledge based economy approach, focalized in the metropolitan area.

Notwithstanding the aforementioned opportunities, Costa Rica confronts long-standing socio-economic inequalities that create pressures between central and peripheral regions. Its Gini index<sup>13</sup> has increased from 0,400 in 1999 to 0,437 in 2009 and will likely increase further in coming years (State of Nation Report, 2010). These contradictions make Costa Rica a good case example for a developing country pursuing a KBE based on its strengths and that still has to address uneven development.

WHY SPECIFICALLY WITH A HIGHER EDUCATION INSTITUTION?

Since the nineties, government plans for getting Costa Rica into an actual KBE included what has been called a National Innovation System to coordinate efforts towards the intended end. That system took into account higher education institutions, public in particular, to lead the effort. As mentioned before, public universities are coordinated by CONARE, through different committees.

---

<sup>13</sup>Gini index measures the extent to which the distribution of income. Gini index of 0 represents perfect equality, while an index of 1 implies perfect inequality.

In 2007, the Inter-universities Regional Committees (CRI by its acronym in Spanish) were created, to promote a coordinated activity by region, in each one of the six planning regions around the country.

That offers also the opportunity to maximize efforts in terms of the fieldwork coordination, in order to know the actuation of the four public universities working together at a regional level in Costa Rica.

As part of the combined effort, UNED has a direct experience with the Costa Rican centralized model, given the centralized concentration of student population that is around 70% in the Central Region. There is not only a personal interest of the researcher who is part of the Planning Vice-rectory of UNED with easy access to informants, but there is also an institutional interest of UNED in being a leader in this effort to build a KBE in Costa Rica. Specifically, UNED includes the topic of regional development, regionalization, and uneven development as part of the institutional priorities. As a public university, UNED has the potential for being part of a countrywide social innovation model.

### **3.4 Data collection: quantitative and qualitative approaches**

As was pointed out above, the case study permits including qualitative and quantitative information together which allows contrasting and comparing. In that sense, data triangulation can be an acceptable solution, in order to assure reliability and validity. Data triangulation basically means to ask the same question to different sources of data (Yin, 1993), which is part of a good research design. It is relevant to consider statistics, reports based on reliable sources and also interviews with experts in the specific topic. On the other hand, discussion about ethical issues is also relevant.

### ***3.4.1 The quantitative approach***

Statistical information applied to geographical analyses has recently experienced an important development, especially in relation to geographic information systems (GIS) (Anselin, 1992). The present research was not specifically directed to apply any kind of spatial statistics to the data.

However, given the relevance of exploring the territorial manifestation of social and economic variables (such as social development index, instruction level, and type of activity) basic descriptive spatial statistics were conducted.

Quantitative information was particularly suitable to answer the first research question, related to the economic transformation of the country during the last 30 years. Given the relevance of education and instruction levels, the exploration was directed to the labour market dynamics. Statistical information from several sources was gathered. A key piece of information was the data from censuses of 1973, 1984 and 2000, facilitated by the National Direction of Censuses and Statistics of Costa Rica (INEC by acronym in Spanish); as well as databases available on the website of (Other data included was obtained from the Central Bank of Costa Rica, State of Nation Project which is part of public universities initiatives, and the Index of Cantons Competitiveness which was prepared by the Observatory of Development (OdD by acronym in Spanish) of UCR and the Ministry of Economy, Industry and Commerce (MEIC by acronym in Spanish). All these are high quality and well-known sources and were used to answer questions related to the economic transformation of the country.

Census data allowed exploring the change of the type of activity and instruction level by region and by canton for the primary, secondary, and tertiary sector.

Ministry of Planning (MIDEPLAN by acronym in Spanish) information gave the possibility to explore social development index by canton.

Regarding the second research question, there was also information administered by the Planning Office of the Public Higher Education (OPES by acronym in Spanish) which is a specialized department of CONARE. This information allowed exploring the dynamics of higher education nationally and by region.

As shown in the results section, frequency distributions, bivariate correlations and cross-tabulations were calculated in order to explore the characteristics of the phenomenon under study for the first and second research questions.

All these analysis were conducted using SPSS. Spatial correlation (Moran's I) among cantons was calculated using ArcGIS analysis tools.

Maps showing average differences among cantons regarding changes in population by economic sector were prepared using ArcView.

Given a lack of historical series of data for the majority of the statistical information, main analyses were performed by including only three points in time from censuses: 1973, 1984, and 2000. Since one goal of the present research was to report the dynamics of change over the last 30 years, simple average differences were calculated in order to describe a trend in such limited longitudinal data. Such a simple analysis allowed the researcher to explore differences between the averages showed by each canton in the three censuses. After calculating the average differences in population change, each canton was classified into one of four possible groups, which are described next:

***GROUP A (Re-improving)*** are cantons whose labour force recovers the capacity to be part of an economic sector market in 2000, after having had a performance under the average in 1984.

**GROUP B** (*Consistent growth*): Those cantons that have had a labour force capable of growing its participation across time.

**GROUP C** (*Lagging*) are cantons which the labour force is not capable of being part of a labour market in any of the censuses considered here.

**GROUP D** (*Slow-down*) are cantons whose labour force was not capable of being part of an economic sector market in 2000, even when they were over the average in 1984.

All these analyses were conducted for the three economic sectors: primary, secondary and tertiary sector. Even though it is a descriptive analysis and the causal relations were not explored here, some graphs were presented, in order to show labour market trends in different sector by cantons.

The graphs were prepared calculating differences between censuses divided by the national average. The relevance of this information is to resolve the lack of historical series of data. They are also useful when they were compared with the statistical descriptive results shown in the maps. A summary for the four groups described above is shown in diagram 3.2.

**Diagram 3.2. Interpretation of chart and variables definition**

<p><b>A</b></p> <p>Cantons with change under the average in 1984 over the average in 2000</p> <p><i>(Re-improving: high rise in the importance of the sector in 2000)</i></p>	<p>Cantons with change over the average in 1984 over the average in 2000</p> <p><b>B</b></p> <p><i>(Consistent growth: strong expansion path relative to the sector)</i></p>
<p><b>C</b></p> <p>Cantons with change under the average in 1984 under the average in 2000</p> <p><i>(Lagging: “static” or not evident change)</i></p>	<p>Cantons with change over the average in 1984 under the average in 2000</p> <p><b>D</b></p> <p><i>(Slowing down: in the change process)</i></p>

(Red line=x=1 and y=1, which is equivalent to National Average)

The x and y axes were defined equal to the national average in order to compare the performance of each canton in each economic sector. The calculation defined national average as equal to 1 that corresponds to the national average, according to the information of each economic sector. Red lines in the graphs represent the national average.

### ***3.4.2 The qualitative approach***

The qualitative information has been identified as the main resource to explore subjective definitions of institutional roles. This research uses qualitative information to answer the research question related to the institutional dimension of the KBE, public universities roles and innovation features from a future perspective. All these points were part of the analyses conducted in this research.

The roles of UNED centres as well as the general dynamic of the KBE in Costa Rica in a top-down approach were explored via interviews. In order to collect accurate information; two phases of interviews were conducted.

#### **UNED CENTRES INFORMATION**

The first phase focused on UNED university centres' information. This was explored via structured interviews conducted via telephone with the head of each university Centre. These interviews were conducted in October 2008. The objective of the interviews was to learn about the link between UNED centres and their communities around the country. These interviews were conducted using a questionnaire that asked about buildings and infrastructure accessibility, staff members, and the relation between the university centre and the community, through local projects applied with the community members and institutional partners via participation in local networks.

The result of this phase was 25 effective interviews. These interviews were important to identify the link between UNED and the local partners. The information was processed using a simple table to organize the evidence from all centres in order to know both the information about the particularity of each centre and the possibility of a general picture of the UNED centres' performance in relation to local networks construction. This was a descriptive analysis. Chapter 6 contains information collected during these interviews. The questionnaire example is in Annex 1 and the Table Results for University Centres Interviews is in Annex 3.

#### THE STUDY OF THE KBE NETWORK

I transcribed all the interviews myself in Spanish. After transcription, the process of coding was applied. All the paragraphs including relevant information were identified in yellow with text mark. Only the paragraphs included in this document were translated to English. That was showed highlighting key words. These key words were based on Moulaert and Nussbaumer (2005a) categories, defined in advance to prepare the guide for the interviews. These categories were identified into the paragraphs using the “find” feature in Microsoft Word.

Interviews also were conducted with representatives of public, private and academic organizations in order to explore the dynamic of the KBE in the Costa Rican context. These were semi-structured interviews because, even though the questionnaire was prepared, the interviews were conducted in a fluid form where the dynamic was a dialogue (Flowerdew & Martin, 2005).

These face-to-face interviews were conducted with informants chosen because of their participation in academic institutions, private organizations and central government ministries. In the case of central government representatives, the participants were considered as recognized informants because of their institutional function.



Other participants were chosen because of their participation in science and technology promotion such as the XXI Century Strategy. Other interviews were defined looking for the academic sector participation in innovation initiatives both as promoters and as critics of these topics, such as the State of Nation Report representative or UNED's researchers.

In order to contact them, a formal letter signed by my first supervisor and another letter signed by the rector of UNED were sent to all of the central government representatives, asking for an appointment to conduct the interview. The reply was very positive.

I also had a field diary. At the end I had 4 small notebooks with all the information about my fieldwork trip.

A field diary is a recommended tool and it is very useful. Taking notes during the interviews also helped me a lot to define main points of each interview. These comments were related to personal or institutional positions about the topic, expressed by the participants.

These key informants identified initially defined the rest of the KBE network members. Snowballing technique was very useful because it gave both the opportunity to know the names of the KBE network participants and the dynamic of the KBE structure in Costa Rica. The Snowballing gave also the opportunity to explore the connections between the KBE participants and the link with territorial dimensions of this economic model. Interviewees provided names and telephone numbers of others network members. These interviews were conducted between June and August 2009.

Given the specific interest on the regional dimension of development, group interviews with staff from different institutions working in regional development initiatives were conducted. The group interviews were four: 2 with inter-universities regional commission (interview 36, CRI of North Huetar Region and interview 49, CRI of Atlantic Huetar Region), one with National System of Conservational Areas (SINAC by acronym in Spanish) (Interview 22, 2009) and one with Agricultural School for the Tropical Humid

Region (EARTH by its acronym in Spanish) staff (interview 33) whose work concentrates on Community Development Programme.

Finally, in order to complete specific information related to the university-private sector link, 5 more interviews were conducted in 2011.

The result was 56 interviews with an average of 60 minutes duration. All the paragraphs including relevant information were identified in yellow with text mark. Only the paragraphs included in this document were translated to English. The final list of interviewees is available in Annex 4.

The interview guide was prepared including questions related to features for social innovation: “core of innovation, the role of institutions, regional development, culture and relations among agents” (Moulaert and Nussbaumer, 2005b, 47).

As was explain above, the researcher transcribed all the interviews literally, using free software for that purpose. Interview transcripts were 13 pages long on average. Then, via the categories defined above, quoted from Moulaert and Nussbaumer (2005b), all the texts were analysed using discourse analysis, identifying “formal relations and structures” (Flowerdew and Martin, 2005: 226).

According to Flowerdew and Martin (2005), this method examines meanings not apparent for the informants themselves. Ethical and methodological considerations related to this method were mentioned by Flowerdew and Martin (2005). On this point, the use of categories supported in theory and codes to organize the information collected during the interviews were also useful in order to conduct organized analyses. These analyses allowed the identification of hierarchies and power relations inside the network as well.

### ***3.4.3 Limitations of the qualitative approach***

Three limitations were part of the process, all of them addressing immediately in order to conserve the consistence of this research.

The first was the role of the researcher as member staff of UNED. This was the strength and the weakness of the process. As Katz (1994) explained, all the methodological strategies to control the field are artificial, because the researcher has the power to control the field. In summary, the point is the game of power (Katz, 1994: 67).

Being a staff member of UNED, interviewees were thinking of UNED during the interviews. The researcher always considered this.

But because I was not autonomous, interviewees were analyzing institutional conditions of public universities with their personal discourse presenting me their claim, advice. This process allowed exploring the KBE-CR and the higher education institutions roles dynamic in a totally different perspective that anybody else who is not part of the dynamic.

The second and highest limitation was language. All the interviews were conducted in Spanish. Translations were a difficult task, because the objective related to the discourse analysis includes significance of specific expressions, in some cases not easy to translate without losing some part of the original message.

The third limitation was the snowballing method. As auto referenced participants, it is based on key informant's preferences. Because of that, sometimes only one perspective of the studied phenomenon is included. In order to diminish the effects of this limitation, representatives of different sectors, such as central government, academics and private sector representatives, defined previously, constituted the first group. All the key informants were recognized participant in the national scene of science and technology. Names were not included for obvious reasons.

## **Chapter 4: Costa Rica in context**

### **4.1 Introduction**

The aim of this chapter is to present Costa Rica's style of development, from a socio-economic, political and geographical perspective. Rovira (1987) proposes the idea of "style of development" because he advocates the interactivity between sectors and how such interactivity builds a particular socioeconomic dynamic in Costa Rica; based not on a patron or on a model, but on a specific style. This definition includes the process followed by the country over time. It has frequently been used in socio-economic analyses of Costa Rica (Villasuso, 1992; Garnier and Blanco, 2006). Consequently, to study Costa Rica's style of development, allows one to understand how a particular historical evolution provides particular conditions to confront new challenges in a global context.

To achieve these aims, the first section presents Central America from a geographical and historical perspective, trying to encompass relevant events from the post-colonial period to the present day. The objective of this section is to present the points of inflexion across space and time in the Central American region over the course of the last thirty years; focusing on its political conflict and on the efforts for economic integration.

The second section deals with Costa Rica, setting out its style of development, from both a historical and geographical perspective. Also contrasting the role of a peasant-based system with the large-farms system that is promoted in other countries. The first part of this section presents the key elements that can be said to explain the rise of a particular democratic style in a small export-led growth country.

However even when Costa Rica has a recognizable democratic base, its style has been historically concentrated in the central region of the country to the detriment of the peripheral areas.

Because of that, the next part in this section will analyse and place emphasis upon the origins and consequences of this imbalance. Finally, it discusses the consequences of a centralised style in light of the new demands from the new economic sector - for instance, the presence of FDI in peripheral regions of the country and the demands in terms of infrastructure.

The fourth section is about science and technology, supporting the so-called national innovation-system, as part of the new institutional sector. And the fifth section is about environment, explaining the importance of natural resources in public policies, looking for sustainable practises and the commercial application of biodiversity resources.

The sixth section deals with the presence of education within the country's higher education infrastructure. First, the history of public universities in Costa Rica is explained. After the 1980s, higher education institutions in general, and universities in particular, faced a new scenario: the expansion of private higher education institutions along with a concentration of higher education amongst upper income level population. Because of that, a brief presentation about private universities is included as well.

The final section sets out the growth in the Distance Learning University (UNED) that has been, since 1977, a strategy for democratized higher education across the country.

## **4.2 Central America**

### ***4.2.1 History***

Prior to the arrival of Christopher Columbus, most of the Northwestern areas of Central America were part of the Mesoamerican civilization.

The Native American societies of Mesoamerica occupied the land from central Mexico, in the north, to Costa Rica, in the south. Most of the natives in these lands were the Mayas, known for building numerous cities throughout the area, and the Aztecs, who had a vast empire.

Central America was included into the Captaincy General of Guatemala that, from the 1540s until 1821 extended from Mexico to Costa Rica. Belize was British Honduras whereas Panama was part of South America cultural area. In 1821, after the end of Spanish rule, Central America was part of the brief First Mexican Empire, which was then turned into the Federal Republic of Central America, whose capital was Guatemala City. The Republic was held from 1823 to 1838. The next map shows the distribution of territories until 1785.

Map 4.1. Political map of Central America 1732-1785



Source: Hall & Perez (2003) Historical Atlas of Central America.

The first century of independence from Spain was the foundation for export-led growth in Central America (Bulmer –Tomas, 1987).

In the 1840s coffee production started its consolidation and between 1880 and 1930, banana plantations became a second export product, which gave the region the opportunity to be part of the world economy. After 1945, the region experienced prosperity in terms of international trade, 'whilst other products such as cotton in Nicaragua and later in Guatemala and El Salvador; sugarcane in the 1960s in Guatemala, El Salvador, Nicaragua and Belize after Cuban revolution and beef in the 1950s, were part of the international trade between 1950s and 1960s' (Hall and Perez, 2003). However, the region has been looking for alternatives in export products. This point will be explained further below.

### 4.2.2 Geographical region

The region is divided into seven countries. The maps below show the historical and geographical distribution. The map on the top shows the Federal Republic of Central America until 1839. Next maps show the historical and the geographical Central America Region.

Map 4.2. Historical and Geographical Maps of Central America



Source: Hall & Perez (2003) Historical Atlas of Central America



As shown in table 4.1 El Salvador is the country with the highest population density in the region, followed by Guatemala. In terms of the Human Development Index, the trend moves towards improvement; however, in terms of inequality the trend is still disheartening. According to Trejos, (2007, State of the Nation Report), the GINI index in Costa Rica and Panama, the two countries with better economic performance in the region, shows that inequalities are growing.

**Table 4.1. Socio-economic indicators for Central American countries**

Indicator	Belize	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Total Population 2009 (millions)	300.000	4.623.000	7.339.000	14,017.000	7,468.000	5,600.000	3.444.000
Total territory (thousands of km <sup>2</sup> )	23.0	51.1	21.0	108.9	112.5	131.8	75.5
Density (people / km <sup>2</sup> ) 2006	13	87	338	123	64	42	44
Indigenous population (percentage)	16.7	1	8	40.8	7	5	6
Illiteracy in urban population (Percentage)	---	5.3	10.5	14	8.4	11.4	3.4
Public expenditure on education (2006) (a)	...	4.9	3.2	2.6	...	...	...
Human Development Index 2005	0.778	0.846	0.735	0.689	0.700	0.710	0.812
Position among 177	80	48	103	118	115	110	62
Trend 2000-2005	Improved	Improved	Improved	Improved	Improved	Improved	Improved
Inequality (GINI)	0.530 <small>(1999)</small>	0.484 <small>(2007)</small>	0.493 <small>(2004)</small>	0.585 <small>(2006)</small>	0.580 <small>(2007)</small>	0.532 <small>(2005)</small>	0.524 <small>(2007)</small>
Trend GINI Coefficient 2000-2006		Increased	Declined	Declined	Increased	Declined	Increased

(a) Modified from Trejos, 2007, on ECLAC, 2007, UNDP, 2005 and 2007; and State of the Region Project, 19999 and ECLAC Statistical report 2008

Guatemala is the territory with the highest proportion of indigenous population with 40.8%. In Costa Rica the proportion is only 1%.

One of the most evident regional trends is the internal migration from rural to urban areas. According to projections presented by ECLAC (2008)<sup>14</sup>, this phenomenon will continue and in 2030 more than half of the population will live in urban areas. This indicator is sometimes not a positive coefficient, because the abandonment of rural areas is brought about by the absence of opportunities.

**Table 4.2. Projection of Percentage of Urban Population in Central America a/**

Country	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030
Belize	51.0	50.2	49.4	48.4	47.5	47.5	47.8	50.2	52.7	55.3	58.1	60.8	63.7
Costa Rica	38.7	41.2	42.9	45.2	49.7	54.2	58.7	62.6	66.0	68.8	71.0	72.7	73.9
El Salvador	39.0	41.5	44.1	47.0	49.8	52.5	55.2	57.8	60.3	62.6	64.7	66.6	66.8
Guatemala	35.1	35.3	33.0	33.4	34.3	36.5	43.0	50.0	57.2	63.6	68.7	72.3	74.8
Honduras	29.0	32.1	34.9	37.8	40.4	42.8	45.3	47.8	50.5	53.1	55.7	58.2	60.6
Nicaragua	46.8	48.8	50.1	51.4	52.6	54.0	55.5	57.0	58.3	59.6	60.8	62.0	63.1
Panama	47.6	48.7	49.8	51.8	53.8	58.1	62.3	65.8	68.7	71.2	73.1	74.6	75.7
<b>Latin America</b>	<b>56.4</b>	<b>61.1</b>	<b>65.0</b>	<b>67.8</b>	<b>70.6</b>	<b>73.2</b>	<b>75.8</b>	<b>77.8</b>	<b>79.5</b>	<b>80.9</b>	<b>82.0</b>	<b>82.9</b>	<b>83.6</b>
<b>Caribbean Region</b>	<b>45.5</b>	<b>48.9</b>	<b>51.7</b>	<b>53.7</b>	<b>56.0</b>	<b>59.0</b>	<b>61.6</b>	<b>64.3</b>	<b>66.9</b>	<b>69.3</b>	<b>71.5</b>	<b>73.6</b>	<b>75.5</b>

a/ Percentage of total population. The definition of the term "urban" corresponds to that used in each country

Source: ECLAC (2008)

<sup>14</sup>[http://www.eclac.org/publicaciones/xml/7/35327/LCG2399B\\_1.pdf](http://www.eclac.org/publicaciones/xml/7/35327/LCG2399B_1.pdf)

At the same time, internal transformation has continued. In fact, this is part of the Latin America reality as a whole. According to Economic Commission for Latin America (ECLAC, 2009)<sup>15</sup>, a new definition about what rural area means is necessary. Rural is no longer merely agriculture, and furthermore, agricultural is not the only activity for economic development in the region. However, the new definition regarding rural and economic opportunities is not yet clear.

Even though peace creates the basis for more integrated societies, the region is still in the process of overcoming imbalances. According to The Second Report of Human Development<sup>16</sup>, small countries with a small population, like Panama and Costa Rica, have better conditions than larger countries with greater populations. These proportions are replicated across almost all those variables related to development where small countries demonstrate a better performance. (Second Report of Human Development, 2003).<sup>17</sup>

At the same time, the aforementioned Report points out that the decline in terms of percentages of poverty from 59.8% to 50.8% and extreme poverty from 27.3% to 23% do not mean less poor *per se* - particularly in urban areas. (Idem, 2003: 31) This is also linked to the Gini coefficient, as the region demonstrates the difficulty to resolve development without large inequalities.

#### ***4.2.3 Economic and political integration***

Central America is a small territory and therefore its constituent countries are small communities in terms of markets and exchanges.

---

15 [http://www.eclac.org/publicaciones/xml/7/35327/LCG2399B\\_1.pdf](http://www.eclac.org/publicaciones/xml/7/35327/LCG2399B_1.pdf)

16 Retrieved from <http://www.estadonacion.or.cr/Region2003/Paginas/indice.html> 28/11/09

17 Retrieved from <http://www.estadonacion.or.cr/Region2003/Paginas/indice.html> 28/11/09

Consequently, integration seems the most intelligent way to confront the new economic context in a global world. However such integration has been difficult.

One of these efforts is the SICA created in 1991, of which the Dominican Republic is also a part. Another effort is the PARLACEN, but Costa Rica did not join it. Finally, the Central American Bank for Economic Integration (BCIE by acronym in Spanish) is another organization looking for an integration of economic processes.

In terms of commercial agreements, the region had Common Market of Central America (MERCOSUR by acronym in Spanish), created in 1960. First Guatemala, Nicaragua and El Salvador entered into a multilateral common market arrangement; Honduras joined in 1962 and Costa Rica became part of this group in 1963. MERCOSUR seeks to protect markets and to establish a block to negotiate with other countries. It was part of ECLAC strategy for the region and it is considered a component of industrialization in the area. However, due to conflicts among countries and the change of the international market rules during the late 1970s and early 1980s, the organization was not successful. But it is still operating and over the last fifteen years, its activity constitutes the second most important market for all Central American countries, after the United States, which is the first.<sup>18</sup>

In 2001 the *Plan Puebla-Panama* was proposed to promote an economic integration from Southern Mexico (Puebla, Guerrero and Veracruz), to Colombia and Central America. It is considered as an infrastructure project searching for integration in energy, transport, telecommunications, and also sustainable development, tourism and disaster prevention. It is supported by nations (35%), the Inter-American Development Bank (24%), private sector (15%), the BCIE (7.5%) and the World Bank (5%).

---

18 Retrieved from

<http://www.sieca.org.gt/site/VisorDocs.aspx?IDDOC=CacheING/17990000002500/17990000002500.swf> 28/11/09

In 2004 the region signed the most important commercial agreement, called the Dominican Republic - Central American Free Trade Agreement (DR-CAFTA).<sup>19</sup>

As previously mentioned, the ratification of DR-CAFTA became a social conflict or a political battle in Costa Rica in 2007, solved by a referendum won by the affirmative vote and the agreement was ratified by Costa Rica. Finally, in 2007, the region began negotiating a commercial agreement with the European Union.

In terms of peace, demilitarization has been one of the most important processes in the region. Since a critical point in history in the 1980s, when the region was subject to internal and international conflicts and international interventionism, development was not realistically on the agenda. However, *Plan Esquipulas II* in 1987 has been pointed out as a point of inflexion because, in short, this plan promoted national reconciliation both at a national level and among countries.

#### ***4.2.4 Inter-regional and international challenges***

As previously mentioned, agriculture is transforming its role in economic activities and the percentages of industry and services had been growing from around the 1960s. As the next table shows, the decreasing trend in agriculture evident since 1995 was accompanied by a temporal increase in industry. However the industrial sector did not have strong development. Opposite, between 2000 and 2007, services gradually increased. Costa Rica and Panama are the better examples of such a trend.

---

<sup>19</sup> Retrieved from [http://www.caftaintelligencecenter.com/subpages/What\\_is\\_CAFTA.asp](http://www.caftaintelligencecenter.com/subpages/What_is_CAFTA.asp) 10/10/09

**Table 4.3. Structure of the total employed population, by sector of economic activity**  
**From 1995 to 2007**  
**(Percentage of total employed population)**

Country	Agriculture			Industry			Services		
	1995 c/	2000 c/	2007 c/	1995 c/	2000 c/	2007 c/	1995 c/	2000 c/	2007 c/
Costa Rica	21.0	16.9	13.0	24.3	22.6	22.2	54.7	60.5	64.8
El Salvador	25.6	20.7	17.8	26.7	24.4	23.3	47.7	54.9	58.9
Guatemala	37.6	36.5	30.6	23.2	20.5	23.8	39.2	43.0	45.6
Honduras	38.2	34.0	33.2	22.6	22.4	22.7	39.1	43.6	44.1
Nicaragua	33.7	32.4	33.6	16.1	18.3	19.7	50.3	49.3	46.6
Panamá	20.8	17.0	18.9	18.1	17.4	18.9	61.1	65.7	62.2

*a/ Refers to employed population aged 15 years and over.*

*b/ In accordance with the International Standard Industrial Classification of All Economic Activities (ISIC), Rev. 2.*

*c/ Data refers to the year nearest to the one heading the column.*

Source: ECLAC 2008

In 2009 negotiations with the European Union in order to sign a commercial agreement were suspended because of the coup in Honduras.

In summary, in 2003, according to the First State of the Region Report, general indicators published following social conflicts suggested the possibility to achieve a more balanced society in a development context. Unfortunately, in 2008, even though the countries have a) more urban population, b) further opened their economies towards global markets, and c) democracies try to consolidate their political processes; the Second State of the Region Report pointed to the fact that the results are not positive and the region is still in crisis.<sup>20</sup>

The idea about social structure transformation, related to the rise of the new economic strategy is not new.

---

<sup>20</sup> Retrieved from

<http://www.estadonacion.or.cr/estadoregion2008/regional2008/capitulosPDF/Resumen-en.pdf>

For instance, Weaver (1994), drawing on the Central American context, proposes four economic sectors: a modern urban sector, export agriculture, competitive sector and a state sector.

On the other hand, efforts to integrate the region in terms of social conditions have been less successful than economic efforts. Because of that, integration processes are still weak.

## **4.3 Costa Rica**

### ***4.3.1 Costa Rica, a brief presentation***

With a population of 4 million, the territory of Costa Rica extends over 51,000 square kilometres of land and 589,000 square kilometres of oceans. Bordered by Nicaragua to the north and Panama to the south, the Pacific Ocean lies to the west and the Caribbean Sea to the east. The country is famous for its climate diversity, mountains, rivers and volcanoes.

In the past, its rich volcanic soil -especially in the central valley- provided sufficient resources to consider agriculture as a key economic activity. However, presently, its biodiversity is considered one of its more appreciated resources. As a result, a major effort is underway to transform old technologies into more environmentally sustainable and socio-economic strategies. This point will be subsequently explained.

In terms of political and institutional structure, it is a democratic republic with elections every four years to elect a president (national level), deputies (provincials level) and local council members (canton level) all by direct vote. The country has four main bases for its political system: Legislative Power, Executive Power, Supreme Court of Justice and Supreme Tribunal of Elections, which is considered as a fourth pillar of the main

institutional structure in the country. The executive consists of the President,<sup>21</sup> with two vice presidents and a team of approximately 14 ministers.

According to the Constitution, the Legislative Assembly is the first power of the republic, constituted by 57 deputies. They are elected for provinces but legislate nationally and also manage some economic resources for their specific province.<sup>22</sup> Basically, to participate as a candidate in elections, people have to be part of a political party in national, provincial or cantonal level.

However in recent years, abstention has been growing, reaching approximately 30% of the population and democratic participation has weakened according to Morales and Baranyi (2005). For instance, while in the past the main points in social and economic context were discussed in National Assembly, recently executive decrees have been substituted for a more advisory process.

It is important to note that the four-year cycle continues in the country and after each election, the public sector employees are shifted to other jobs –even when the political party in power remains the same. This is part of Costa Rican political style and it is a negative circumstance because a political cycle means the abandonment of many projects and the design of a new one every four years for no reason.

According to a European Union Report (2007), Costa Rica's political system has proved to be resilient, surviving during periods of crisis.<sup>23</sup> Especially after the crisis of the 1980s and

---

21 Re-election did not exist until 2003 when the Constitutional Court ruled that ex-Presidents could run for re-election if they have been 8 years consecutively out of that role. Oscar Arias, President from 1986 to 1990 and Nobel Peace Prize winner in 1987 was re-elected as a President for the 2006-2010 period.

22 See in the section about regionalization, the explanation about how some provinces became regions by deputies' actions.

23 European Union Report for Costa Rica 2007



during the process to negotiate The United States-Dominican Republic-Central America Free Trade Agreement (DR-CAFTA), the democratic apparatus has been very important.

Currently, in terms of political and economic topics and in terms of public opinion and participation, the country is divided into two blocks; one of these is constituted by people who promote the commercial opening as an option for a new role in the global economy, while the opposite political block are people looking to conserve the welfare conditions. This extremely simplistic image attempts to show the tension, particularly when both of them are seeking representation in the political arena.<sup>24</sup>

The fact is that Costa Rica has indicators in health<sup>25</sup>, education and housing considered to be relatively high for a developing country. In terms of health, life expectancy at birth m/f (years) is 76/80 and healthy life expectancy at birth m/f (years) is 65/69<sup>26</sup>. In terms of education, the literacy rate in Costa Rica stands at 97%, and universal public education is guaranteed in the Constitution. Students who finish secondary school receive a Costa Rican High School Diploma that is accredited by the Costa Rican Ministry of Education. After that, they can begin higher education. This will be explained subsequently.

It is important to note that after the 1980s economic crisis, percentages enrolment and maintenance in secondary school have seen a gradual and sustained reduction. As a result, social inequalities have increased because the younger population have fewer qualifications and fewer opportunities to get a well-paid job.

Government actions, as defined in the National Plan for Development 2006-2010 included “Avancemos” (Lets move forward), a Monetary Conditioned Transference Program, which gives money to families in poverty, social exclusion or vulnerability.

---

24 The “left” was trying to constitute a political alliance for 2010 presidential election. The Rector of Technological Institute of Costa Rica (ITCR), was the candidate. ITCR is a public university most prestigious in technology and computing engineering

25 Retrieved from <http://www.who.int/countries/cr/en/> 20/10/09

26 Retrieved from <http://www.who.int/countries/cr/en/> 20/10/09

The objective is universal education as a key solution to avoid child labour and overcome poverty. This program is part of a struggle against poverty. The Technical Secretary for Social Integration in Central America (SISCA), considered this as a successful plan.<sup>27</sup>

The Costa Rican style of development has been studied as an interesting case study for social and economic stability.

According to Morales and Baranyi (2005), part of the concept about Costa Rica's equal society is a myth. On the other hand, Weaver, (1994) considers it as a paradox, because the structure of the caudillismo<sup>28</sup> in the country, -and also the participation of the oligarchic structure in the political scene-, had been similar in many ways to other countries in the Central American region. Nevertheless, general conditions have been different.

Myth (Morales and Baranyi, 2005), paradox (Weaver, 1994) or resilient (European Union, 2007), the truth is that Costa Rica is taking advantage of achievements that originated mainly until the 1980s, while trying to define a new style. It is relevant to mention briefly a historical perspective of the Costa Rican style and process, in order to understand its transformation.

#### ***4.3.2 Historical perspective on Costa Rica's style of development***

ITS ORIGIN: FROM POST-COLONIAL PERIOD TO 1940.

Many historians suggest that the origin of this Costa Rican style of development can be explained from the colonial era, mainly because the country played a marginal role in that period.

---

<sup>27</sup>Retrieved from

<http://www.sica.int/busqueda/Noticias.aspx?IDItem=42565&IDCat=3&IdEnt=10&Idm=1&IdmStyle=1> 20/10/09

<sup>28</sup>“Caudillismo” is a Latin American expression that refers to anti-democratic military leaders.

The Spanish occupation began in 1560, four decades later than in the rest of Central America because of the small indigenous population and the limited natural resources that did not offer good conditions for large farms as was the case in Guatemala. Another factor considered as a reason for isolation was the distance from the Captaincy General of Guatemala.

After independence from Spain in 1821, Central America started with an export-led growth model. Costa Rica became a State in 1824, with Juan Mora Fernandez the First Head of State. A small indigenous population and the absence of large-scale investment during the colonial period forced the country to adopt a different strategy. For instance, the government gave out free land and seeds to encourage coffee plantations and the structure was more geared to the peasant than the workers. In terms of political development, the country became a Republic in 1838.

According to Bulmer –Tomas (1987) the first century of independence from Spain was the foundation for export-led growth in Central America in general and in Costa Rica in particular. Costa Rica starts with a different “style of development”, also an export-led growth, but based on small farms rather than large plantations.

Weaver (1994) suggests that from 1850 to 1930, the oligarchy held control over coffee production and constituted a powerful group (in fact, Presidents were members of this group). However this was a group with a large number of small landowners, looking for better conditions for majorities in contrast to the concentration of wealth in other countries. As a result, for example in 1927, 75% of the Costa Rican population was literate.<sup>29</sup>

With coffee production in the central region, banana plantations were later established associated with the construction of the train line to the Atlantic coast.

---

<sup>29</sup> In contrast, the only university was closed in 1880 and until 1940 the country had not universities. This point will be explained later.

The economy based in coffee and bananas gave Costa Rica economic stability until 1920 when the Great Depression affected the country.

#### THE ACCOMPLISHMENTS FROM 1948 TO 1980s

Dr. Rafael Angel Calderon Guardia was President from 1940 to 1944. In alliance with the Catholic Church and Communist Political Party he gave rights for workers and opened the University of Costa Rica (UCR by acronym in Spanish). However, opposed interests divided oligarchic leaders. These conflicts generated a dictatorial climate in the country and in 1948 a crisis ended in a brief (40 days) civil war. The winner was a new group headed by José Figueres Ferrer.

Figueres was renowned and even though some researchers are extremely critical of him (Molina, 1987), others called him a leader and example in the Latin American context (Garnier and Blanco, 2006). Despite the adjectives, it is a fact that after the revolution, he initiated “the Council Founder of the Second Republic” and, via a New Constitution in 1949, abolished the army, gave political rights to women and residents of Afro-Caribbean origin, and also consolidated social rights for workers established by his rival, Calderon, a few years before. Even though, in 1948 and again in 1955, oligarchic groups were set to create a civil conflict once again, the truth is that after 1948, electoral institutions were consolidated and are the basis for all civil stability in the country.

Figueres is considered one of the most important members of the group which founded a social democratic model with welfare orientation, subsidised health care, low-cost housing, child welfare, minimum wage laws, nationalized banking, nationalized oil refinery and free and compulsory education (including support for public universities), many autonomous

institutions and public enterprises. As a result, the state had a great influence and power not only in the political but also the economic sphere.

Morales and Baranyi (2005) suggest that Costa Rica built, as a consequence of this historic moment, four basic pillars which explain its socio-political and economic processes: a liberal democracy, association between different economic sectors, de-militarization and a mixed economy. In fact, these authors considered that “a sense of nationhood” was created.

According to Garnier and Blanco (2006), Figueres’ style was looking for progressive distribution and growing salaries, those that push the economy not only in terms of growth but also in terms of development. Similar processes were implemented in other countries, based upon suggestions by ECLAC. At the same time, Prebisch<sup>30</sup> promoted the substitution of importation as a solution for poor economies. According to him, industrialization would improve the participation into more specialized markets rather than negotiate only with agricultural products.

It is important to state that the agriculture sector based in small farms’ producers and national capital owners had been the bases not only for economic activity but also for social integration. This condition is important not only because it has contributed to a more equal distribution of wealth (or less concentration at least) but also because it permitted the emergence of historic public-private alliances such as the Institute for Coffee of Costa Rica (ICAFE by its acronym in Spanish) in 1933, the Sugar Cane League (LAICA by its acronym in Spanish) in 1965 and the National Corporation for Bananas (CORBANA by its acronym in Spanish) in 1971. These three organizations, composed by frameworks of production, industrialization and commercialization are really idiosyncratic, and have been considered examples in other countries in Central America in terms of economic efficiency and solidarity between members in each sector. At the same time, these three organizations meant that the state can negotiate with an organized sector, based on national capital.

---

30 Raul Prebisch was a economist who proposed the division between the core and peripheral economies. His theory was later re elaborated in ECLAC into Dependency Theory.

This point related to the experience with public-private alliances will be reviewed later, in Chapter 5. The so-called new economy transformation has been related to the rise of new economic sectors that are not based on national capitals. As a consequence, the discussion about a public and private alliance to build collective structures such as ICAFE did in the past, which was an organizer of the coffee market relations and promoted less unbalanced production and redistribution of income, is a big challenge for the new economy sectors.

#### ***4.3.3 Economy and territory: regional uneven development***

The imbalance between regions in Costa Rica is not new. In fact, between 1963 and 1974, the peripheral regions were included in many proposals and sometimes; the same area was in different proposals (Hall, 1985). This period was one of internal investment, with an economic model based in the public sector. The government created many public institutions, in a national and regional level. These institutions had central government representation and the idea was to contribute to central government functions. However, many of them never consolidated their role. The regional agencies were not an exception.

In 1973, the German geographer Helmut Nuhn conducted the most important study in order to regionalize the country, by geophysical and economic criteria.

By a multivariate factor analysis, he identified, at that time, 6 major homogeneous regions with regard to characteristics of the population and productive activities. The names were: Central Region; West Region, Northwest Region, North Region, East Region and South Region.

In 1978, the central government changed the names to include indigenous' names of the native groups that were living in each region before the colonial process: chorotegas, huetares and bruncas. They also reduced the number of regions to five. Nowadays, six regions have been defined again.

The change of names was as following. The Central Region continued with the same name; West Region today called Central Pacific, Northwest Region today named Chorotega, North Region today called North Huetar Region, East Region today named Atlantic Huetar Region and South Region today called South Pacific Region.

In 1985 Central Pacific was separated again. The three different moments were really similar in terms of distribution.

Even when each institution usually has a specific regionalization, Nuhn's proposal made in 1973 is still the valid base for regional frontiers when the regional level is involved. In the next section a description about each region is included.

## REGIONALIZATION

In 1975 the MIDEPLAN defined the regional distribution –based on Nuhn's work, and currently in use. In this distribution, the central valley and adjacent mountains formed the Central Region. This region included the core areas of four of the seven provinces: San José, the capital; Heredia, Alajuela and Cartago which are now amalgamated by co-urbanization processes and have a big congestion problem in public transportation, infrastructure and public services. 60% of the population in the country live there and it contains a heavy concentration of both public and private sectors. Urbanization processes provide pressure for land and coffee cultivated area, which practically disappeared from this region, especially in the areas located between the principal population centres along the roads, which are no longer of agricultural use but have moved into residential, commercial or even industrial uses.

The Grand Metropolitan Area (GAM by acronym in Spanish), has many planning proposals. It was created in 1982 allows urban expansion to be kept under control. The limits defined by GAM are basically physical-spatial but they have been sufficient because it is not allowed to build any construction in these areas. The uncontrolled urban expansion is trying to stress these limits every day. However some areas are still protected and some aquifers and soils have been conserved. In 2003, European Union supported the revision of GAM by an €11 million donation plus €7 million from the Costa Rican government. The Regional and Urban Program conducted this revision for the Metropolitan Area (PRU-GAM by its acronym in Spanish), a Department of the Ministry of Housing created to do it. As a result, GAM has an actualized diagnosis and proposal to solve urban problems related to energy, transport, housing, citizens' civil participation structure and environment.<sup>31</sup>

The West Region (Central Pacific) comprises the port of Puntarenas and its hinterland around the Gulf of Nicoya. It includes the central part of the province of Puntarenas and adjacent cantons of the provinces of Guanacaste and Alajuela. Manufacturing and tourism were identified as the region's two principal growth industries. The regional centre is Puntarenas. At the moment, tourism is the most important activity.

The Northwest Region (North Pacific), now called Chorotega, is located mainly in the tropical dry forest. Its major development priorities were the improvement of transport and communications, the installation of irrigation systems, the expansion of tourism and an agrarian reform. At the moment, this region is impacted by tourism of transnational hotels and stress over water resources is extremely high.

On the other hand, as was mentioned before, it is highly impacted by FDI in real estate. As a consequence the price of land has increased extremely. Paradoxically, this region has a high percentage in poverty, affecting women especially (Chant, 2007). This aspect will be included later, as a relevant part of the analysis.

---

31 Retrieved from [http://www.prugam.go.cr/plan\\_prugam.htm](http://www.prugam.go.cr/plan_prugam.htm) 01/09/09



In terms of regional government, in 1964 was established the Regional Association of Development of the Peninsula of Nicoya which was selected by the Agency for International Development (AID) for a pilot project under the auspices of the Alliance for Progress but abolished in 1967 (Hall 1985).

The North Region called now Huetar North Region is a cross border provinces region, spanning extensive parts of the provinces of Alajuela and Heredia, occupied by humid tropical lowlands and adjacent mountains.

There was scope for further colonization, although heavy precipitation, swamps, and rugged mountains restricted the region's agricultural potential. Since 1968 the region has the youngest and most active volcano in the country, Arenal. The development of small and medium enterprises in local eco-tourism has taken place at La Fortuna, which is considered as a success example for community-based tourism around the world. (Solano, 2009)<sup>32</sup> At the moment, in terms of regional planning, one of the most important referents is the Special Economic Zone (ZEE by its acronym in Spanish). It is a private organization, created in 2002 as an initiative of a public university (TEC) with 44 members from the private and the public sector. Its objectives are related to regional development.<sup>33</sup>

The East Region, now called Huetar Atlantic Region, is formed by Limón province territory basically. Its economy was heavily dependent on the production of bananas and cocoa plantations; linear settlements bordered the railway lines and gravel roads.

Plantation in general has been characterized as providing 'loose roots' in terms of communal dynamics. This region has not developed a strong social organization either. On the other hand, even though the main exporting port on the Atlantic coast is there, economic infrastructure and social services have been deficient.

---

32 Retrieved from <http://www.turismoruralbolivia.com/img/TRComunitarioCR.pdf> 01/09/09

33 Retrieved from <http://www.zeezn.com/> 01/09/09

In 1963 the Port Authority Board of Directors and economic development of the Atlantic, (JAPDEVA by its acronym in Spanish) was created. JAPDEVA was the first regional development agency established. Even though JAPDEVA survives as an institution and it has to be considered as an important social actor, it never acts as a regional agency and became the administrator of the ports of Limon and Moin. In 2009, the government started negotiations in order to privatize the ports administration and close JAPDEVA as its administrator.

The South Pacific Region now called Brunca Region, included parts of the provinces of Puntarenas and San José. Its climate is humid and there were banana, pineapple and oil palm enclaves close to the coastal lowlands as well as wood plantations. At the moment, this region has social problems related to migration and unemployment even though it is rich in biodiversity and has great potential for tourism and ecotourism. Concerning regional structures, in 1973 the 'General's Valley' Plan was made in the South region of the country by the Institute for Support to Local Government (IFAM by its acronym in Spanish) but it was an ineffective proposal.

In fact, regional planning has at least two weaknesses. The first is conceptual because regional proposals were created from a regional, more isolated planning perspective, organizing most of the time a specific area in terms of physical-spatial distribution rather than planning for development. As a result, some areas were included in more than one scheme by government departments or international agencies creating conflicts. So, even though they were created to resolve regional inequalities, their impacts were minimal because partial actions were not enough to move forward to a more balanced structure.

The second weakness of regional planning was more in terms of political structure, because the governments never created a structure to promote a real devolution process. As a result, regional level institutions do not manage resources or power in the regional level. For instance, according to Hall (1985), between 1963 and 1974 six different specific plans for peripheral areas were made.

This weakness of authority in a regional is a very important point because the regional development study and planning for address uneven regional development are related to the existence of authorities. The absence of a specific regional authority's structure will be explored in Chapter 7, when the role of the universities in regional development will be discussed. By now, it is important to summarize that the regions have no experience in governing themselves.

Simultaneously, the country is divided into 7 provinces that are not coincident with the regional distribution, and the 7 provinces divided into 81 small cantons. Provinces have political-administrative representation in the National Assembly that is part of central government, while cantons have local government status. As a consequence, the different strategies related to regional planning have been conducted from the central government agencies.

The next sections present the country in terms of specific topics, related to this research. Section 4.4 is about science and technology, section 4.5 is about natural environment and section 4.6 is about education, particularly the relevance of higher education in the country.

#### **4.4 Science and Technology**

In this field, the country is working on, at least, two levels. One is related to public policy, looking for a definition in order to include the country in a high technology model, while the other level is concentrated in the private sector. Even when different sectors were making efforts in this direction, the first point that is identified as a starting point was Law Number 7169, enacted in 1992. The law created a Ministry of Science and Technology and it basically defines the links between science and technology and their role in the socio-economic position of the country.

After that, the next landmark is XXI Century Strategy<sup>34</sup>, a multidisciplinary and inter-institutional organization created in 2004. The organization became a private organization in 2008, working on knowledge and innovation for development. It is supported by Costa Rica and the United States of America Foundation for Cooperation (CRUSA) and CONARE. According to the information referred to on the website, the objective for privatizing it was to protect it from central government changes.

At the moment, the organization has a plan based on the Knowledge Assessment Methodology (KAM)<sup>35</sup> of the World Bank of indicators. The plan proposes 2006 as a starting point for the present scenario, and 2050 as a future indicator and it defines the expected performance for Costa Rica across all of the selected 24 indicators in order for the country to achieve development.

#### **4.5 Environment**

Environment is the second of the three fundamental elements defined as critical points for the new style of development in Costa Rica. The country is famous for its biodiversity, and ecotourism is one of the important sectors in the economy.

Since 1828, many functions were delegated to local governments in order to protect the environment, basically rivers and forests.

---

34 Retrieved from <http://estrategia.cr/> 01/10/09

35 See for instance the World Bank methodology reports:

<http://web.worldbank.org/WBSITE/EXTERNAL/WBI/WBIPROGRAMS/KFDLP/EXTUNIKAM/0,,menuPK:1414738~pagePK:64168427~piPK:64168435~theSitePK:1414721,00.html>

The first convention about nature and conservation take place in 1942, and the first national park was created in Cartago in 1945.<sup>36</sup>

In 1955 the Law for the National Institute of Tourism was endorsed, which declared 2 kilometres around each volcano as national parks. After that, in 1963 other natural reserves were created and in 1969 the law protecting forests ratified the creation of the National Parks Department. In 1977 Law number 6084 regarding the National Parks Service was enacted and the majority of national parks were created. This office was under the Ministry of Agronomy and Livestock (MAG by its acronym in Spanish) until 1990, when it was moved to the Ministry of Environment, Energy and Telecommunications (MINAET by its acronym in Spanish). In 1998 the Law of Biodiversity supports SINAC as an official department.

At the moment, the country has 32 National Parks, 8 Biological Reserves, 13 Forest Reserves and 51 Wildlife Refuges, which together constitute SINAC.

This system protects species of flora and fauna, some of which are in danger of extinction. The next map shows this information.

---

<sup>36</sup> Retrieved from <http://www.sinac.go.cr/historia.php> 15/11/09

Map 4.3. National Parks, Biological Reserves and Protected Areas



Source: National Parks System. Official information<sup>37</sup>

At the present, 25% of national territory in the country is part of this system and also approximately 6% is protected by economic compensation payments directly to owners who protect forests on their farms. At the same time, governmental offices have conducted many research projects financed by international financial cooperation agencies.

Connected to the new style of development in Costa Rica, the National Biodiversity Institute (INBio by its acronym in Spanish) was created in 1989.

<sup>37</sup> See [www.sinac.go.cr/](http://www.sinac.go.cr/)

It is a private organization gathering knowledge on biodiversity to simultaneously conserve it and benefit from it. The strategy is called “environmental services”. For instance, bio prospecting is defined as the commercial application of biodiversity resources.<sup>38</sup>

In the past, development was synonymous with transforming forests into agricultural or livestock areas which soon were destroyed losing a lot of resources. At the moment it is impossible or very expensive to try to regenerate those areas. With a more sustainable strategy, communities take advantage of a sustainable model.

Finally, it is important to include a brief reference about the dramatic destruction of natural resources. A large extension of forest was destroyed to convert it for agriculture and livestock land. At the same time, waste products from the coffee process were ending up in rivers and water resources in general have been wasted because of pollution. It would take an immense effort to recover the natural environment, especially in urban areas where it is abandoned.

#### **4.6 Higher education.**

The first higher education institution established was the University of Santo Tomas in 1843 having strong links with Roman Catholic Church. Nevertheless it was closed in 1888 by decree of President Bernardo Soto. This closure has received different interpretations through history. Some historians suggest that it was closed for reasons of political, economic and academic order<sup>39</sup>, in particular because of its close connection with the Church.

---

38 Retrieved from [http://www.inbio.ac.cr/en/inbio/inb\\_queinbio.htm](http://www.inbio.ac.cr/en/inbio/inb_queinbio.htm) 01/10/09

39 Retrieved from <http://www.ucr.ac.cr/historia.php> 10/10/07

On the other hand, historical documents suggest that this university was closed because “it didn’t have the condition to continue to function”.

Mauro Fernandez, the then Secretary of Education, mentioned in the proposal the necessity to work first on primary and secondary school levels. He said that the university would be reopening with reforms in terms of a more modern structure. In fact, the Fernandez reforms opened up opportunities for primary school and a technological secondary school, with women’s participation. Nevertheless, the objective to reopen the university wasn’t accomplished.<sup>40</sup>

However, the School of Law was preserved and remained under the College of Law, Pharmacy School and Fine Arts in 1897. In 1914 the Normal School (Escuela Normal in Spanish) was created, dedicated to the training of primary and high schools teachers, and finally the Agronomy school in 1936, under the Minister of Economy, Industry and Commerce regulation.

#### ***4.6.1 Public Universities***

These schools continued to operate independently, until 1940 when the Schools of Law, Fine Arts, Pharmacy and Agronomy were reunited to establish the modern Universidad de Costa Rica, during the reformist administration of President Dr. Rafael Ángel Calderón Guardia.<sup>41</sup>

Thirty years later, in 1972 the Technological Institute of Costa Rica (ITCR by its acronym in Spanish) was created, located in the province of Cartago.

---

40 Retrieved from <http://www.elespiritudel48.org/docu/h069.htm> 5/10/07

41 Retrieved from <http://www.ucr.ac.cr/historia.php> 10/10/07



The National University (UNA by its acronym in Spanish) was founded in 1973 in the province of Heredia to continue the legacy from “Escuela Normal” which was part of the historical structure to instruct teachers for primary school. Finally, the Distance Learning University (UNED) was created in 1977.

Since 1974, public universities have been under CONARE, a supervisory body that overviews higher education quality. It is autonomous, according to the provisions set forth in article 84 of the Constitution. Each university is in charge to coordinate CONARE for a period of one year and its delegates became chairs of inter-universities committees during that period.

The public universities admission process is highly selective because they accept only approximately 30% of applicants approximately. Each year, new applicants to the public universities have to take an admission test, except for UNED. The score (plus the grades from the student's last years in high school) is used to determine the student's admission final score. After this first step, students whose final score is acceptable apply to be admitted into a preferred career. This second step depends on the demand. Historically, medicine and computer science have had the highest scores requirement. As will be explain later, a great percentage of unsatisfied demand goes to private universities.

The UCR is located in San Pedro, a canton close to the capital city. It is divided into six major academic areas: Agricultural Sciences, Arts and Letters, Basic Sciences, Engineering, Health and Social Sciences. These areas are divided into Colleges, Schools and Departments, Research Centres and Institutes. The Postgraduate Studies System offers master and doctorate degrees in a variety of academic fields.<sup>42</sup>

It has five regional centres: a western campus (located 59 km from San José in San Ramon, Alajuela Province) was created in 1968.

---

42 Retrieved from <http://www.ucr.ac.cr/imagenes/organigrama.gif>

The Atlantic campus (located 67 Km from San José in Turrialba, Cartago Province) was created in 1971, including a local branch in Paraíso, Cartago province and another one in Guápiles, Limón province. In the North Region is Guanacaste campus (located 220 Km from San Jose in Liberia City, Guanacaste Province), created in 1972 and including a local branch in Santa Cruz close to the Nicaraguan border. In Limon that is a port city located 168 Km from San Jose a social service to the community was created in 1975 and a Centre in 1979.

In Puntarenas port, 113 Km from San José the North Pacific hub was created in 1975 and made official as a Centre in 1992. Also, in 2006 a new campus was opened in Golfito, a canton in the South Pacific, close to the Panamanian border.

In terms of academic programmes, they have different study options, depending on the region. For instance near the coasts, being touristic areas, tourism management is offered.<sup>43</sup>

The ITCR is dedicated to teaching, research and extension in technology and associated sciences. Its main campus is in Cartago, 24 km east of San José. It offers both undergraduate and postgraduate studies in engineering (construction, industrial production, electronics, and industrial maintenance), computer science and recently business management. The ITCR has two other centres; one is in San Jose city and the other one in San Carlos, in the Huetar North Region. Its admission process is highly selective too and the acceptance rate is lower than the UCR. Most of its graduates come from engineering fields.

The UNA has its main campus in Heredia province, with approximately 12,000 students. In addition to undergraduate programs, it offers 16 Masters of Art degrees and is strong in ecology and education related coursework. This university has two other Centres: one in the Brunca Region (136 Km from San Jose) which is located close to the South Pacific coast, and another one in the Chorotega Region in the North Pacific (located 220 Km from San Jose).

---

43 Retrieved from [http://www.ucr.ac.cr/sedes\\_regionales.php](http://www.ucr.ac.cr/sedes_regionales.php) 10/10/07

The Distance Learning University (UNED) was established in 1977. Its main objective is to democratize university education, making college accessible to new social sectors, which in the past had been marginalized from Higher Education, eliminating discrimination on geographical, economic and social development grounds of many sectors of the Costa Rican population. A second objective is to keep students in their workplace and "do not uproot" them from their own community, retaining them in the context where they can develop their careers.

New applicants to the UNED do not have to take an admission test. Actually, the university has a registration process three times a year because the curricula are organized to start every four months. UNED has four schools: Education (Seven courses), Administration (Nine courses), Social Sciences & Humanities (Five courses) and Exact & Natural Sciences (Eight courses). In the past, the average student's age was over 25 years old. Now it is an option for younger people who are looking for higher education when they finish High School, but do not get a chance in other public universities and need a cheaper option than private universities.

Since 2007, public universities are working together in peripheral regions, conducting projects of university extension at local level. A Regional Committee for every region implements this strategy.

#### ***4.6.2 Private universities***

Finally, in terms of private institutions, at the moment 50 organizations have been registered as universities. This demands a big effort by the Council for Private Universities (CONESUP by its acronym in Spanish) to control their quality.

However, many of these institutions, so called “garage universities” can be considered problems rather than beneficial because of their lack of quality. No doubt many others are good.

Here it is important to mention two private institutions. The first is the EARTH, a private university working in the Huetar Atlantic Region. Its strategy working with local organizations and High School’s students constitute a visible point in the Atlantic Region.

The second is the University of Peace<sup>44</sup> which is an international organization supported by the United Nations and with the collaboration from the government of Costa Rica. These two institutions are more internationalized than other private universities.

#### ***4.6.3 Inequalities in education in Costa Rica***

According to the State of Education Report presented in 2008, the average instruction level in the group between 18 to 64 years old, increased from 7,2 in 1990 to 8,3 years in 2006. In the same period of time, the percentage of population with completed secondary instruction level increased from 25,1% to 35,1%. At the same time, abandonment in general decreased from 7,2% to 6,4% and the first quintile of income increase its attendance from 45% to 70,8% for young people between 13 to 17 years old. On the other hand, the percentage of fail is increasing in year 7 and year 10.<sup>45</sup>

At the same time, the MIDEPLAN reported the existence of 4 public universities and fifty private universities. Private universities are diverse in terms of size, programmes and infrastructure. Nevertheless, according to the State of Education Report 2007, 62,3% of the graduates come from private universities.

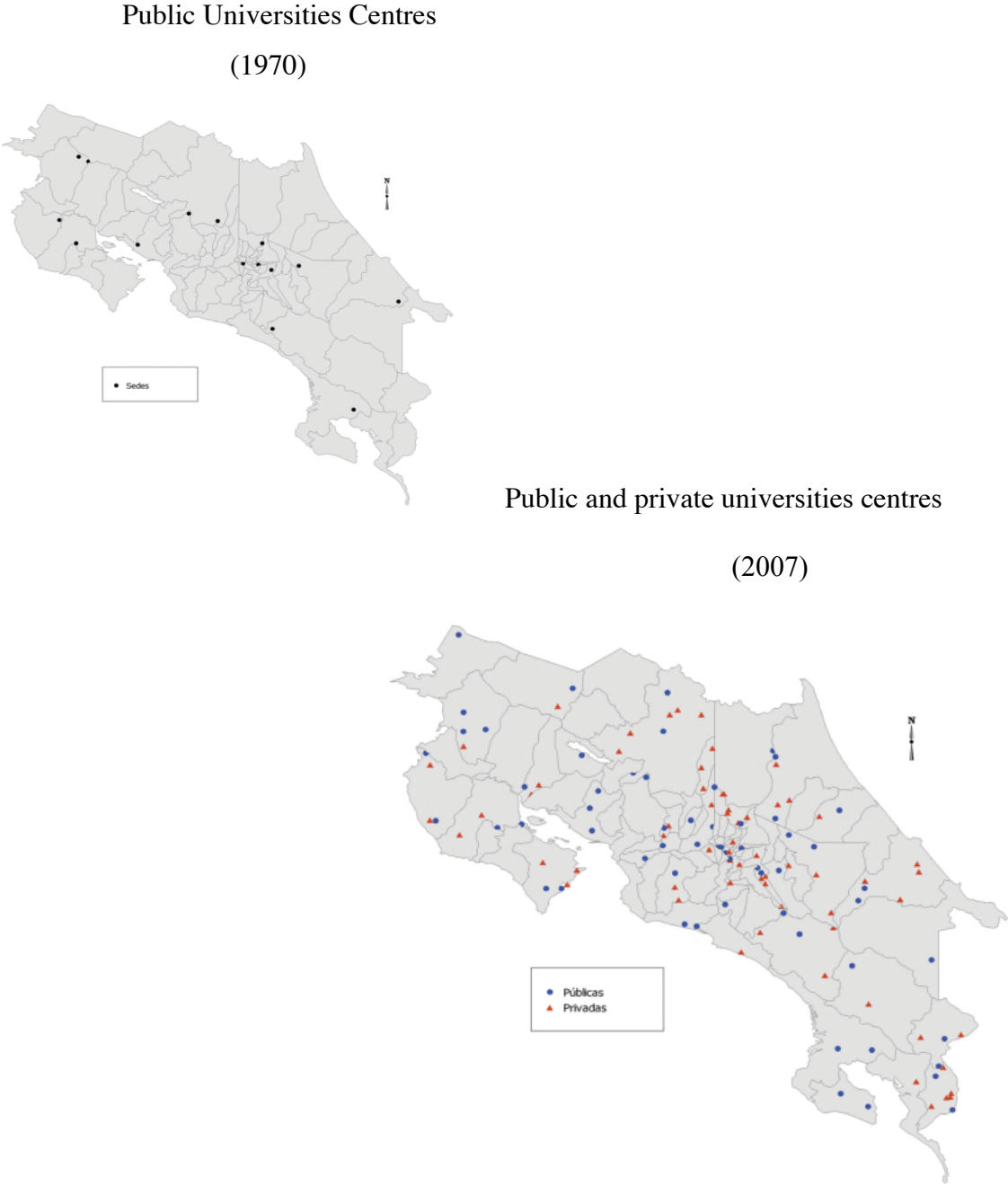
---

44 Retrieved from <http://www.upeace.org/> 20/11/09

45 Would be relevant to note that year 7 is the transition from primary to secondary school and year 10 is for basic to diversified cycle that is the final cycle before higher education.

In terms of coverage, the Map 4.4 shows their proliferation from the 1970s to 2006.

Map 4.4 Expansion of public and private universities from 1970 to 2007

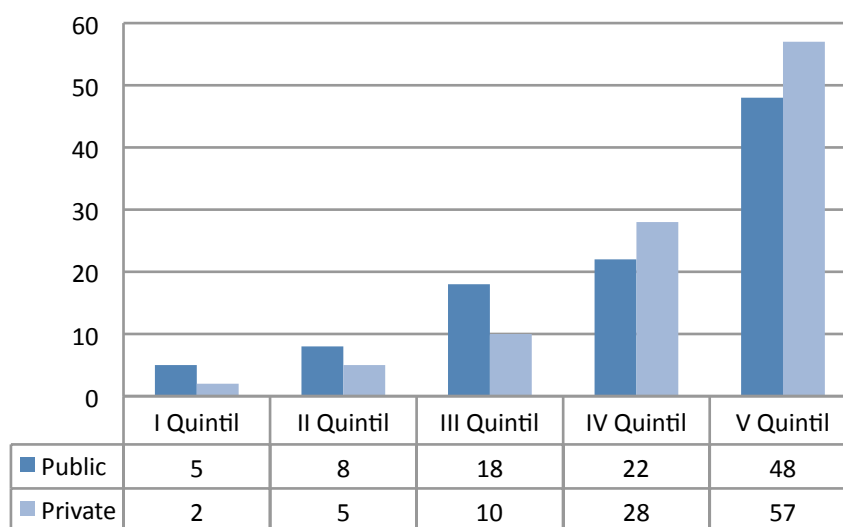


Source: State of Education Report 2007

As was mentioned before, public universities in Costa Rica accept approximately 30% of applicants.

This is related to other problems: these students come from private high schools and, they are in the fourth and fifth quintile of income. Ironically, other students, with less income, need loans to pay for private universities, which are usually extremely expensive. The next graph is part of the State of Education Report and shows the situation in this area.

*Graph 4.1 Attending Public and Private HEIs and Quintile of income. 2003-2005-2006 (Percentages)*



Source: State of Education Report 2007

#### **4.7 A brief presentation of UNED**

UNED was the last public university created which is part of CONARE and receives public funding from the Public Funding for Higher Education (FEES by its acronym in Spanish).

However, as it was the last to be founded, the percentage of FEES distribution is not in its favour. For example, the UCR receive 59%, the UNA 23,5%, ITCR 11,5% and UNED6%. Since 2007, the universities system created a different category for extra-funding.

This has to do with investing in inter-universities initiatives, such as research or for Regional Inter-universities Programme. This Regional Inter-universities Programme will be explained in Chapter 6, because it is very important for this research, as it is a regional development initiative conducted by four public universities together.

The distance-learning model consists of methods and conditions of learning. Books are still the most important resource, given the limited access to information and communication technologies (ICTs). However, new educational strategies are based on the intensive use of new learning theories and media through the ICTs use application. In this regard, the university has its own publishing and multimedia production activities that will be explained below.

The organizational structure of UNED has different levels. The Institutional Assembly is the highest authority of the UNED; the second is the University Council that is the principal directive board. Then, the Rector who is head of the UNED and four Vice-rectories: Executive, Teaching, Research and Planning. All of them, as well as those responsible for the areas of Student Welfare, University Centres, and Postgraduate studies form the so-called Rectory Council that is empowered to a decision-making level at the university, when it is not required to consult to the University Council or the Assembly.<sup>46</sup>

The Postgraduate Studies System (SEP by its acronym in Spanish) is the academic-administrative unit responsible for postgraduate studies, in coordination with various schools of the academic institution.

---

46 Retrieve from <http://www.uned.ac.cr/Rectoria/organigra.htm> 10/09/07

SEP is implementing programs that UNED's undergraduate schools identified as necessary in Costa Rica. Some of these programmes have students from other Central American countries. At the moment, UNED has twenty Master Programmes and four doctorates.

Concerning the third task or social action projects, there are three main programmes: Language Centre, Local Development, which has now a new Programme funded by the European Union to work with local governments; and Management; as well as other community activities like a gerontology programme. However, other subjects like culture, music, learning in specific skills and recreation have students in different regions around the country.

One of the main strengths of the university is the prestige developed in different specialities of the production of audio-visual learning materials that besides serving as a support for teaching, have positioned the institution alongside the best in the production publishing, audio-visual, multimedia and e-learning technologies. Audio-visual Materials Production Programme has almost thirty years of experience of auto-instructional videos for distance education. This Programme has won many awards as one of the largest producers of audio-visual educational material in Latin America. It has radio and video productions in topics like science, technology, biodiversity and education among others.

In terms of infrastructure, UNED has a videoconference system network linking eight strategic points of the country: four in the Central Region, (two in San Jose, one in Heredia and one in Cartago) one in the Atlantic Region (Limon) and one in the North (San Carlos). Finally, Palmares and Turrialba, which are important secondary cities, are part of the centres connected to the videoconference network.

There is also the link with Integrated Services Digital Networks (ISDN)'s countries members, which is also part of Globe Education Network of the World Bank.



Finally, to facilitate the educational process, the University has 31 University Tutorial Centres distributed nationally. The next map shows them by region.

*Map 4.5. UNED: University centres location*



Source: Adapted from <http://www.uned.ac.cr/>

## 4.8 Summary

The brief presentation included above proposes some important conclusive points for this chapter. The first is the “relative success” (Morales and Baranyi, 2005) achieved by Costa Rica until the 1980s, related in particular to efficiency in social services and a stable economy. These conditions allow the country to be considered as one with the better conditions in the Latin American context.

However, inequalities have been growing, fragmenting the social, economic and political situation. Uneven regional development is growing.

Institutionally speaking, the absence of a proper regionalization and devolution process exacerbate the role of the central region, concentrating resources and opportunities for development, while the peripheral regions have been waiting for a regional structure in order to promote local development strategies. The consequence is a virtuous circle for the central region and the opposite for the peripheral regions.

However, the country is transforming its economy. The relevance of earlier main topics such as the environment and education are joined by new trends such as science and technology promotion. The new brand for the country is green and intelligent. It is also related to the priority of the open economy, focused on the attraction of FDI related to high technology and services companies.

The rise of inequalities and territorial fragmentation, the absence of a proper regional devolution process and the definition of green and intelligent as priorities, build together the context for the implementation of the new economy.

This research is asking about how a new economy is implemented in that context and how public higher education institutions in general and a distance learning university in particular could be part of another course of action. The following Chapters 5 to 7 present qualitative and quantitative evidences in order to answer the research questions.

## Chapter 5: The Knowledge-Based Economy in Costa Rica

### 5.1 Introduction

This chapter presents the answer to the first research question of this thesis; Has Costa Rica been changing its economy to become a more knowledge-intensive one in the last 30 years? Secondly, it asks if the KBE in Costa Rica has territorial manifestations and finally, what does this KBE mean for the institutional structure of a small developing country such as Costa Rica.

The main argument in this chapter is that the Costa Rican economy has been changing, moving from an export-led growth economy to an open economy, based on FDI attraction. Even though the legislation enacted in 1990 established the priority of FDI attraction related to high technology, the model is not complete yet and the FDI attracted is related to many different economic activities rather than only FDI related to high technology industries. Subsequently, the second part of the first research question, concerning the territorial manifestations of the KBE is presented. The attraction of FDI is having an important effect on the social, economic and productive dynamic in Costa Rica, exacerbating the uneven development existing between the Central Region and the peripheral ones.

As a consequence, rather than the old distribution model of 6 planning regions, the country is divided into *differentiated territories* (Coraggio, 1993) related to different kinds of FDI, such as high technology or construction sector investment. There is also the influence of different regions' kinds of vocation or, inside the regions, in relation to the different kinds of traditional productive sector in cantons such as: agriculture, industry or the services sector.

Finally, this chapter will present an exploration of the institutional characteristics of KBE implementation in Costa Rica, in order to show the relation between different social factors in the KBE scene in Costa Rica.

To present the relevant information, first in section 5.2 then after, 1980s export changes are described in order to show the temporal variation in the economy. After that, drawing on data from censuses, the household survey, macroeconomic indexes, institutional reports and documents, the next subsection of the chapter uses quantitative analyses to explore the labour force dynamic to deduce the characteristics of the economic activities. In section 5.3 the analyses take a territorial approach, exploring the inter-regional and intra-regional distribution of the labour force. Given the interest in unbalanced regional development, the analyses conducted at inter- and intra-regional level allow the exploration of unbalanced development and territorial fragmentation. Section 5.4 focuses on the FDI dynamic and its relation with labour market transformation. In section 5.5 analysis of information obtained in interviews is presented to explore the institutional dimension of the KBE. Finally, the conclusion is presented in Section 5.6.

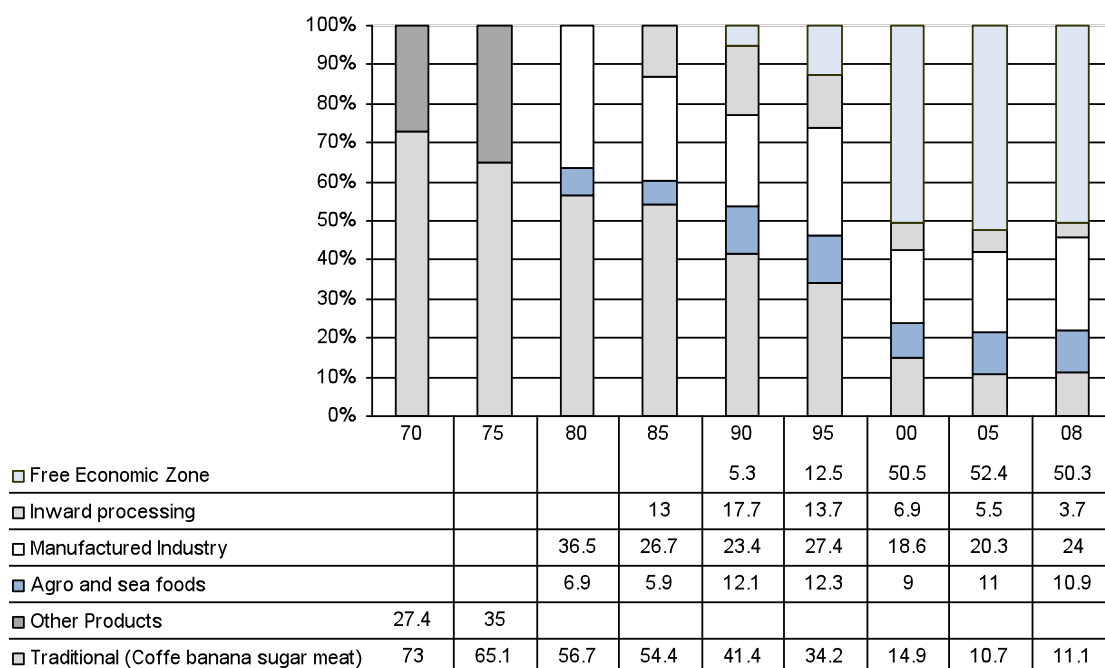
## **5.2 Costa Rica's economic changes**

As was explained in Chapter 4, the economic process of Costa Rica has been changing, in particular since the 1980s. According to a representative of the Ministry of Economy (2009, interview 3), after the 1980s crisis Costa Rica, like other countries, made a significant effort to improve diversification in export products:

“This is because we do not have to have all the economy based just in one product. As a coffee producer country, it has learned a big lesson, because when the market rules change against your product in terms of prices or demand, your economy is dramatically affected.”

The graph below presents the transformation of exported products and is an illustration of how Costa Rica has changed its production activities.

*Graph 5.1. Export (Free On Board) by principal products 1970-2008 (Percentages)*



Source: Own elaboration based on data from MIDEPLAN

The graph distinguishes three periods: until the 1980s, 1980s to 2000, and 2000 to today. Until the late 1970s, export products still correspond to the first paradigm in the Costa Rican economy, based on the traditional agro exporter sector when coffee, bananas, sugar cane and meat were the axes of the economy.

After 1975, “other products” become the most important export products. It is because of this that the graph shows the detail of other products in export percentage.

After the 1980s the existence of non-traditional products shows the diversification of exports. Diversification of exports was the new paradigm that began then. Traditional agro products were still important but they made up just 50% of Costa Rica’s exports. In 2000 the further reduction of traditional agro production and the rise of the non-traditional products is evident.

Before the 1980s, the “traditional” products, including coffee (32%), banana (29%), meat (8%) and sugar (4%) were approximately 70% of Costa Rica’s export products, while “other products” were less than 30%. Conversely, in the last 30 years; while “other products” have improved their participation rapidly, “traditional” products have become marginal in terms of percentages, making up only 11% of the products exported in 2008.

After 2000, the prominence of the new export paradigm, based on non-traditional products, means that “other products” constitute 90% of the export products for this period. The rise of the free economic zones regime has a significant role to play in the success of the largest percentage of the exports, the “other products”, which has grown from 5.3% in 1990 to 50% in 2008.

The free economic zones include 149 companies exporting goods and 98 companies exporting services. In terms of export products, 45% are electronic components and 20% are medical devices, while the agro-industrial products and textiles are only 9%.<sup>47</sup>

---

47 Retrieved from [http://www.azofras.com/esp/estadisticas/pdf/Estadisticas\\_ZF2005%20mod.pdf](http://www.azofras.com/esp/estadisticas/pdf/Estadisticas_ZF2005%20mod.pdf)  
20/01/10

A different situation is presented by inward processing<sup>48</sup>, which has had less success as a trade option. The inward processing sector presented its best performance before 1990 making up around 18% of the total of exports. After 1990 it has decreased, to just 3.7% in 2008. The majority of the companies included in the free economic zones are concentrated in the Central Region, in particular those that work in secondary and tertiary sector activities<sup>49</sup>.

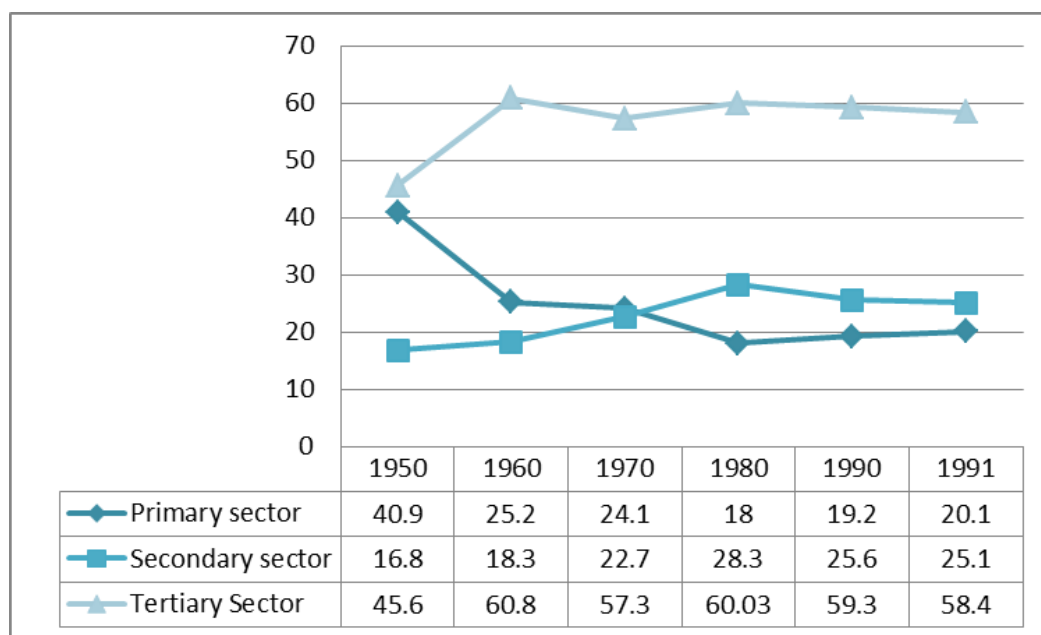
In terms of the Gross Domestic Product (GDP), the next graph shows the important transformation since 1960, when the primary sector reduced its participation from 41% to 25%, while the tertiary sector increased from 45% to 60%.

---

48 Inward processing: “Refers to the customs procedure under which certain goods can be brought into a customs territory conditionally relieved from payment of import duties and taxes; such goods must be intended for re-exports within a specific period after having undergone manufacturing, processing or repair...!compensating products' means the products obtained during or as a result of the manufacturing, processing or repair of the goods temporarily admitted for inward processing...[they] need not be obtained solely from goods temporarily admitted for inward processing; it may be necessary to use goods of national origin or previously imported”. Retrieved from <http://stats.oecd.org/glossary/detail.asp?ID=6160>

49 See a complete list of Free Economic Zones in Annex 5.

Graph 5.2. Structure of the GDP from 1950 to 1991  
(Percentages by sector)



Source: Based on Ketelhohn and Porter (2009:17) with information from the Central Bank of Costa Rica

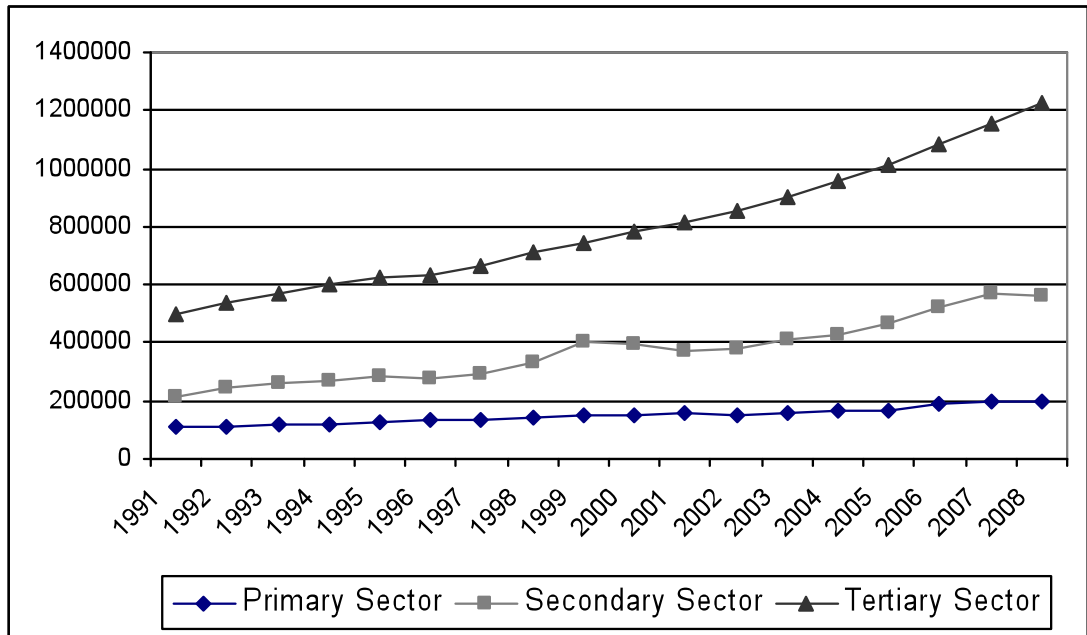
Graph 5.3 shows how the percentage of primary sector activities GDP has been gradually reducing over the last 20 years. At the moment, the GDP is composed of 10% Agriculture, 27.8% Industry and 62.2% Services<sup>50</sup>.

50 MIDEPLAN 2008 Estadísticas sectoriales nacionales 2004-2008.

Retrieved from <http://www.mideplan.go.cr/content/view/196/314/>



*Graph 5.3. Participation in Gross Domestic Product by sector  
(Absolutes of Millions of colons at 1991million colon value)  
(1991-2008)*



Source: Own elaboration based on data of State of the Nation Project

According to graph 5.3, GDP is based primarily on the service sector. Simultaneously, secondary sector abandoned the import substitution model - promoted before the 1980s - in order to adopt the free economic zones regime, particularly the production of techno-assembly parts products.

Subsequently, the tertiary sector was strengthened, improving its participation in the GDP substantially, being also the sector with highest added value<sup>51</sup>. This was due to the attraction of service companies, related to the techno-assembly parts companies (Paus, 2005).

<sup>51</sup> See MIDEPLAN database:

[http://www.mideplan.go.cr/index.php?option=com\\_content&view=article&id=748&Itemid=100249](http://www.mideplan.go.cr/index.php?option=com_content&view=article&id=748&Itemid=100249)

For instance, following Intel's presence in Costa Rica, other companies such as Hewlett-Packard and Procter and Gamble established their call centres near to Intel.

Nevertheless, even though the service sector has an important role in national economic performance, its characteristics are different from one region to another, again depending on which types of activities have been growing where.

### ***5.2.1 The KBE in a developing country context***

Related to the first part of the first research question, focusing on what kind of KBE Costa Rica is promoting, the answer is related to the relevance of FDI. The main characteristic of the economy between 1990 and 2000 was the rise of many activities that diversified exports in terms of the kinds of products being exported rather than the high value added to these products. As a result of this, many of these exported products are still low value added. This is significant because according to Law Number 7169, Costa Rica is promoting high technology industries and qualified services as export products.

Until 2000 the result was not high value added activities and proper value added industry is still related to high technology assembly parts and some services. In addition, the types of activities located in each region are relevant because they have implications not only for the quality of work that each region can generate, but also in terms of the economic and social sustainability that is promoted by each activity.

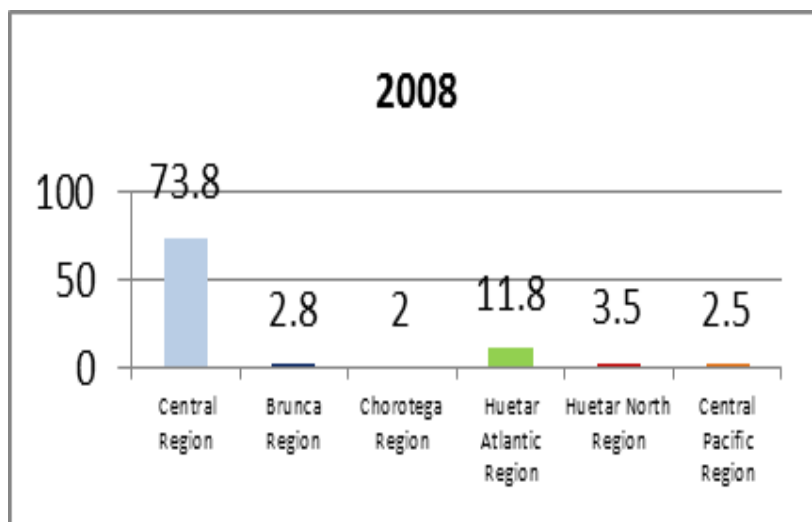
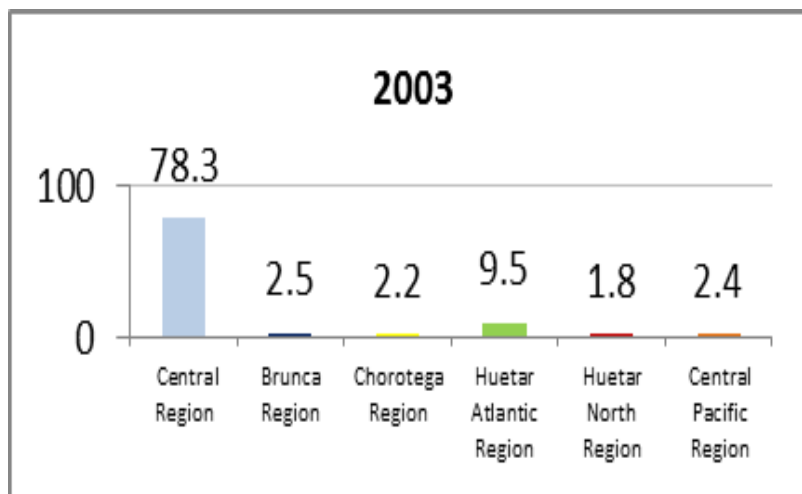
In summary, it is possible to see that after the 80s, Costa Rican exports changed from agriculture products such as coffee, banana and sugar cane, to a different model based on the diversification of exports and the rise of the services sector. The effect of this new economy is not related only to knowledge intensive industries. The presence of free economic zones promoted medicine supplies and high technology industries that are based on techno-assembly parts industries.

The new export products have different characteristics territorially as well. In the next section, an exploratory analysis is presented in order to illustrate the territorial manifestations of the new economy.

### **5.3 The territorial dimension of economic activities**

As was mentioned above, the Costa Rican economic model changed after the 1980s, with a focus on export diversification. In terms of territorial manifestations, there is a large concentration of export activities in the Central Region. According to the information in graph 5.4, the Central Region is slowly reducing its participation, but it still makes up the largest portion of export participation - around 70% - between 2003 and 2008; the other 5 peripheral regions produced only 30% of the total exports in this period, as is demonstrated below.

Graph 5.4. Percentage of participation on Exports by Costa Rican planning regions (2003-2008)



Source: Own elaboration based on data from MIDEPLAN<sup>52</sup>

<sup>52</sup> Retrieved from <http://www.mideplan.go.cr> 10/09/2009

The concentration of export participation in the Central Region is very significant. It is also important to consider small changes in the Huetar Atlantic and the Huetar North regions participation, which grew by 2 points in their percentages during the same period of time, 2003-2008. Both of these regions have basic agricultural production, based on fruit plantations, activity which is also related to FDI.

In terms of currency, the Central Region exports were equivalent to \$USA 7,053.5 million, exports from the Huetar Atlantic region were equivalent only to \$USA 1,037.4 million.<sup>53</sup> This situation is related to what kind of products each region is producing and exporting. Here it is also important to consider the presence or absence of the free economic zones because they are part of the dominant export regime.

The Central Region also holds the highest concentration of the most expensive export products. It has 83% of its export products based on the free economic zones; while the North Pacific region has 38%, the Central Pacific and the South Pacific regions have approximately 43%, and the Huetar Atlantic region has only 5%. This is another factor, which demonstrates the favour of the Central Region's concentration by the free economic zones.<sup>54</sup>

It is important to reiterate here that the regional specialisation of export activity has consequences for the labour market and the structure of the economy in each region. On the one hand, fresh products like fruit and flowers - which are part of export diversification - demand only basic training skills, while agro-traditional products, like bananas and pineapples, do not require specialist technical training for their production. On the other hand, high technology industry, techno-assembly part plants and call centres are looking for specialised workers.

---

53 Retrieved from <http://www.mideplan.go.cr> 10/09/2009

54 Retrieved from <http://www.mideplan.go.cr>

Another important consideration is related to the effect of FDI in terms of the labour market across the country. While the Central Region concentrates in FDI in high technology, techno-assembly part plants and call centres, the periphery is working on agro-export products, produced in plantations, which generate few jobs with minimum added value. Conversely, as was mentioned above, the tertiary sector is high in added value<sup>55</sup>. The point related to the effect of FDI on the labour market will be presented later, in section 5.4.1.

Regarding the labour market transformation regionally, the next sections of the thesis present the differences between regions. The information available concerns which type of activity the inhabitants of the region are working in. To facilitate interpretation, the information is presented by economic sectors.

### *5.3.1 Inter-regional differences*

The distribution of workers as residents of the different regions is an example of the national labour market configuration. Drawing on census data, this section takes three different moments: 1973, 1984 and 2000<sup>56</sup>, looking for differences between the regions across time. The next three graphs present the percentage of workers resident in each region by economic sectors: primary, secondary and tertiary.

The following graph presents the percentage of workers of the primary sector by region in three different historical moments: 1973, 1984 and 2000.<sup>57</sup>

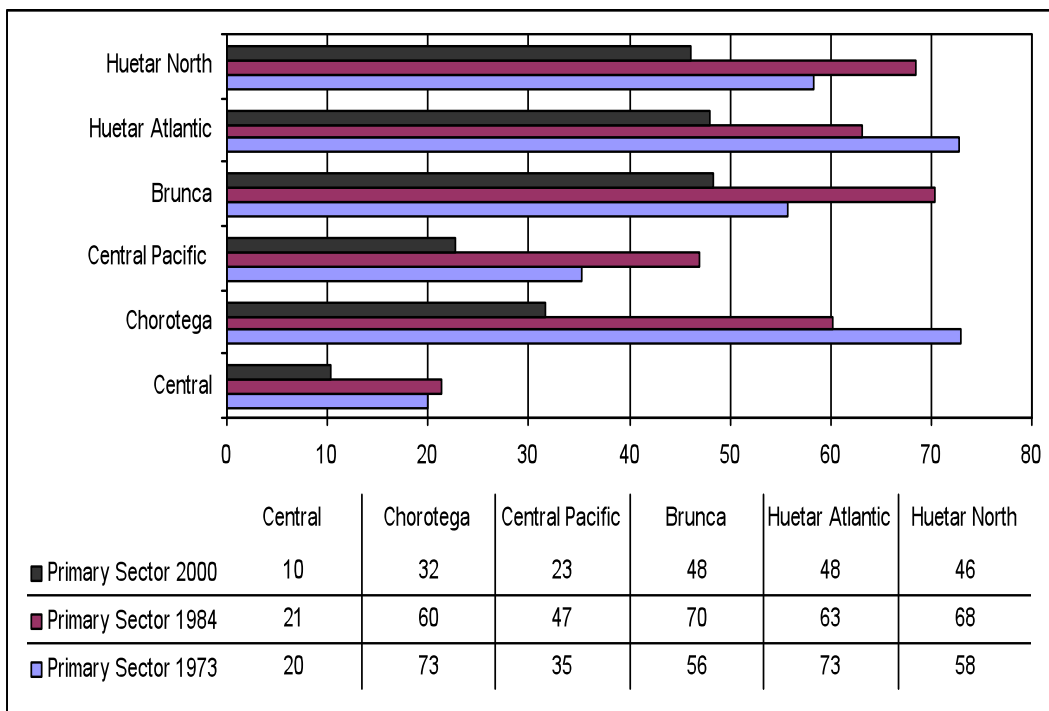
---

55 Ibid

56 See Chapter 3: Methodology, on section 3.4 related to the use of 3 last censuses as statistical sources.

57 Ibid

Graph 5.5. Percentage of Workers\* in Primary Sector by Region  
(Census data of 1973, 1984 and 2000)



Source: Own elaboration, with information from INEC<sup>58</sup>

\*Percentage of workers in Primary Sector over the total of workers by region.

According to the graph above, the percentage of primary sector workers in the Huetar North, the Brunca and the Central Pacific regions increased between 1973 and 1984. This was also the case in the Central region, but only by a minor percentage. However, all the regions had reduced the percentage of resident primary sector workers by 2000.

A very important change is presented in the percentage of primary sector existing in the Central Region, which has been decreasing more than in the other regions with a reduction of 50% of its historical figure in this sector.

58 INEC: Costa Rican National Institute of Statistics and Censuses. Retrieved from <http://www.inec.go.cr/>  
10-10-2008

A similar situation can be seen in the Chorotega region, where the percentage of workers located in the primary sector decreased from over 70% in 1973 to 60% in 1984 and 32% in 2000. This means that the primary sector in that region now has approximately 50% of the workers it had 30 years ago. In the Atlantic region, the percentage of primary sector workers reduced steadily from 74% in 1973 to 48% in 2000.

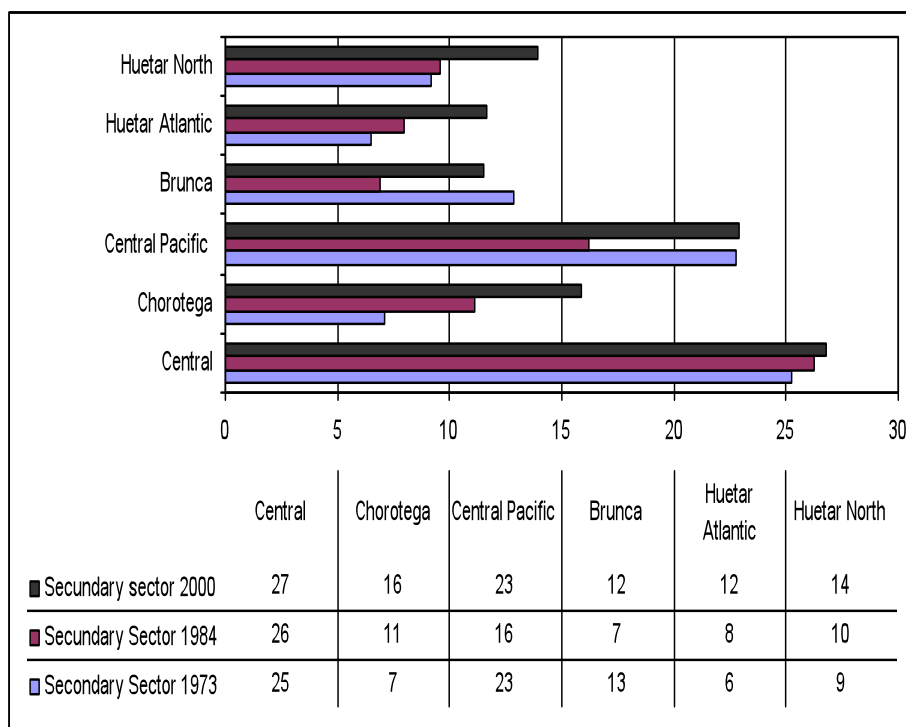
As was presented in section 5.2, there are two points to be considered here. Firstly, the primary sector continues to be an important part of the GDP, but rather than being related only to the traditional production products, such as coffee and bananas, the primary sector is part of the diversification of export production.

Secondly, the reduction of the percentage of primary sector workers indicates a change in the local labour markets. It is also related to the transformation of rural environments, which are no longer only agricultural. On the contrary, rural environments are fragmented into a new dynamic. This point will be discussed later, in section 5.4.2 of this chapter.

In terms of the secondary sector, the situation has been different. Graph 5.6 presents the data.



Graph 5.6. Percentage of Workers\* in Secondary Sector by Region  
(Census data of 1973, 1984 and 2000)



Source: Own elaboration, with information from INEC<sup>59</sup>

\*Percentage of workers in Secondary Sector over the total of workers per year

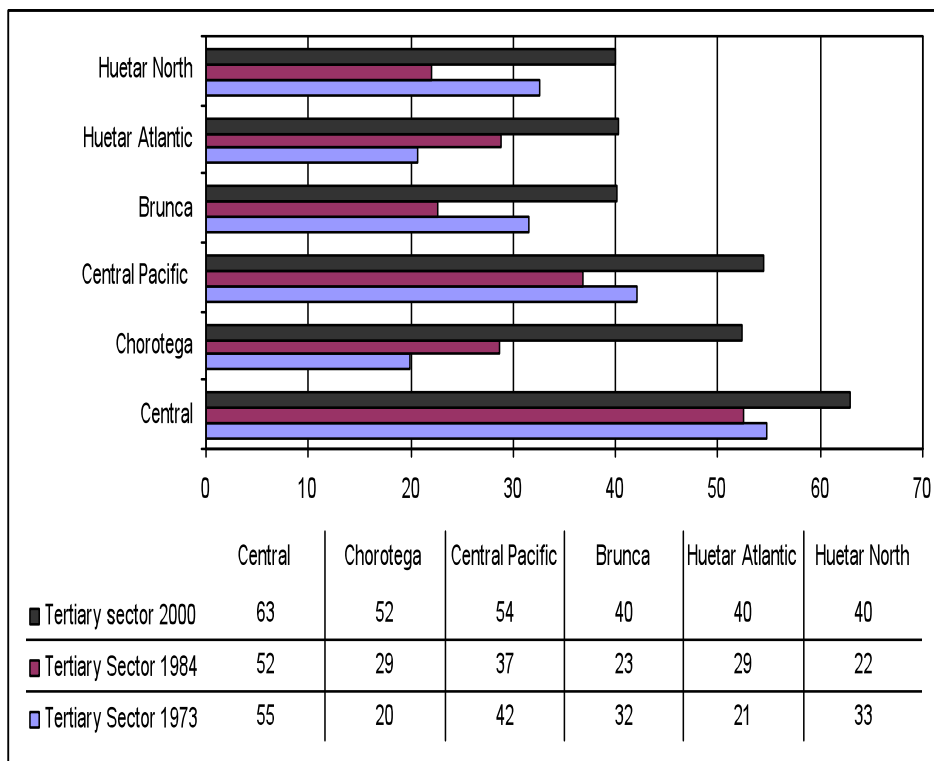
The first conclusion related to the secondary sector is that it has had a weak national presence historically. A percentage of 25% of the total of secondary sector workers has been sustained historically in the Central Region. Below this, activity in the Central Pacific region is made up of between 16-23% secondary sector workers. Other regions, such as the Huetar North and Huetar Atlantic regions, have been increasing their secondary sector from less than 10% in 1973, to 14% and 12% respectively.

There are not, therefore, big percentages of the labour force occupied in secondary sector jobs in the peripheral regions.

59 INEC: Costa Rican National Institute of Statistics and Censuses. Retrieved from <http://www.inec.go.cr/>  
10-10-2008

Something different again is presented by graph 5.7, showing that the tertiary sector is growing in all regions.

*Graph 5.7. Percentage of Workers\* in Tertiary Sector by Region  
(Census data of 1973, 1984 and 2000)*



Source: Own elaboration, with information from INEC<sup>60</sup>

\*Percentage of workers in Tertiary Sector over the total of workers per year

According to the graph above, the increase in the tertiary sector was around 10% in the Central region. Workers from the service sector, both public and private, because of the employment sources concentrated there, have historically inhabited this region.

60 INEC: Costa Rican National Institute of Statistics and Censuses. Retrieved from <http://www.inec.go.cr/>  
10-10-2008

However, a very different situation is evident in the peripheral regions, where increases in the percentage of tertiary sector activity are notable.

The Chorotega region for instance, has been changing from agricultural and livestock products to tourism, with 20% tertiary sector in 1973 rising to 52% in 2000. Something similar happened in the Atlantic region, where the tertiary sector went from being 21% of product activity in 1973 to 40% in 2000. There are some secondary cities in the Atlantic region increasing their participation in the services sector. That could be the origin of the rise of the tertiary sector percentages evidenced here.

In summary, the working population since 1984 has experienced significant changes and the differences are evident in all regions and sectors. The Central region, as well as others, has encouraged a rise in services sector activity. However, regions have been also fragmented inside. This fragmentation inside the regional level has consequences at the canton level that are the smaller territorial division inside regions. In the next section, the analysis moves to a canton level, in order to explore the characteristics of this fragmentation and to explain why it is not a positive characteristic.

### ***5.3.2 Intra-regional differences: a peripheral primary sector***

The intra-regional level is an important scale, which needs to be explored given the rise of different economic activities located in all the regions around the country.

This section takes a look at the canton level in order to explore the characteristics of the labour market, looking for differences within the regions by drawing on data from the three censuses available: 1973, 1984 and 2000<sup>61</sup>.

---

61 See Chapter 3: Methodology, on section 3.4.5 for graphs explanation.

These analyses are based on the differences between 1984 – 1973 and 2000 – 1984, in each case taking the average difference. This calculation permits the presentation of changes across the two time periods. The graphs have 4 quadrants, distributed in this way:

**Diagram 5.1. Graph quadrants explanation**

Quadrant A: <i>Reimproving</i>	Quadrant B: <i>Consistent growing</i>
Quadrant C: <i>Lagging</i>	Quadrant D: <i>Slowing down</i>

Source: own elaboration

Quadrant A: *Re-improving* refers to cantons recording decline in a sector’s employment in the first period (1984-1973) and growth in the second (2000-1984).

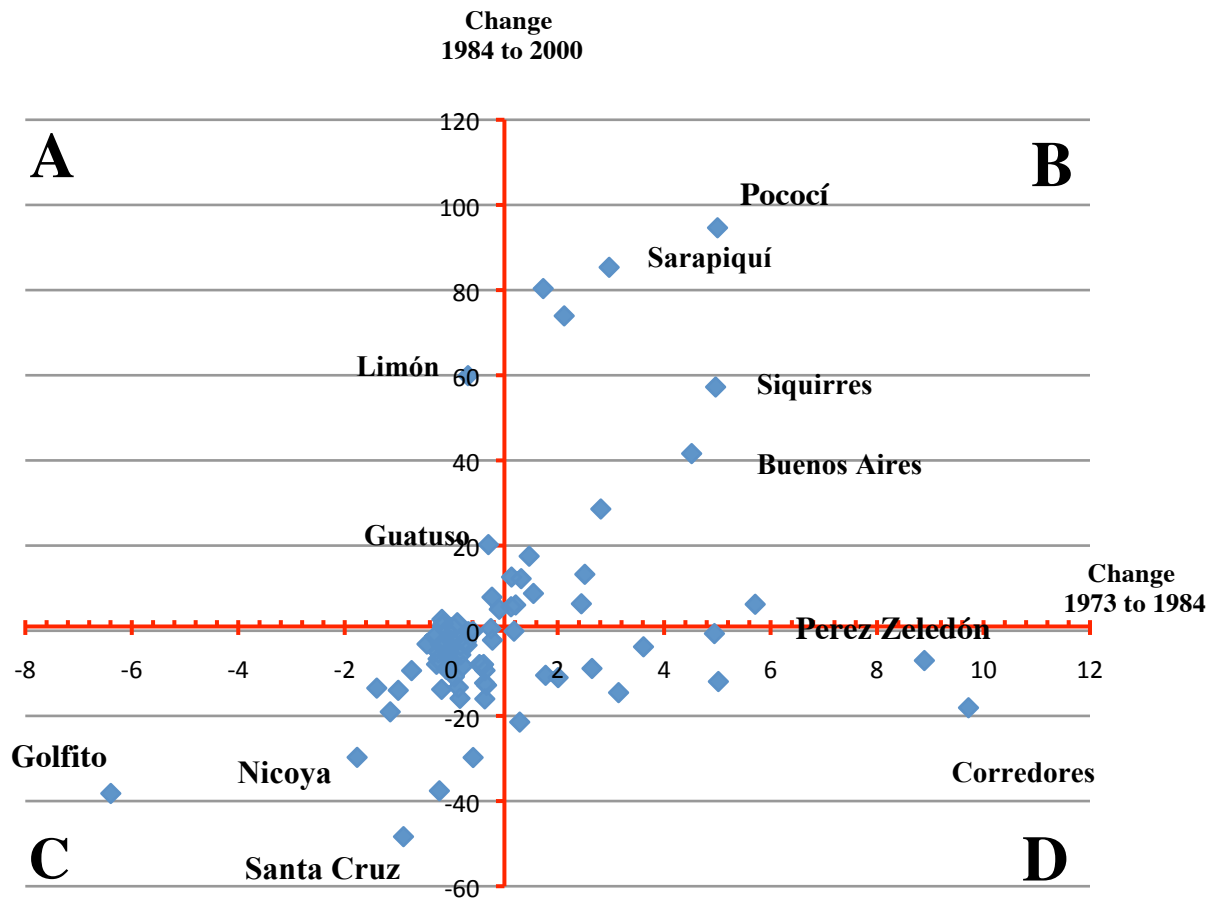
Quadrant B: *Consistent growing* refers to cantons recording growth in a sector’s employment in both periods

Quadrant C: *Lagging* refers to cantons recording decline in a sector’s employment in both periods

Quadrant D: *Slowing down* refers to cantons recording growth in a sector’s employment in the first period (1984-1973) and decline in the second (2000-1984).

Graph 5.8 presents the percentage of primary sector workers by canton. This graph is based on the difference between 1984 and 2000, when the main change in terms of the primary sector distribution of workers occurred.

Graph 5.8. Change in number of workers in Primary Sector by Cantons (1984-1973 and 2000-1984)



Quadrant A: <i>Re-improving</i>	Quadrant B: <i>Consistent growth</i>
Quadrant C: <i>Lagging</i>	Quadrant D: <i>Slowing down</i>

Red lines  $x = 1$  and  $y = 1$  Source: Own elaboration, with information from INEC<sup>62</sup>

**Notes:**

Each quadrant represents the variation in participation of cantons by sector:

- A- Cantons recording decline in primary sector employment in the first period and growth in the second
- B- Cantons recording growth in primary sector employment in both periods
- C- Cantons recording decline in primary sector employment in both periods
- D- Cantons recording growth in primary sector employment in the first period and decline in the second

62 Information retrieved from <http://www.inec.go.cr/> 10-10-2008. In collaboration with Dr. Torrisi

Following graph 5.8 geographically, the cantons located in the *Consistent growing* quadrant, or even those located in the *Slowing down* quadrant in terms of their primary sector participation, are concentrated in the Atlantic Huetar region, the North Huetar region and the South Pacific region.

The most important export products of the cantons in the Atlantic Huetar region are bananas (55,2%), pineapples, fruit juice, fruit concentrates and fruit paste (21,3%), also flowers in a minor percentage (2,7%); while the North Huetar region is producing pineapples, among other fruits. It is relevant to consider here that these kinds of products, such as bananas or pineapples, are produced on big farms by groups of workers where the work is divided by kinds of job and in terms of required expertise. These are not qualified jobs and have low salaries.

On this point, the trend presented is related to the production of agro-export products, in particular pineapples, bananas and rice. Exploring the characteristics of the products from cantons that are part of the *Consistent growing* and *slowing down* groups in graph 5.8, it is possible to identify the transformation of the labour process and consequently the new configuration of the labour market. Pineapples and bananas are produced in plantations; they are not based on farm workers.

With regard to the cantons of the Central region, which are part of the *Consistent growing* category, geographically speaking they are in the periphery of the region and in terms of graph 5.8, they are close by the x-y axis. This means that in this sector they are growing over the national average in the second period (2000-1984), more so than in the previous one (1984-1973). These regions have been historically based on a worker-peasant structure, such as Cartago, Oreamuno and Paraiso.

In terms of instruction level, the three cantons mentioned above (Cartago, Oreamuno and Paraiso) have better instruction level scores than the cantons that are located in the Atlantic and Brunca regions<sup>63</sup>. This relation between low instruction level and primary sector workers is important. The relationship was confirmed by the State of Nation Report 2009, which demonstrated the establishing relation between these two conditions. The relevance of this observation is that the primary sector is associated with low instruction levels and is coincident with low salaried activities. These disadvantaged conditions are part of the differentiated territories (Coraggio, 2009) located in peripheral cantons. This point will be explained in section 5.4.3.

Another important point is that according to graph 5.8, there are few cantons that are part of the *Re-improving* group. Limón and Guatuso are examples of this, which are close to the y-axis of the graph. As a hypothesis, one can consider that traditional primary sector cantons maintain their labour market and have been helped by national and international migration movements. The relevance of migration movements will be presented below, in subsection 5.4.1 of this thesis.

According to the information of the 2000 Census, around 11% of the population working in the primary sector are immigrants from Nicaragua. At the same time, there is a novel debate about the under-registration of migration movements of workers from Nicaragua, working cyclically in primary sector activities.<sup>64</sup>This point will also be presented in subsection 5.4.1, which addresses the impact of migration on the labour market in Costa Rica.

Furthermore, according to the Household Survey 2009 the cantons located in the Pacific coast, which are part of the Central Pacific and Brunca regions, are some of the less populated areas in the whole country and have the highest proportion of poor and extremely

---

63 See Annex 6 of this thesis

64 See <http://www.oecd.org/dataoecd/20/0/44535774.pdf>

poor inhabitants<sup>65</sup>. Simultaneously, it is an important characteristic of the *Slowing-down* group of cantons that probably have been included by the new economy dynamic in the primary sector workforce recently (see Arguedas, Murillo and Sanchez, 2008). Map 5.1 demonstrates this idea by presenting three maps of the primary sector, one for each census.

Using census information, participation in the primary sector workforce by canton was calculated. The statistical analysis conducted concluded that 1.23% is the national average for participation in primary sector workforce. Using this information, three maps were prepared to illustrate which cantons participate in primary sector activity to a degree that is over the national average (these cantons are shown in grey).

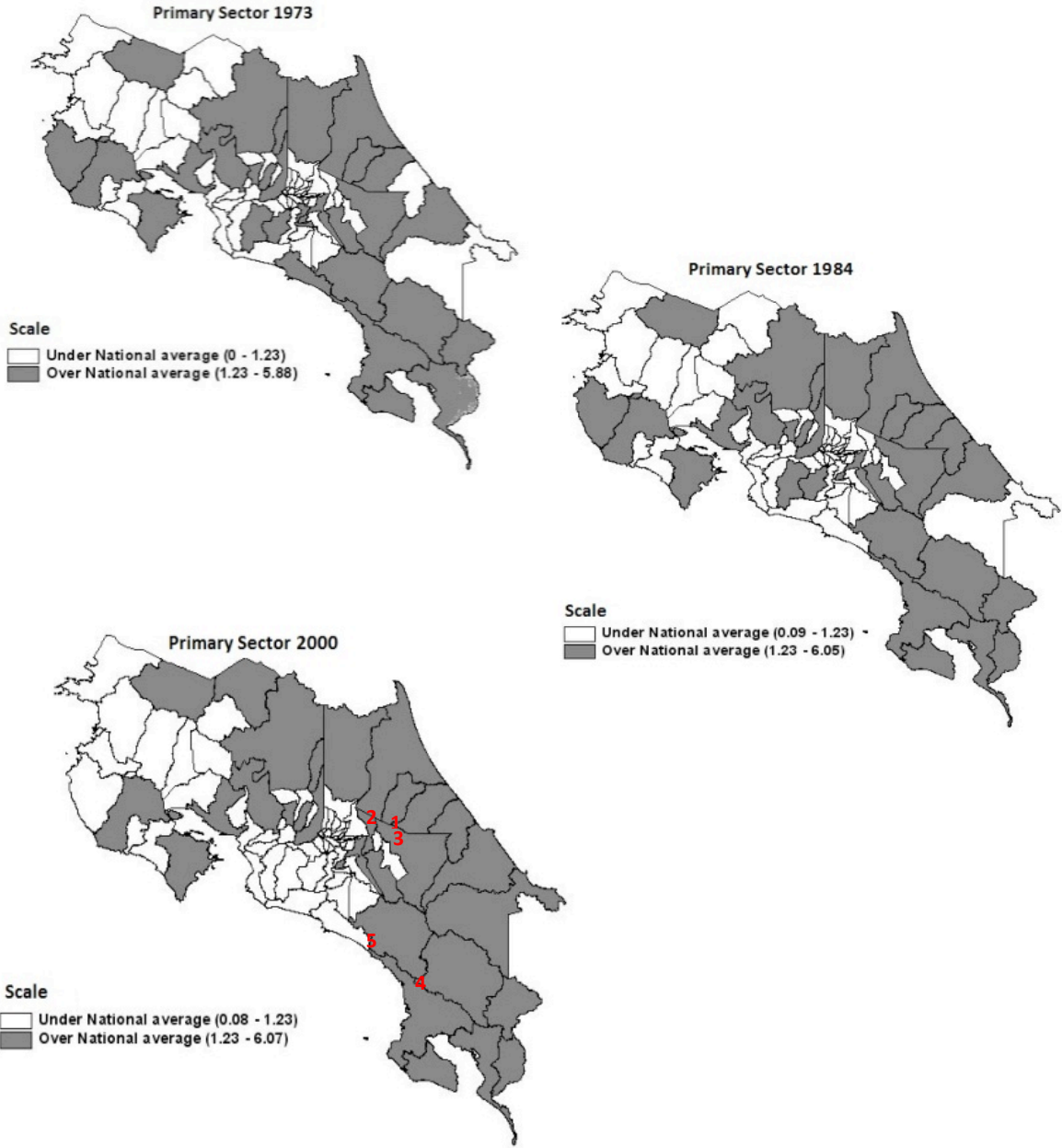
Regarding the primary sector dynamic across the three Censuses, data was compared using 1.23% as base point. Drawing on the three censuses information by regions, shown in graph 5.5, and canton levels, shown in graph 5.8, an unequal process of reduction in participation was identified. According to this analysis, it is arguable that the changes in some cantons focused around their participation in the primary sector, while for others this was not the case.

---

65 See: Basic figures about labour force. July 2009. Retrieved from:  
<http://www.inec.go.cr/A/MS/Encuestas/Encuesta%20Hogares%20de%20Propósitos%20múltiples/Publicaciones/C1/Año%202009/Publicación%20Cifras%20Básicas%20sobre%20Fuerza%20de%20Trabajo.pdf>



*Map 5.1. Percentage of Participation of the workers in the Primary Sector by canton. Under and Over the National Average (1973, 1984, 2000)*



Source: Own elaboration, with information from Census 1973, 1984 and 2000

See for instance on the map of the Primary Sector 2000, Sarapiquí canton in the North of the country (indicated by a red number 1 on the map) or Pococí and Siquirres (red numbers 2 and 3 respectively) are part of the Atlantic Region or Buenos Aires and Perez Zeledón (red numbers 4 and 5 respectively) which are part of the South region. All of these regions have been consistently above average in terms of primary sector employment. Simultaneously, the trend is paralleled in neighbouring cantons. These areas are part of the cantons contributing with the increase in primary sector workers recently. Neighbouring cantons were absorbed into the primary sector labour market after 1984, this change looks like the result of one evolving movement, which after 1984 is constituted by the inclusion of the close-by, geographically connected cantons.

However, the percentage of participation by canton is not presenting a big variation between censuses given that, according to the data included on the Map 5.1, the maximum percentages over the national average are around 6% in all three censuses. In contrast, other economic sectors have a big variation in terms of the percentages from one census to another. This point will be explained below, in sections 5.3.3 and 5.3.4.

Here it is important to mention two relevant conditions related to population statistics. Firstly, there are immigration movements that significantly affect the number of primary sector workers. According to the OECD report, the number of Nicaraguan workers in the primary sector is higher than the number of Costa Ricans<sup>66</sup>. Secondly, there is an important number of informal workers in this sector (Arguedas, Murillo and Sanchez, 2008), which makes it difficult to obtain accurate information about the labour market movements of the primary sector. These points will be returned to in subsection 5.4.1 of this chapter.

In summary, the primary sector presents an important incidence in the peripheral labour market cantons of the country. The recent increase of plantation production as part of the production of export products, suggests the modification of the labour market profile.

---

66 Retrieved from <http://www.oecd.org/dataoecd/20/0/44535774.pdf> 06-09-10

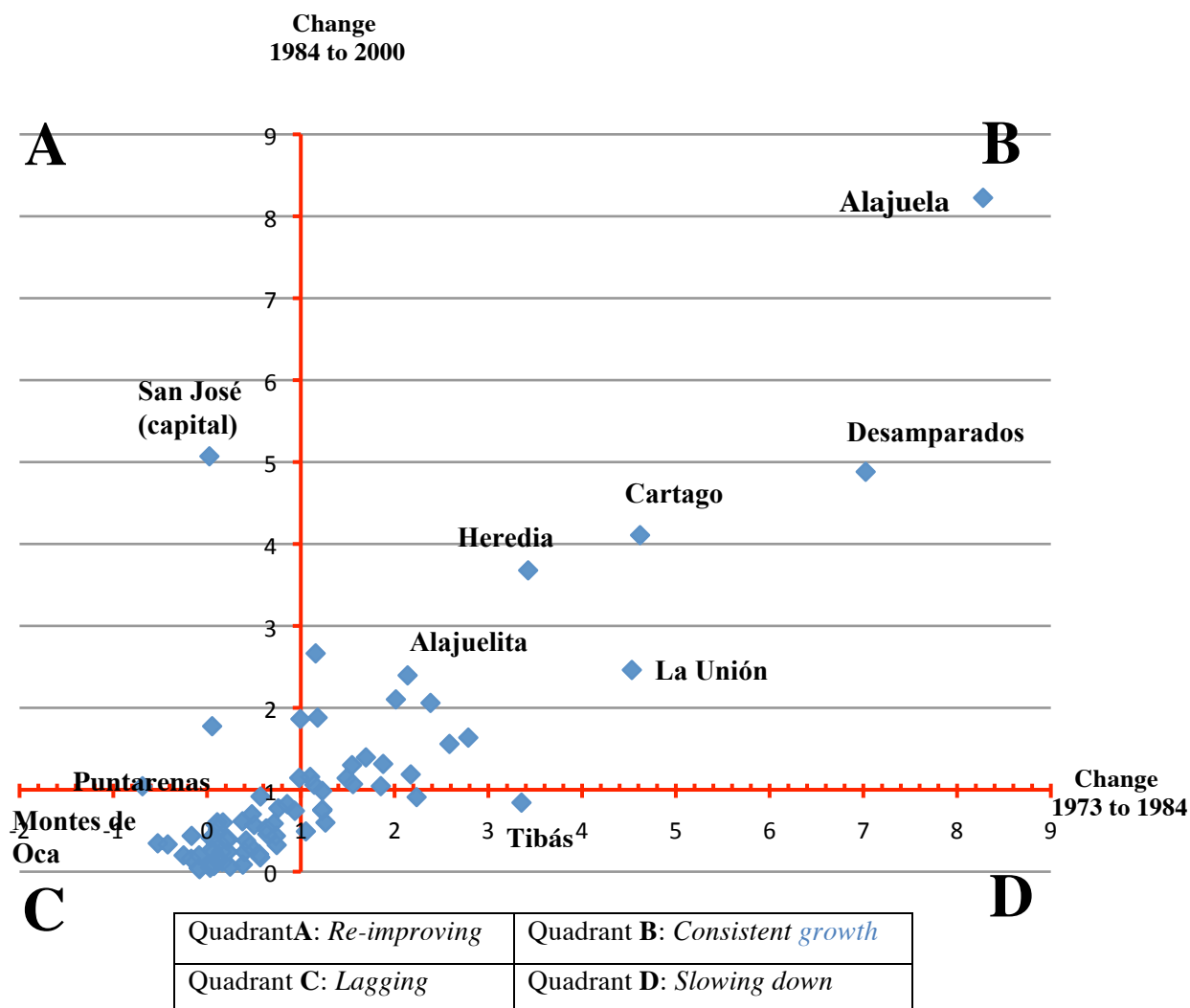
This is important because the rise in plantation production is related not only to the demand for less qualified workers, but also to the presence of a limited connection between economic activities and community progress, functioning as it does usually as a ‘footloose’ structure.

In the next section the exploration of the secondary sector is presented, in order to compare the territorial distribution in contrast to the primary sector.

### ***5.3.3 Intra-regional differences: the bordering ring of secondary sector activities***

Graph 5.9 was prepared using the same methodology described above for graph 5.8. According to graph 5.9, the *Consistent growth* group’s secondary sector activity has significant internal dispersion, where some cantons have had an important increase of their numbers of workers in this sector.

Graph 5.9. Change in Number of Workers in Secondary Sector by Cantons (1984-1973 and 2000-1984)



Red lines  $x=1$  and  $y=1$

Source: Own elaboration, with information from INEC<sup>67</sup>

**Notes:**

1. Each quadrant represents the variation in participation of cantons by sector:
  - A- Cantons recording decline in secondary sector employment in the first period and growth in the second
  - B- Cantons recording growth in secondary sector employment in both periods
  - C- Cantons recording decline in secondary sector employment in both periods
  - D- Cantons recording growth in secondary sector employment in the first period and decline in the second

<sup>67</sup> Information retrieved from <http://www.inec.go.cr/> 10-10-2008. In collaboration with Dr. Torrissi

It is important to consider that previously this sector has had a small presence in Costa Rica as a consequence of the 1980s change of strategy, when the substitution of imports model was stopped. The secondary sector population was historically located around the city centre in the San Jose canton, the capital of the country. When the urbanization process put pressure on this canton, the labour force moved to the peripheral cantons around the capital, such as Desamparados, Alajuelita and La Unión. These cantons are part of the *Consistent growing* group of the secondary sector, as is presented in graph 5.9.

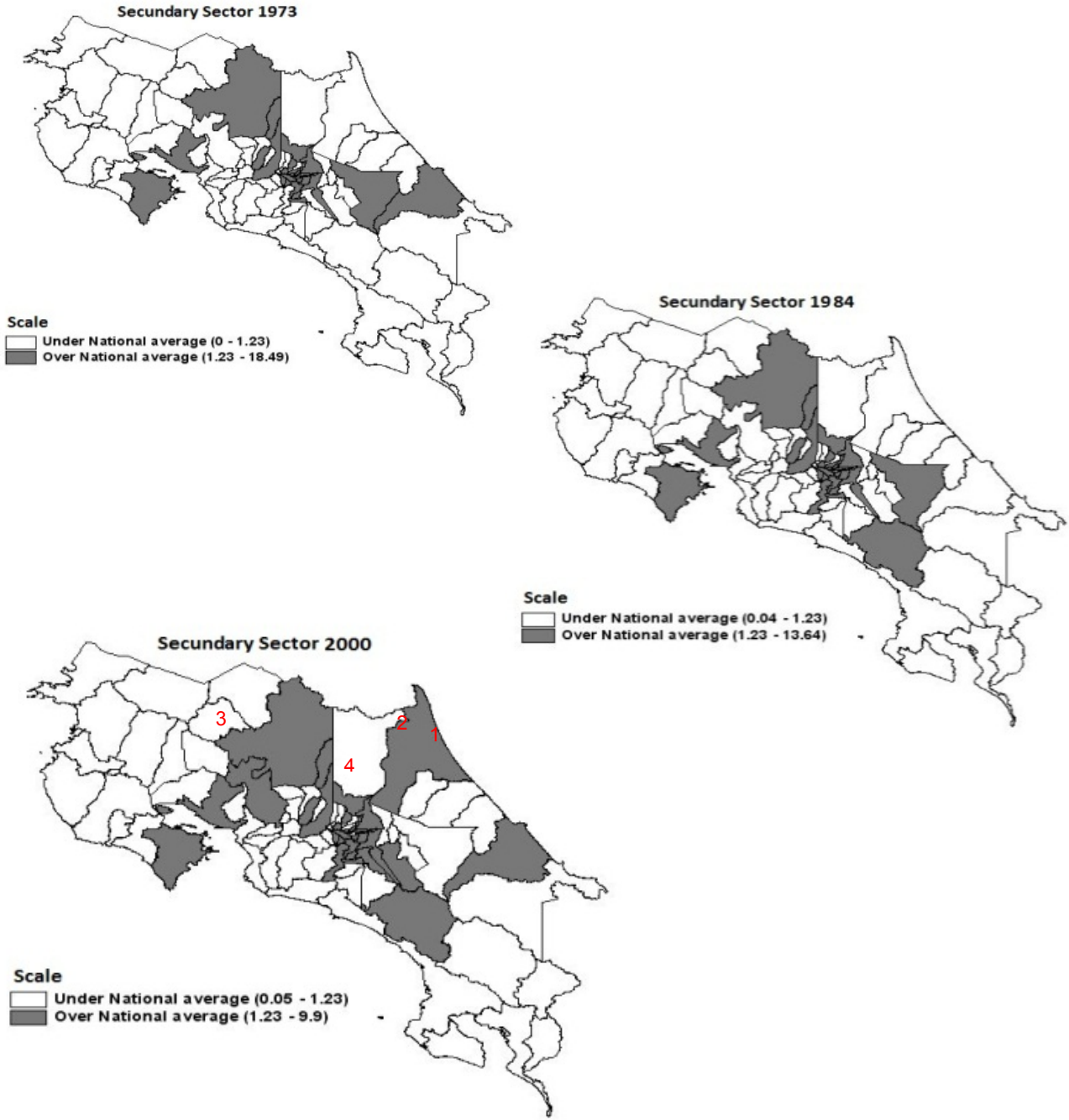
The most important emergent canton here is Alajuela, a province centre that has been absorbed by the metropolitan area as part of the conurbation expansion process. Cartago and Heredia have experienced the same process. All three cantons are capitals of Central region provinces.

San Jose canton was under the national average for secondary sector activity in 1984, but presented a high increase in the presence of secondary sector workers in the region in 2000. It is this shift that has resulted in San Jose being part of the *Re-improving* group for this sector.

Except for Tibás that is a bordering canton of the capital, located to the north of the metropolitan area, there are no cantons situated close to the capital in the *Slowing-down* group.

In terms of the changes across time presented by the percentages of the secondary sector by cantons, the next Map 5.2 presents some interesting points about the secondary sector.

*Map 5.2. Percentage of Participation of the workers in the Secondary Sector by canton.  
Under and Over the National Average  
(1973, 1984, 2000)*



Source: Own elaboration, with information from Census 1973, 1984 and 2000

First, from the censuses we can see that there is a great variation in the degree to which each canton participates in the secondary sector activity of the country as a whole. The percentages of secondary sector participation which are over the national average, have been decreasing from as high as of 18.5% in 1973 in some cases, to as low as around 13% in 1984 and 9.9% in 2000.

However, these maximum percentages are higher than the percentages observed in the primary sector analysis, where the highest figure in any year was around 6%<sup>68</sup>.

Second, it is also interesting how the percentage of secondary sector workers in peripheral cantons increased according to the 2000 census information in cantons like Pococí, Limón and San Ramon (numbered with red numbers 1, 2 and 3 respectively on the Map 5). At the same time, it is decreasing in cantons such as Turrialba (number 4 on the same map). It is likely that this displacement is related to the migration of some workers between cantons and the resultant changes in cantons' demographics.

There is no doubt that the cantons that have had the biggest percentage of the secondary sector have historically been located in the Central region. Here its important the spread of this sector into peripheral cantons around the capital.

In summary, the secondary sector, considered less important in terms of the national economic process - because it was not properly established has been an important part of the workforce in a small group of cantons. That group of cantons have identified themselves as key contributors to the secondary sector workforce historically. It will be crucial to study the changing dynamic of economic sectors with information from the 2011 census, given the rise of FDI related to the industrial sector and medical and high technology assembly parts industries.

---

68 See punctuations related to Map 5.1

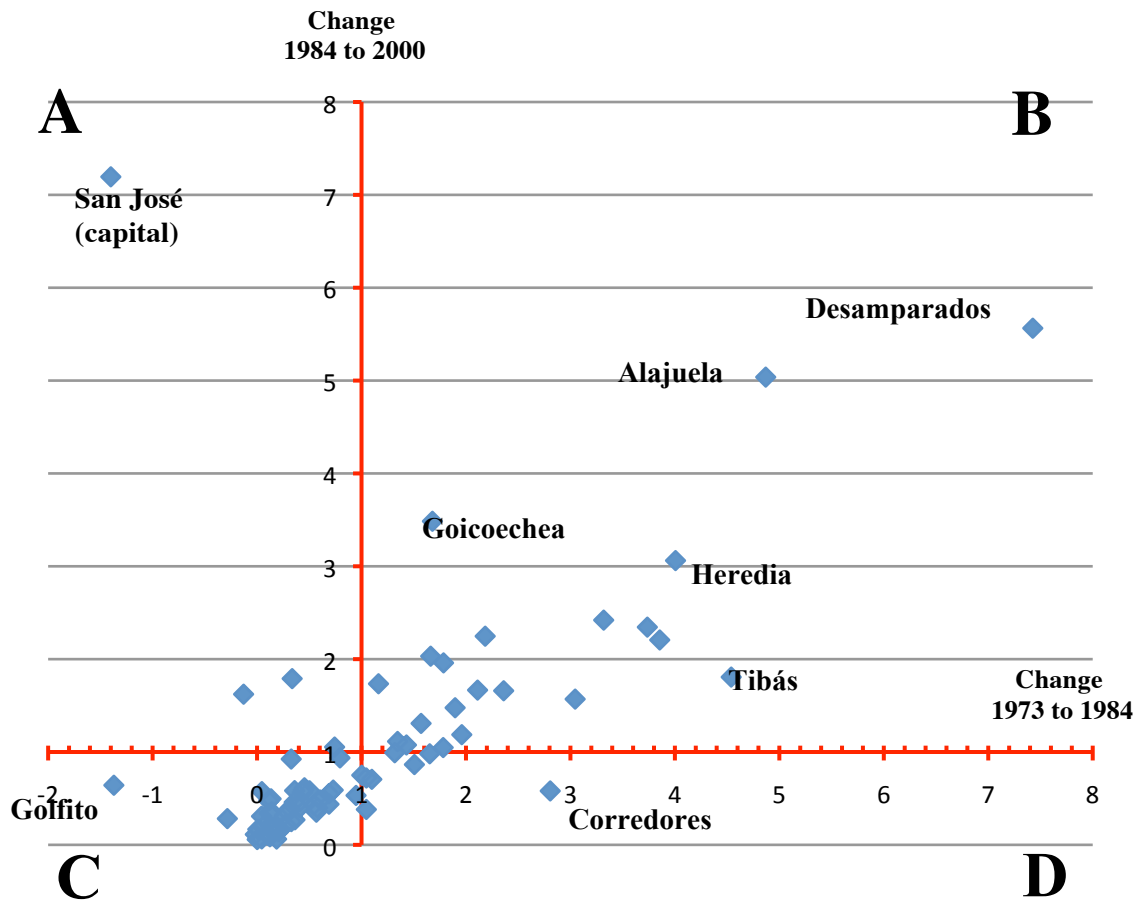
This thesis predicts that there will be a significant reinforcing process related to cantons in which the secondary sector labour force is concentrated.

#### ***5.3.4 Intra-regional differences: the new distribution of the expanding tertiary sector***

To conclude this section, the analysis of the distribution of workers for the tertiary sector is presented. The development of this sector is of particular importance to this research because it is closely related to the financial services, which are part of the multinational companies' activities in the country and its territorial manifestations. Drawing first on the census data, the next graph presents the trend of the tertiary sector participation by canton.



Graph 5.10. Change in Number of Workers in Tertiary Sector by Canton (1984-1973 and 2000-1984)



	Quadrant A: <i>Reimproving</i>	Quadrant B: <i>Consistent growth</i>	
Red lines y = 1	Quadrant C: <i>Lagging</i>	Quadrant D: <i>Slowing down</i>	x = 1 and

Source: Own elaboration, with information from INEC 69

**Notes:**

1. Each quadrant represents the variation in participation of cantons by sector:  
A- Cantons recording decline in tertiary sector employment in the first period and growth in the second  
B- Cantons recording growth in tertiary sector employment in both periods  
C- Cantons recording decline in tertiary sector employment in both periods  
D- Cantons recording growth in tertiary sector employment in the first period and decline in the second

69 Information retrieved from <http://www.inec.go.cr/> 10-10-2008. In collaboration with Dr. Torrissi

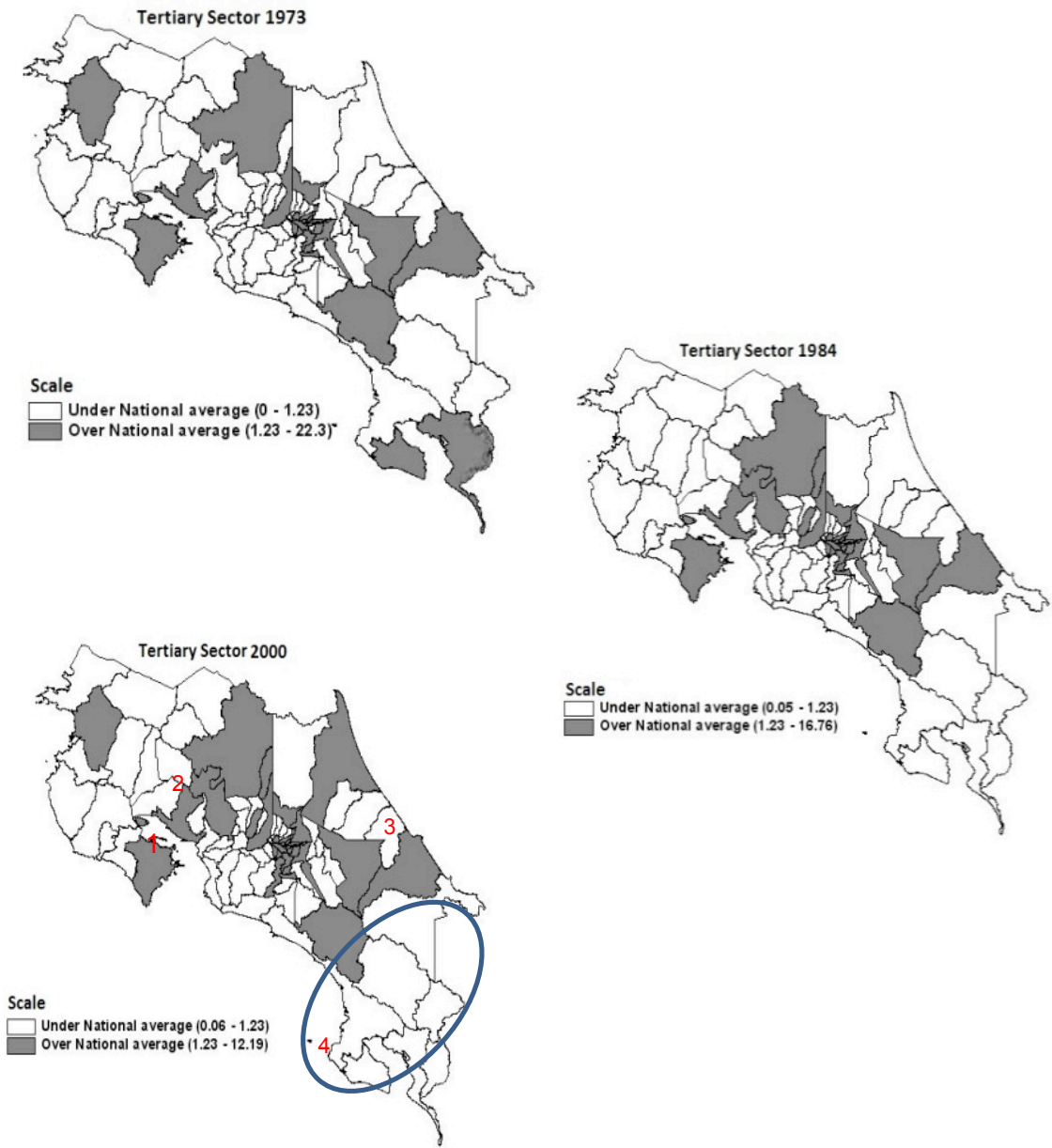
In terms of the tertiary sector, there are very few cantons that are part of the *Consistent growth* group. The cantons that are part of the Consistent growth group present a strong expansion path relative to the sector, though the differences inside the group are significant. In this case, Desamparados has much higher growth than Goicoechea or Tibás, which are bordering cantons of the capital San José.

Another important characteristic is that the tertiary sector location is closely situated to the location of the secondary sector. The periphery of the capital is, again, geographically significant for the tertiary sector as it was for the secondary.

In summary, the tertiary sector is still concentrated in a few cantons, as is presented in Graph 10.5. There are cantons such as Desamparados, Goicoechea or Tibás in which tertiary activity can be seen, which are part of the core metropolitan area but they are considered suburbs or *dormitory towns* because they are fundamentally residential. Cantons such as Alajuela and Heredia, mentioned above, which are capitals of provinces located in the Central Region that have been absorbed by the conurbation process. There are also peripheral cantons that are consolidating their role in the services sector as part of this process.

In terms of the territorial distribution, Map 5.3 shows the increasing concentration and consolidation of the tertiary sector workers in some cantons.

*Map 5.3. Percentage of Participation of the workers in the Tertiary Sector by Canton. Under and Over the National Average (1973, 1984, 2000)*



Source: Own elaboration, with information from Census 1973, 1984 and 2000

The variation by canton for this sector is bigger than can be seen in the distribution of other sectors. As was explained in 5.3.1, the tertiary sector has increased its presence in all the regions, and overall in many cantons as well. It is important to note that the size of the tertiary sector was explained until 1984 by employment in the public services. After that, it was comprised mainly of people working in private services.

As a result of this, tertiary sector figures are closely related to those of the private secondary sector, essentially tourism, transport, teaching, house workers and private safety officers.

The distribution of sectors in terms of territories presents an important change, shown on Graph 5.10 and on Map 5.3. On the one hand, the San José canton, which includes the capital itself, is part of the *Re-improving* cantons. There are also other cantons located in the *Re-improving* group, which demonstrate the rise of the tertiary sector as a whole. This can be seen in the case of Puntarenas, which is the main city on the Pacific coast, and Liberia (red numbers 1 and 2 respectively on the map). Liberia has the second international airport in the country, located in the Chorotega region. The same situation is observed in Limón (number 3 on the map), the main city on the Atlantic coast<sup>70</sup>, where the country's main seaport is located. On the other hand, in cantons located in the South the tertiary sector population is reducing (number 4 on the map).

In summary, this section has sought to ascertain the distribution of the labour markets of the three economic sectors nationally. In the case of the tertiary sector workforce and the smaller secondary sector workforce we can see that they are predominantly located in the country's core cantons. This core is then surrounded by the peripheral cantons that house the majority of the country's primary sector activity.

---

<sup>70</sup> See Map 7.3, cities numbered 1 to 3.

This distribution was not strongly affected by developments in the secondary sector up to 1984. Most likely this is as a result of the secondary sector never having housed a large percentage of the country's workforce. However, a new phenomenon is presented in figures from 2000, which show the rise of the tertiary sector. It is fundamentally concentrated in the core metropolitan area, as well as the cantons that contain the country's sea and airports.

On the one hand, cantons that are part of the Consistent growth group have not fully benefited from their competitive advantage in attracting workers (Arguedas, Murillo and Sanchez, 2008). However, there is a permanent migration and immigration of workers that responds to the labour market's demand, rather than a regional or national policy related to employment. For example, the distribution of the agriculture and commerce labour markets is constantly affected by immigration and internal migration phenomenon such as this. As was mentioned above, a consequence of these movements of population between cantons is that it can be difficult to collect accurate information about the changing distribution of the economic sectors across the country (Arguedas, Murillo and Sanchez, 2008).

Arguedas, Murillo and Sanchez (2008) proposed that a path-dependence relation between groups of cantons is possible as an explanation for labour force availability, where cantons with more specialization absorb population from neighbouring cantons.

This research has not obtained sufficient evidence to prove the assertion above. However, a correlation analysis between the presence of the different economic sectors in cantons and population instruction level was conducted. A correlation can be seen between the presence of secondary and tertiary sectors and the instruction level of secondary school and higher education.

Furthermore, cantons with a higher percentage of primary sector activity correlate with high percentages of primary education, and an inverse correlation between percentages of primary sector with percentages of higher education can be seen.<sup>71</sup>

Searching for information that supports economic transformation inside the regions, the significance of FDI was also explored. It is because the central government promotes investment attraction in particular FDI and all cantons are part of the strategy to attract FDI. In fact, there is an effort to define conditions for cantons, in order to be competitive not only in the national market but to be attractive for international companies as well. The next subsection is about the impact of the FDI.

#### **5.4 The Costa Rican economic scene transformation**

This section addresses three main points related to the Costa Rican economic transformation. First, the recent changes in the labour market by region are presented in order to identify the differentiation of new economic sectors. Secondly, it offers an explanation of how different kinds of FDI are making important differences in territories and how this is exacerbated by the relevance of the Central region in the new economy. Finally, a general exploration of the FDI-HT is presented in order to attempt to understand the challenges involved in a small country becoming part of the global KBE.

##### ***5.4.1 The labour market after 2000: effects by region***

This section takes information available via the Household Survey 2009 in order to explore the change of the labour market conditions.

---

71 See Annex 7

One limitation to consider here is that the Household Surveys' information is gathered on national or regional scales only, it is therefore not possible to explore the situation on a canton level using this data.

Nevertheless, given the relevance of data collected after 2000 in understanding the economic transformation and its implications for the Costa Rican labour market, the information of the Household Survey 2009 is mentioned here. As was stated, the economy in Costa Rica has been expanding its open market model since the 1980s, when the attraction of FDI increased significantly.

The next table shows the information related to the percentage of workers engaged in different types of activity for each region in 2008.

**Table 5.1. Percentage of workers for type of activity by region  
(2008)**

<i>Region</i>	<i>Percentage on primary sector</i>	<i>Percentage on Industry</i>	<i>Percentage on construction</i>	<i>Percentage on Commerce, Hotels and Restaurants</i>	<i>Percentage on public services</i>
Central	5.5	14.3	7.5	24.8	47.8
Brunca	26.5	8.8	10	21.5	33.2
Chorotega	18.2	7.7	10.9	26.3	36.8
Huetar					
Atlantic	33.9	7.4	5.4	21	32.4
Huetar North	37	6.8	5.3	23.8	27.1
Central					
Pacific	13.2	11.6	11.5	27.2	36.5

Source: Own elaboration, with information from MIDEPLAN

Generally speaking, the distribution of the worker population by type of activity before the 2000s, described in section 5.4, it is seen to be reinforced by the 2008 figures. In 2008, an important percentage of the workforce of the North and Atlantic regions are working in the primary sector (37% and 34% respectively).

There is also data confirming the consolidation of the tertiary sector workforce nationally, reaching 72% of the workforce of the Central region and 50% in all the other regions.

By contrast, the secondary sector percentages did not grow significantly. For example, the percentage of workers in industry is around 14% in the Central region and 12% in the Central Pacific region.

There are also high percentages of unemployment, in particular in the peripheral regions. According to the Household Survey 2009, the public sector returned as an important employer during the 2008 crisis in order to resolve unemployment, but the effect on employment was evident mainly in the Central region cantons<sup>72</sup>. Moreover, the same survey shows the severe decrease in employment *nationally*. With the reduction of construction activity in 2009 there is a rise in unemployment that grew from 4.2% to 6.6% for men, and unemployment for women that went from 6.2% to 9.9%, due to the reduction of the manufacturing activities<sup>73</sup>.

The effect of unemployment during this period is greatest for young people. The percentage of people between 18 to 24 years old not in employment rose from 10% to 17%, where young women can be seen to be more effected by this than men. This point is very important in terms of the feminization of poverty in Costa Rica (Chant, 2000) and will be explored in Chapter 7.

---

72 See: Basic figures about labour force. July 2009. Retrieved from <http://www.inec.go.cr/A/MS/Encuestas/Encuesta%20Hogares%20de%20Propósitos%20múltiples/Publicaciones/C1/Año%202009/Publicación%20Cifras%20Básicas%20sobre%20Fuerza%20de%20Trabajo.pdf>

73 Idem



Data from 2010 does not show any significant change in employment rates from previous years. The next tables present the economic participation and social situation statistics for each region, for 2010.

**Table 5.2. Information about employ participation by Costa Rican regions (2010)**

<i>Region</i>	<i>Percentage of national population</i>	<i>Net Rate of Participation of National Economy</i>	<i>Rate of Open Unemployment</i>	<i>Rate of Under-employment</i>	<i>Workers in Agricultural sector</i>
Central	63.9	58.1	7.5	13.9	4.9
Brunca	7.5	48.7	8.2	19.5	26.1
Chorotega	7.6	54.1	10.1	22.2	17.4
Huetar		52.2	7.9	17.4	32.3
Atlantic	10.3				
Huetar North	5.5	56.4	7.3	17.9	34.5
Central		54.2	8.2	19.4	9.7
Pacific	5.3				
National point		56.5	7.8	15.6	11.5

Source: Own elaboration with INEC information<sup>74</sup>

As is presented in Table 5.2, the Central region is the region with the higher net rate of people in employment (58.1%, which is 2 points over the national rate 56.5). In contrast, it is also the region with the lowest rate of open unemployment (7.5%) and has a minor rate of total underemployment (13.9%), both of these rates are below the national average.

In 2010 11.5% of the labour force was made up of agro-activities workers. The Central region had 4.9% of this workforce, which is much less than other regions such as North Huetar region that represented 34%, Atlantic Huetar that made up 32%, and Brunca with

74 Retrieved from <http://www.inec.go.cr/Web/Home/pagPrincipal.aspx>

26%. Central Pacific and Chorotega held 9% and 17% respectively of workers in agro-activities. Simultaneously, these regions can be seen to be expanding their tourism and in construction activity in 2010.

Demographic variables are also relevant in understanding the dynamic of the labour market. One such variable is the ‘demographic bonus’ that demonstrates an important population increase between 1950s and 1960s, which has had a significant impact on the Costa Rican labour market (Rosero and Zuñiga, 2006). Another important variable is the number of immigrants working within the labour market. There is a large number of Nicaraguan women employed as house workers and in hotels in miscellaneous roles, while Nicaraguan men make up a large portion of the safety services<sup>75</sup>. These two variables add a degree of uncertainty to labour market statistics, due to the high rates of national and international migration between cantons and regions in the country.

The connection between unemployment statistics and agro-activities could be also related to the migration dynamic, both immigration and emigration. As was mentioned in the Chapter 4, Costa Rica like many other developing countries, has a huge concentration of population and activity in the capital Central region; 27% of the national population is found within the core metropolitan area and another 37% in its urban periphery, while the other regions are each inhabited by between 5% and 10% of the national population<sup>76</sup>.

This massive concentration of population and resources creates the necessity for national internal movements as a natural condition to get a job. Based on data from 1973 and 1975, Brugger (1982) pointed out that:

“Migration in Costa Rica is the result of unbalanced regional labour markets which have an economic structure dominated by the primary or tertiary sector (but not the secondary)” (Brugger, 1982: 20)

---

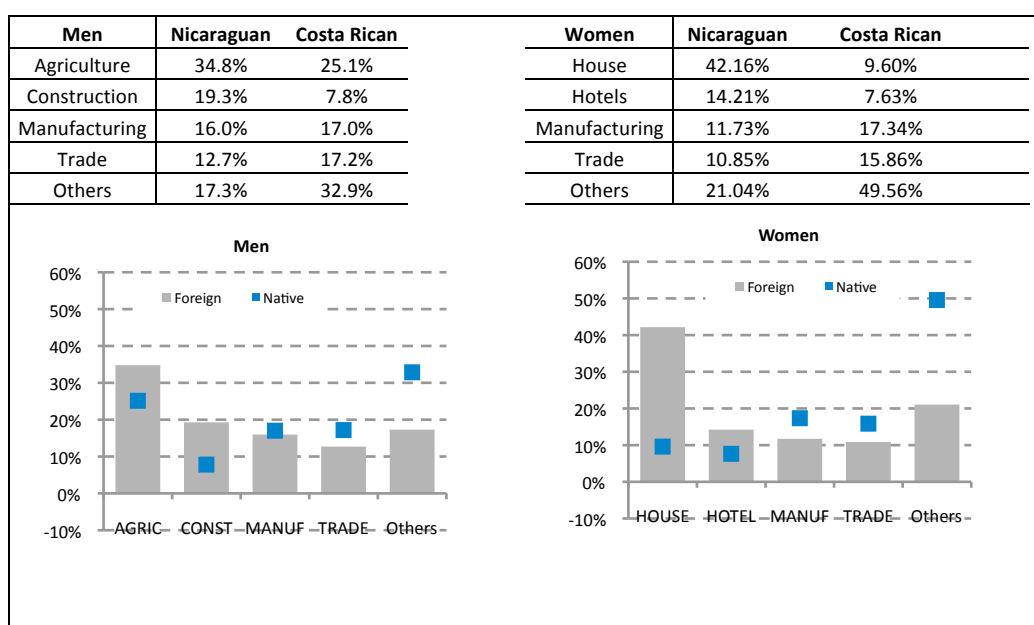
75 Retrieved from <http://www.oecd.org/dataoecd/20/0/44535774.pdf> 06-09-10

76 Census population 2000. See <http://www.inec.go.cr>

This situation, discussed by Brugger (1982) in the early 80's, looks to be a continuing and increasing feature of the Costa Rican labour market over the last three decades. As a result the migration phenomenon in the country has become difficult to chart in official statistics. There are not only national but also international migration movements to consider here. According to many official national and international records, Costa Rica has a “complex migration profile”<sup>77</sup>. There is steady flow of people leaving and returning to the country, especially to and from Nicaragua and the northern border of Costa Rica.

The next table, presented by OECD, synthesises the relation between national and Nicaraguan workers in Costa Rican activities.

**Table 5.3. Percentage of participation in types of activities.  
By gender and country of origin.**



Source: OECD Development Centre calculations, based on the 2000 Costa Rican National Census (processed with ECLAC Redatam+SP on-line).<sup>78</sup>

<sup>77</sup> See OECD for instance: <http://www.oecd.org/dataoecd/20/0/44535774.pdf>

<sup>78</sup> Retrieved from <http://www.oecd.org/dataoecd/20/0/44535774.pdf> (January 2010)

As the table above shows, Nicaraguan men work predominantly in agriculture and construction, while Nicaraguan women are working in domestic services and hotels. Due to the proximity of the two countries, many of these immigrants do not have a permanent residence in Costa Rica, but are constantly moving between the two. As a result of this they do not have a legal status in Costa Rica either.

At the same time, there are more Costa Ricans than ever before migrating to the United States to look for new work opportunities. Before 1984, migrants from Costa Rica to the USA were usually highly qualified workers looking for an employment in a bigger country. In the past, “Costa Rican emigrants in the United States were in general highly skilled, some 70% of them having completed secondary education or more” (OECD, 2009:229).

However, in the last two decades the profile of the migrants has changed dramatically. In the 1990s, immigrants from Costa Rica as well as other Central America countries were less highly qualified; “From El Salvador 35% and 26% from other countries have complete high school” (Morales and Castro, 2006:29).

In Costa Rica the rise of the migratory movement includes workers of the primary sector. Many of these workers are coffee pickers, who in the past used to migrate only inside the country in cyclical patterns to be part of the coffee harvest or other activities across the national regions. A number of migrants are also qualified people who cannot find employment in Costa Rica or are looking for better labour conditions (Morales and Castro, 2006:29). Now both of these demographics, unskilled and highly qualified people, are moving to the United States to seek work.

This migration has an important social and economic effect, in particular on peripheral regions, where a large percentage of Costa Rican migrants originate and who have tended to come from positions of extreme poverty.

These people obtain their USA visa by paying expensive illegal registration fees, for which they sell the land that they had or take out an expensive loan with private providers. Others go without a visa via Mexico, which means it is extremely difficult to know exactly how many people are currently in this situation.

As the information quoted has confirmed, there is significant difficulty in being accurate when it comes to the national and international migration movements of Costa Rica, furthermore these movements directly affects the characteristics of the workforce and the labour market in Costa Rica. There is also a large portion of the workforce working in illegal conditions, without registration. This is apparent in all three economic sectors present that make up the labour market.

The large portion of the workforce working in illegal conditions is a particular problem with workers employed out of the national social security systems. Figures about poverty, percentage of social insured population and schooling average are presented in Table 5.4.

**Table 5.4. General Statistical Information presented by Costa Rican regions (2010)**

<i>Region</i>	<i>Percentage of poor households</i>	<i>Percentage of Social Insured</i>	<i>Schooling Average in population over 15 years old (years)</i>
<i>Central</i>	15.3	84.3	9.1
<i>Brunca</i>	30.9	83.2	7
<i>Chorotega</i>	24.1	75.5	7.6
<i>Huetar Atlantic</i>	21.6	79.3	7
<i>Huetar North</i>	17.2	79	6.5
<i>Central Pacific</i>	26.2	85.8	7.5
<i>National point</i>	18.5	82.8	8.4

Source: Own elaboration with INEC information

The Central region is the region with the lowest percentage of poor households (15.3%) and the highest average years of schooling for its inhabitants (9.1).

The Brunca region presents the highest percentage of the poor households (30.9%) and is the region with a lowest average years schooling for its inhabitants (6.5). At the same time, the Huetar North region has an average of 6.5 years of schooling per inhabitant and, as was mentioned above, is the region with the highest percentage of its population working in activities related to agriculture (34.5%). This relation between the average years of schooling and the percentage of participation of the region in primary sector was also established in a correlation analysis mentioned above. As will be explained in Chapter 6, the education level has been growing with the new Costa Rican economy, except in the case of primary sector workers.

There are also differences in terms of the percentage of population participating in the Costa Rican Social Security System (CCSS by acronym in Spanish) which is the social security system. The CCSS is a solidarity system where State, employer and employee contribute in order to receive health care and retirement pension. A retirement pension is not only for workers but also for people who need such services but cannot pay because they have disabilities or are elderly. It is mandatory to be registered in the CCSS. The Central region has 84% of Social Insured, surpassed only by the Central Pacific region with 85.6%, while others like the North Huetar region has 79%, and the national percentage is 83%.<sup>79</sup>

In other words, the labour market has been changing after 2000, related to the rise of new economic activities and the changes in immigration movements.

---

<sup>79</sup>This is important in Costa Rican context because the CCSS is a solidarity agency that provides all health services, maternity leave, and also ensures pensions for invalidity, old age and death. The CCSS has been one of the most important parts of the solidarity system in Costa Rica. It is compulsory for all national enterprises to be part of this social systems; ensuring all the employees through the payment of dues according to the statement of wages.

More Costa Ricans than in the past are migrating to the USA and more Nicaraguans are part of the workers in the primary and secondary sectors. Simultaneously, inequalities among regions persist and unemployment and worse conditions are concentrated in the country's peripheral areas<sup>80</sup>.

The not qualified group has been growing since the 1980s crisis; this can be seen within the wider Central American context. Migration movements and cross-border dynamics are part of this growth (Trejos, 2008). For example, in Costa Rica, construction workers and farm workers are made up of a large number of migrant workers, particularly Nicaraguans. They are usually unskilled workers who receive low salaries and live in extremely poor conditions. Simultaneously, peasants and farm workers from rural-concentred<sup>81</sup> areas, as well as young professionals, from Costa Rica are moving to the United States regarding for alternative employment opportunities.

Moreover, the XV State of Nation Report (2009) pointed out the new economy in Costa Rica has a different dynamic to contrast to the old economy dynamic. This XV Report (2009) proposed a new methodology to explain how the Costa Rican social structure had been changing during the last 20 years<sup>82</sup>. In order to illustrate the change, this report suggests that in the past the Costa Rican social structure was considered to be dual class with owners and workers, or even tripod class with owners, workers and peasants as was general in Latin America<sup>83</sup>.

However, the XV State of Nation Report (2009) suggested that today the social structure is less agrarian in terms of workers and smallholders than it was in 1987.

---

<sup>80</sup>As was mentioned in Chapter 3, after 2000 there is not census. Because of that the information available is the House survey which is on the national or the regional level.

<sup>81</sup>Rural-concentred is a rural community which has more than 50 families, some infrastructure such as telephone, church, school and services as drinkable water.

<sup>82</sup>(State of Nation Report, 2009:76/306)

<sup>83</sup>(State of Nation Report 2009: 76)

New groups in the worker population, such as middle entrepreneurs, experts and a so-called *inter-medium class* (constituted by technicians, bosses of departments without bachelor university grade, service and commerce employees)<sup>84</sup> grew from 26.6% in 1987 to 37.5% in 2008; At the same time workers of agriculture, industry and other services, dropped from 32.7% in 1987 to 20.2% in 2008.”<sup>85</sup>

Another conclusion presented by the XV State of Nation Report (2009) is that this new structure is more urban and concentrated in the Central region. Middle entrepreneurs and experts have better wages than other groups; however, while the public sector is the best option to get a job for inter-medium groups and workers, it is not an option for experts. This point illustrates how the social structure of Costa Rica has been changing in terms of new kinds of groups of workers and the territorial consequences of this change as a result of less qualified groups living in the peripheral areas.

The rise of the new economic sector, in relation to foreign direct investment, high technology industry, and the global dynamic is evident in urban contexts (Paus, 2005; XV State of Nation Report, 2009). According to representatives of central government and private sector interviewed in this thesis (Interviews 3, 7 and 14, 2009), Costa Rica has a new demographic made up of by highly qualified people working for multinational companies who are not part of the formal sector. For instance, during this research, when a question about knowledge exportation was asked, the representative of the Ministry of Economy (Interview 3, 2009) described how a large number of highly qualified people are travelling each Monday morning from Costa Rica to work in other countries in Central America, many of them as consultants for public or private companies (Interview 3, 2009).

These highly qualified workers do not have a permanent work contract in doing so, however this group is part of the networks of economic activity of the new economy in the country.

---

84 (State of Nation Report 2009:314)

85 (State of Nation Report 2009: 76)



On this point, Castells and Portes (1989), Sassen (1989) and Hidalgo (2000) suggested the importance of studying the informal economy and its link with larger companies as well as the formal economy when looking at Costa Rican labour markets. They suggest that there are at least two groups which need addressing as part of the new economy: one is made up of highly qualified people, while the other is formed of unqualified; both are poorly inserted in the economy. A lack of data related to the informal economy in Costa Rica means that information regarding highly qualified workers is still missing, this of particular significance as informal economy within the economy is on the rise. As a result of this, this thesis suggests that a study of the informal economy will be crucial in the future.

In summary, the Costa Rican labour market has been undergoing massive changes. Migratory processes have been growing, not only inside but also across borders, with an effect on all economic sectors. At the same time, the dynamic of new economy is related to the rise of new economic and professional sectors in the country, while absence of data makes it difficult to know the relevance or scale of the on-going informal economy of the economy. Simultaneously, the presence of different kinds of FDI and its relation to national and regional productive structures has been increasing. The FDI is part of the primary, secondary and tertiary sectors and is distributed nationally. However, the FDI-HT has particular consequences. The next section is about the FDI-HT dynamic and how it affects a developing country such as Costa Rica.

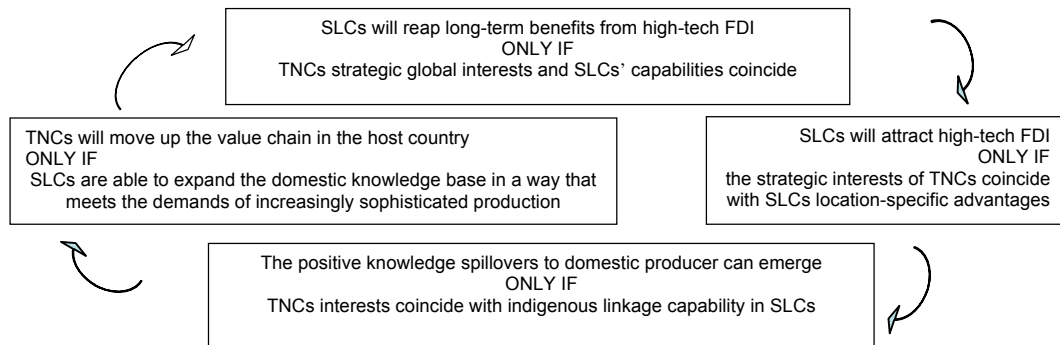
#### ***5.4.2 The dynamic of the FDI-HT***

Paus (2005) pointed out that the dynamics of the FDI-HT is very particular in the Costa Rican context, considering that it is a small developing country.

According to Paus, the components of the FDI dynamic in general and how they are interrelated constitute a very particular cycle. For example, for a country like Costa Rica, the components of the FDI-HT dynamic are three: the small latecomer country (SLC) as Paus (2005) called Costa Rica, the Transnational Companies (TNC) and FDI itself.

The next diagram summarises the explanation proposed by Paus (2005), in terms of requirements to become a new partner in the FDI high-technology (FDI-HT) global economy.

**Diagram 5.2. Conditions and interactions within the FDI-HT process**



Source: Own elaboration based on Paus E. (2005).

Foreign investment, development and globalization. Pages 2 and 3

This diagram looks simple, but its implications in terms of the effect of this process on a national level are extremely significant. Briefly, the idea explained by Paus (2005) is based on the contrast between Costa Rica and Ireland. According to Paus, Costa Rica attracts FDI with limited local resources, while Ireland does so with an important local potential to maximize the spillover generated by transnational companies.

Paus (2005) said that the formula, based on FDI, to take advantage of global dynamics in general and the high technology world in particular is related to the possibility of endogenous capabilities of a small country to compete as well as the partners that you have. In small developing countries, the capacity to compete is limited. As a result, it is less possible for small countries like Costa Rica to take advantage of being part of the global high technology model. Nevertheless, the presence of multinational companies like Intel has been positive for the Costa Rican economic growth.

The problem become visible when for instance, local enterprises try to build value chains. In this moment all the difficulties explained before are evident.

Rodriguez-Claire (2001) pointed out that the presence of Intel in Costa Rica is the result of many circumstances related to investment in human capital and technology that the country has been making during the last 30 years. According to Rodriguez-Claire, these investments and the role of the Coalition for Development Initiatives (CINDE by acronym in Spanish)<sup>86</sup> as the established structure to attract FDI-HT in general, and Intel in particular to Costa Rica were fundamental.

In relation to this, the diagram adapted from Paus' (2005) proposal has to be completed with the presence of some local elements that the small country provides in order to attract and maintain the presence of the MNCs. Given the relevance of Intel as a key company in the FDI-HT sector, it is important to explore the reasons for its presence in Costa Rica.

According to Ketelhöhn and Porter (2002), Intel's reasons for selecting Costa Rica, were based on its geographical position, its workforce and its stability.

Ketelhöhn and Porter (2002:9) observed, "By 1996, the Costa Rican economy was showing the initial signs of a transition toward more sophisticated electronics exports." At the same time, these authors point out that 150 small companies producing software have been created as a consequence "of spin-offs from Zona Franca (sic) companies, universities, research centres, and other large companies."<sup>87</sup>

---

86 The role of CINDE is very relevant. It is also considered a key example internationally. This point will be explained later, in the section about the FDI attraction.

87 Ketelhöhn and Porter (2002:9)

According to Ketelhöhn and Porter (2009), the team that prepared the project which invited Intel to install its plant in Costa Rica was managed from central government, with direct participation of the president of Costa Rica at that time.

The framework to attract and maintain FDI in a small country has had public sector support through tax reductions, investment in infrastructure and workforce training, inter-institutional organization to support all the social actors involved in the specific sector where the MNC is part of. This has been necessary as no private structure is able to provide that.

Other people interviewed in this research mentioned some variables relevant to Intel's decision to choose Costa Rica, such as a representative of a NGO closely related to the topic of the KBE-CR who considered that Intel prioritized Costa Rica because of its highly qualified people, or the representative of the Ministry of Economy (interview 3, 2009) who said that Intel liked the protection for its investment promoted in Costa Rica.

However, according to information assembled from other interviews conducted also in this research, the presence of Intel in Costa Rica is the result of public, private and academic organizations and institutions working together in one plan to attract an important multinational company. Part of that plan includes the participation of central government and the ITCR. ITCR is a public university with enough critical mass for the demand of that MNC, were the key elements in presenting a successful offer to Intel.

According to the representative of the High Technology Advisory Committee (CAATEC by acronym in Spanish) (Interview 14, 2009):

“All the institutions mentioned above were working together as a network which was led directly by the President of the country during 1994-1998. The model tested in Costa Rica to attract Intel has not been repeated since. We never work in the same way.

In fact, there is a claim, related to the absence of public policies in the attraction of the high technology companies, or the individualism characteristics of the Costa Rican society or the ignorance related to innovation systems; the truth is that the miracle was not repeated” (Interview 14, 2009).

Paradoxically, there are enough public policies to organize different sectors that could resolve not only the institutional but also the market knowledge-intensive economy needs. Nevertheless, the disarticulation within and between sectors is an essential weakness in the institutional structure of the so-called KBE-CR. It is the origin of the problems faced in building a proper national innovation system.

During the interviews conducted in this research, there were explicit references to why the structure which supports the KBE-CR must be an innovation system organized as a network with private sector predominance. According to the representative of CAATEC (Interview 14, 2009) and the representative of MEIC (Interview 3, 2009) and the Ministry of Competitiveness (Interview 25, 2009), the base of the innovation system must be a para-institutional private structure in order to protect it against the political cycle that affects everything in Costa Rica every four years, when the central government changes.

In fact, the independence of a para-institutional private structure is also a good example of a paradox itself, because these organizations and institutions, want not only the independence to work outside of the political cycle, but also to be free from state regulations. This is a paradox because in a small developing country, where the private sector is not the main sponsor of research and innovation, the role of the central government is critical in order to sustain the structure, articulate different social actors and to develop this structure by including new organizations and companies.

This is not an exclusive problem of the KBE in Costa Rica. In fact, many researchers (Martinelli, 1991; Fernández, 2001 and 2006; Cimoli and Correa, 2002 and Christopherson, 2009 for instance) have studied the phenomenon of national disarticulation of these kinds

of socio-economic structures. They have pointed out that such structures are linked to foreign companies, more than they are with their neighbours on a national level. As a consequence, it has a limited capacity to promote articulation. However, at the same time, they take a lot of resources from the country in order to maintain their functioning.

Cimoli and Correa (2002) point out that the process behind the presence of the FDI-HT has been part of the wider economic transformation of Latin American countries. It is in fact the start of a new dynamic of productivity, impacted particularly by the intense use of technology, which is unevenly distributed. These authors explain that the new economy based on technology promotes dualism in economies due to the phenomenon that high technology is usually concentrated in a few specific areas, which they call “enclaves.”<sup>88</sup>

On the other hand, areas that are close territorially speaking present significant differences in terms of economic activity and growth. Consequently some regions are relegated, creating a scene of uneven growth, with a large contrast between neighbouring regions.

Once again the problem is the concentration of resources and activities in a few areas. The effect of FDI in relation to the high technology is markedly worse because its investment has an “enclave” dynamic and it is not a long-term activity (Cimoli and Correa, 2002). This means that it is not only is it not promoting economic growth, but it is also facilitating the destruction of historical forms of local sustainability (Fernández, 2001; Fernández et al., 2006; Cimoli and Correa, 2002). On this point, Correa and Cimoli (2002) focus on the negative consequences of foreign capital that does not have local roots in terms of productive organization not only because of the immediate consequences but also with a view to the long-term perspective.

---

<sup>88</sup> Enclaves has been called economic activities which are not socio-economically linked to the context where they are located.

“[...] Latin America has radically modified the pattern of technology accumulation and knowledge diffusion across firms and sectors.

Such changes are giving rise to a complex process of destruction of deeply rooted forms of production organization and of institution, and gradually (and painfully) forcing the countries to establish an outward-oriented and deregulated regime and a production system specializing in activities with low knowledge content.”<sup>89</sup>

This quote refers to the presence of exogenous investments which do not generate links with local production structures or which substitute these structures with new forms that depend on exogenous resources, based on non-skilled workers with low salaries.

Christopherson and Clark (2009) point out the disconnection between multinational logic and long-term development in national or local context. As an illustrative example, the Central Bank of Costa Rica presented economic performance reports of the country *with* and *without* Intel. A difference can be seen in this comparison between the traditional dynamic of the economy in Costa Rica on the one side, and the logic of the multi-national company on the other side. This example also serves to show the difference between endogenous and exogenous context. Furthermore, one can see the consequences in terms of regional development inside the country, in terms of the differences between a long-term development model for a country and a short-term business strategy for a multinational company.

As Fernández (2001), Cimoli and Correa (2002) and Christopherson and Clark (2009) explain, this model has greater consequences when public policies in a country are not taking national needs or the differences between the characteristics of the core and the peripheries into consideration. This is worse when the core and the peripheries are losing their endogenous resources and local productive strategies, in the absence of an option to be inserted in with the new economy.

---

<sup>89</sup>(ECLAC, 2002, quoted by Cimoli and Correa, 2002)

Reviewing this case study, one can see this problem illustrated by the new role being played by some regions that had an agriculture tradition in the past and have had to transform themselves into regions that focus primarily on services.

In this transformation process they are losing their experience and tacit knowledge, putting all their efforts into an ephemeral circumstance related to, for instance, tourism that depends on big hotels or even plantations. These activities do not generate a lot of jobs, they also pay low wages, have low added value and do not generate local value chains.

This last point is relevant with regards to the strategy to attract FDI. In some countries the competitive advantage is the attraction of jobs for specialized workers, while in the other cases the idea is to promote competition for low salaries. As was mentioned above, Costa Rica presents both of these realities, the high instruction level workers who are part of the new economy, concentrated in the Central region, and the low salaried workers, connected to primary sector activity which depends on FDI but is close to the old economy model of the peripheral regions.

However, Costa Rican official discourse promotes the inclusion of the country in the KBE dynamic. As was explained, that was an explicit part of the central government plan in the 1990s. In fact, the representative of CAATEC (Interview 14, 2009) interviewed as part of this research pointed out that:

“Costa Rica is definitely going to build a KBE model. The question is if we are going quickly enough, and the answer is probably not” (Interview 14, 2009).

Related to the weak links within the national economy, at the moment both government and national private sector are making efforts to try to generate value chains associated with the foreign companies.



For instance, “Costa Rica Provee”<sup>90</sup> is a program created by Foreign Trade Corporation of Costa Rica (PROCOMER by acronym in Spanish) in order to join local suppliers with international and national exporting companies.

At the moment, the program is focused not only on improving the number of companies participating, but also on the complexity of the goods and services those national companies and small and medium enterprises can offer.

On the other hand, Costa Rican software sector exports US\$80 million in software and companies’ associates to ICTs export US\$2,138 million in goods. This is a result of 20 years of work of ICTs Chamber of Costa Rica (CAMTIC by acronym in Spanish), which is a private organization.<sup>91</sup>

However, the geographical manifestation of the FDI in general and the KBE-CR in particular, are difficult to establish because there is not enough information to conduct a complete analysis. As a result of this, in this research the exploration of the labour market dynamic was a plausible one in order to explore not only the geographical distribution of the new economy but also the characteristics demanded in the labour market nowadays.

It is also relevant to explore the labour market dynamic as part of the discussion concerning the role of public universities and to include the dimension of regional development in a developing country.

In summary, the dynamic of FDI in relation to high technology presents a challenge for the Costa Rican economy in general.

---

90 Retrieved from [http://www.procomer.com/Ingles/Fomentar-07/fomentar\\_encadenamiento-07-01.html](http://www.procomer.com/Ingles/Fomentar-07/fomentar_encadenamiento-07-01.html). 01/10/09

91 Retrieved from [http://www.procomer.com/Espanol/docs/PDF/Revistaenlace/Revista\\_marzo2007.pdf](http://www.procomer.com/Espanol/docs/PDF/Revistaenlace/Revista_marzo2007.pdf) 01/10/09

Firstly because of its impact in the economy; for instance the Central Bank of Costa Rica<sup>92</sup> presented Gross Domestic Product (GDP) *with* and *without* INTEL participation, because of the significant differences this comparison highlights. Secondly, is because the dynamic of this new economy is so different from the dynamic of the traditional economic activities in the country. Traditional economy was based in agro-exports cycles while Intel works basically to headquarter decisions.

Finally, the FDI presents a challenge for generating local value chains, connected to the transnational company activity.

However, the official discourse of the central government is that the KBE is an option for the country to achieve development.

According to some representatives of the private sector, the country is moving towards becoming a KBE. According to this research that process is still incipient.

It is important to note that the FDI is not only related to knowledge intensive economy activities, but is also demanding transformations in peripheral regions. The next section is about this latter characteristic of the FDI and its consequences.

#### ***5.4.3 Different kinds of FDI: differentiated territories***

As was mentioned above, the attraction of FDI is related to different economic sectors and its influence is notable nationally. The next table illustrates the presence of FDI in each sector.

---

92 See BCCR website. For instance: Retrieved from <http://www.bccr.fi.cr/ndie/Documentos/DIE-04-2005-DI-REFORMULACION%20DE%20LA%20FUNCION%20PARA%20LA%20DEMANDA%20AGREGADA1.pdf> 01/10/09

**Table 5.5. Costa Rica Foreign Direct Investment by Sector that receive the investment  
From 2000 to 2007  
(in USA\$ Millions)**

<b>Economic activity</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Agriculture	-11.2	0.5	-8.6	-36.3	50.6	37.1	62.2	0.5	447.6	68.0
Agroindustry	11.5	5.2	2.8	8.4	-0.3	29.6	-3.2	32.3	19.4	4.8
Commerce	15.5	11.1	15.2	6.0	23.9	47.6	56.3	72.8	79.6	-3.0
Manufacture Industry	296.2	231.6	483.0	386.7	456.0	344.9	439.3	689.2	554.7	407.3
Services	17.3	57.4	52.8	83.2	17.3	73.3	60.4	57.5	145.4	241.5
Financial System	27.1	43.1	17.2	2.2	22.6	40.9	343.4	74.0	29.0	87.1
Tourism	51.3	102.5	76.0	88.3	41.4	53.5	136.1	321.3	291.5	253.6
Real Estates	15.0	9.0	21.0	31.0	178.4	234.6	364.5	644.6	485.1	265.6
<b>Total</b>	<b>408.6</b>	<b>460.4</b>	<b>659.4</b>	<b>575.1</b>	<b>793.8</b>	<b>861.0</b>	<b>1469.1</b>	<b>1896.1</b>	<b>2078.2</b>	<b>1346.5</b>

Source: Supplied by Central Bank of Costa Rica. Report of Foreign Direct Investment Table 5.5 shows the diversity of FDI.

The impact of the FDI in the industrial sector as well as in tourism and real estate can be seen in the table above. As is shown, a new kind of FDI is focusing in construction. The construction sector has been important as an employment generator. It relates to the construction of hotels, shopping malls and expensive housing developments. These activities have been generating more than 50% of investment in the construction sector, generating extra demand for workers in this activity. For instance, in 2008 the mayor of the Garabito canton in the Central Pacific coast said that: “We have more employment in construction than people available to work on it in this canton”<sup>93</sup>. The mayor referred this information while he was discussing the recent rising demand for construction workers in Garabito canton.

93 See <http://www.construccion.co.cr/images/noticias/sector-construccion.pdf>

This is an example that the construction sector is growing in peripheral regions as well as in the Central region.

Nonetheless, the territorial growth dynamic is still geographically imbalanced, as well as the fact that the manufacturing industry and high technology assembly parts industry is clearly concentrated in the Central region of the country.

At the same time, FDI in tourism has facilitated the development of the country's infrastructure, including roads and services around the country; this can be seen in particular in the Chorotega region. A similar phenomenon is associated with FDI in real estate, which is now having a significant effect along the Pacific regions in particular. The consequence of FDI in tourism is therefore the development of infrastructure and services in peripheral regions that have historically been neglected in these terms.

There are also geographical consequences of FDI in the export structure. For example, in the last thirty years, traditional exports such as coffee and bananas have decreased from 45.5% to 14.2%, while manufacture grows from 45% to 83% including new production that is taking place in industrial parks.

In terms of GDP in 2008, agriculture represented just 7.6% and industry conferred 29.1% as a whole (electronic components, food processing, textiles, and construction materials). However, the most important change is accredited to services that provided 63.3%, being made up of predominantly tourism and financial services. In general, FDI in Costa Rica grew by 6.3% during 2008, while in the wider world it decreased by 20%<sup>94</sup>. This FDI was invested principally in high technology manufacturing in free economic zones companies.

In summary, FDI promotes geographical inequalities, the destruction of local production fabric and proper high added value economic activities are still weak.

---

94 For reference see: State of Nation Report 2009.

First, there is not only FDI related to high technology assembly parts plants and outsourcing companies, but also FDI related to primary sector activities. There are important differences to note in relation to the territorial distribution of the impact of the first kind of FDI, where high technology (FDI-HT) is concentrated in the Central region. The economic activity of this HT industry is close to the added value economic activities, while the second kind of FDI, related to primary sector, construction and some tourism infrastructure, are located mainly in peripheral regions. This second kind of FDI is not related to knowledge intensive economy, rather to non-qualified jobs with low salaries and the destruction of local traditional fabric production.

The disadvantages, both of FDI in general and FDI-HT are linked to the concentration of resources in a few territories, because FDI promotes more extreme concentration by taking advantage of neighbouring regions or even inside the same region. (Christopherson and Clark, 2009).

Second, the concentration of FDI in general and FDI-HT in particular promotes the disappearance of the traditional production systems by the imposition of new ones that are without roots in the local level (Cimoli and Correa, 2002).

As a consequence, there is a new risk for the central area of Costa Rica, which is creating a dependency on this new economic activity<sup>95</sup>. This imbalance in Costa Rica is dividing the country, exacerbating historically uneven distribution of resources and jobs opportunities between the Central region and the periphery.

The third is that, in contrast to the original KBE idea, there are few companies with high added value as part of the production system in Costa Rica. As a consequence, the economy is improving a variety of its activities, but they are not yet improving activity in knowledge intense sectors.

---

95 Retrieved from <http://www.estadonacion.or.cr/index.php/biblioteca-virtual/costa-rica/estado-de-la-nacion/aspectos-sociales/informe-xy> 10-12-09

This thesis proposes that the so called new economy is not a result of sequential transformation but rather an overlapping of phases of economic paradigms, closely related to the effects of different kinds of FDI in the country. As a consequence, production activities and the condition of the labour market in Costa Rica is the result of a multi-paradigm economy that configured *differentiated territories*, as defined by Coraggio (2009).

The maps presented in section 5.4 of this chapter suggested that the old planning regions distribution, proposed by Prof. Nuhn in 1984, has been substituted by multiple smaller cores and peripheral territories distributed nationally. This structure presents different challenges for the country. On the one hand, the dynamic of the FDI-HT being concentrated in the Central region and on the other, FDI related to non-qualified jobs that are concentrated in the peripheries.

As was mentioned before, in terms of Paus' proposal, the global economy makes a particular demand for small developing countries: to take up the *opportunity* to be included somehow in the global high technology world, which is hierarchical and exclusionary.

Each small developing country – such as Costa Rica – has a different approach to the *opportunity* to be part of this global model. The analysis proposed in this thesis is of specifically what kind of knowledge-based economy (KBE) Costa Rica is implementing.

Another point related to differentiated territories and their capacity to be included in the new economy dynamic is the degree of competitiveness that exists between them. Competitiveness is defined by new economy parameters as being detrimental to other characteristics of the cantons. The next subsection presents briefly the implicit problem of being competitive.

#### ***5.4.4 The official definition of competitiveness***

Competitiveness is an important concept in this thesis because it is part of the official discourse of the KBE to evaluate the potential of the different territories. A definition of competitiveness was presented in an institutional report called Competitiveness Index by Costa Rican Cantons<sup>96</sup>.

This report was prepared by the Observatory of Development of the University of Costa Rica, which is an institution studying the potential of the cantons to promote development<sup>97</sup>, and PROCOMER, which is part of the Ministry of External Commerce interested in the potential of specialization by cantons.

The index was based on the World Economic Forum methodology, presented in 2008. The objective of it is to explore special features that can promote specialization by canton, in order to coordinate efforts to connect local capabilities with a potential market, in particular, the external market.

The report is a reliable source, important not only because of the ranking of cantons by competitive performance that is presented, but also because the criteria which is used to rank all the cantons.

The report was prepared based on 2006 information and its conceptual framework was based on Porter (1998), and Gallup, Jeffrey Sachs and Andrew D. Mellinger (1999), among others. The Competitiveness Index is constructed of 8 pillars: economic performance, business environment, governance, labour market, infrastructure, natural environment, innovation and quality of life. The idea is to explore them with a systemic approach. There is also additional information related to the distance of each canton to international airports and seaports.

---

96. Retrieved from <http://www.comex.go.cr/fomento/Documents/Perfiles%20Cantoniales.pdf>

97 See the map in Annex No. 8

There is no doubt that the competitiveness index has been an important tool as it identifies the potential of cantons, ranking them according to their capacity to be included in the so-called new economy. It is because of this that some statistical correlations between the scores by pillars presented in that report and the data on population by sectors prepared for this thesis were explored.

The results were that an inverse correlation was found between the percentage of workers in the primary sector and the economic competitiveness index.

Furthermore, an inverse correlation was discovered between the index of economic competitiveness and the index of the quality of life, both of them presented by the competitiveness report.

This is important information in terms of the economic and the quality of life description. Cantons located in the peripheral regions, which have agricultural activity vocation and cantons that have less urbanization and industry; obtain low scores in economic performance. However, these cantons have high levels of natural resources that are not part of the index. This has implications for the measurement of what is desirable, because all the cantons need high scores in economic performance in order to achieve a good index of competitiveness.

At the same time, there are not alternative variables to score competitiveness for those cantons that have a rich natural environment and poor urbanization. This point will be presented in Chapter 5 in section 5.4.3 that looks at the different kinds of FDI and differentiated territories (Coraggio, 2009); also in Chapter 7, which examines social territorial innovation (Moulaert and Nussbaumer, 2005b).

The report is an important starting point to organizing public policy related to competitiveness by canton. However, some inevitable questions are raised by it. For example, the competitive definition itself, the competitiveness index and the opportunity it allows for peripheral cantons to get a good score in this index.



This leads to an important question about labour market characteristics and how a different conceptualization of the competitive potential of the territories could be constructed in order to allow them to become part of the new economy. This point is also addressed in Chapter 7 in this thesis.

The next section explains briefly the institutional dynamic for the FDI-HT and its relevance as part of the new economy and the knowledge intensive activities. The dynamic related to different kinds of FDI located in peripheral areas will be explored in Chapter 7.

In summary, this section explored the Costa Rican economy after the 1980s, in order to answer a question related to the territorial manifestation of the KBE in Costa Rica.

The answer proposed is that the Costa Rican economy changed from a model based on traditional agro-export products to one with a greater diversification of exports. The sector that presents the highest value added activities is the tertiary sector, which has historically been part of the Central Region cantons. This is because the diversifications of the exports have been still based on fresh products characteristics of the primary sector that are produced in the peripheral cantons with limited added value. However, until 2000 the industrial sector was not growing significantly as an exporter and industrial activity was related to assembly parts industries, which are also concentrated in the Central region. The tertiary sector was changing from public sector services to out-sourcing enterprises, in relation to multinational companies like INTEL.

It is a fact that the workforce is distributed territorially, according to the hierarchy of the country. A new regionalization suggests that primary sector workers are living in the periphery, secondary sector workers are living in the ring around of the core cantons and tertiary sector workers are living in one small group of cantons, many of them located in the core of the country. This structure is reinforcing and reinforced by the concentration of the opportunities.

In addition, rather than 6 planning regions, this thesis identifies many smaller territories inside the regions. Depending on the main economic sector represented there, the population is part of the new economy or is relegated to the primary sector. These differentiated territories are similar in terms of low instruction level and low salaries. Their characteristics restrict them from being part of the competitiveness group as is defined officially by the central government. At the same time, exclusion from the new economy is sentencing them to being underdeveloped territories. This point will be discussed further in Chapter 7.

Finally, the next section will present an answer to the last part of the first question about the institutional dimension of the KBE in Costa Rica.

### **5.5 The 1980s and the inflection point of the institutional change**

The institutional transformation of the country that occurred after the 1980s promoted a change from public institutions to a more private structure, based on non-governmental organizations (NGOs). However, simultaneously the new economy demands central government support in terms of the development of national infrastructure and institutional framework. This section attempts to answer the third part of the first research question, concerning the institutional configuration of the KBE in Costa Rica.

The study of the institutional dynamic of the KBE as a very centralized governmental structure enables an understanding of the links between KBE-CR partners and local economy.

These links are part of the sustainability of the model in the long term. With the promotion of the KBE, from the 1990s onwards, a national innovation system was developed. This national innovation system has central government and academic representatives.

The difference between the KBE-CR and the public initiatives for the national innovation system is that the process of consolidation of the KBE-CR was based on private initiatives referred to FDI-HT, while the national innovation system is an institutional effort promoted from central government and the academic sector of science and technology.

As was explained in Chapter 4, the Costa Rican 1980s' transformation was relevant not only in terms of economic activities, but also in terms of the institutional public structure. With reference to this change, during my interviews conducted in 2009, all the interviewees identified the early 1980s as the inflection point related to the transformation of the Costa Rican style of development (Rovira, 1987).

According to the representative of the State of Nation Report Project (Interview 1, 2009):

“The change operated there during the 1980s was not a national idea, but a strategy promoted by the World Bank. Until 1980, Costa Rica was promoting an industrialist state and public enterprises, associates with many economic activities and import substituting industrialization. It was not because Costa Ricans were vanguards. It was the World Bank strategy promoted those days. Nonetheless, after debt crisis, a political decision changes the scene and Central America plan called Mercomun<sup>98</sup> was not supported as economic strategy any more. Some people said that the decision to put down the support to the Mercomun was because it was in a crisis. But, if you verify Mercomun performance in that moment, it was not the case. It was working well. So, to close it was a political and military decision rather than an economic one”.

On the same subject the representative of the academic team of UNED (Interview 40, 2009) pointed out:

“After the so-called ‘debt crises’, a new Costa Rica emerged”.

---

98 For detail about MERCOMUN see Chapter 4.

It is relevant here to briefly call attention to the relative success of the Costa Rican model before the 1980s crisis, especially in terms of public-private alliances mentioned in the background chapter. Examples of such public-private alliances can be seen in the three main agro-products export of the country: bananas, sugar cane and particularly coffee which were organized together as an economic sector. This organization is still in place and the industries involved are autonomous institutions with active public and private participation. These three industries were organized together in order to control the production and commercialization of these three products. This structure is considered a success structure of the value chains.

According to the representative of Information and Knowledge Society Programme (PROSIC by acronym in Spanish) (Interview 4, 2009):

“They are also an example regionally in Central America. They has been also successful to create value chains, and to promote also research for improve the performance of each sector. They have been also effective to protect the small members of the sector”.

According to the representative of Supervisory Office of Agricultural Planning (SEPSA by acronym in Spanish) which is an research division of MAG (Interview 28, 2009), coffee, banana and sugar cane organizations are still considered to be social actors each one in negotiating in local or international markets:

“They are the representative of each sector in the commercial negotiations, available to negotiate in front of national and international partners. That is considering very convenient for both, the product organizations and the partners”.

Therefore, it is pertinent to ask about why the new economy has had difficulties in creating a good public and private alliance. According to the representative of academic team UNED (Interview 40, 2009):

“The new economy is based on transnational companies, while the three agro-export products were based in national ones. As a consequence, it is not easy to integrate new economy into autonomous organizations like ICAFE. The national links of ICAFE do not exist in companies of FDI-HT.”

The use of the expression “a new Costa Rica” by academics (Interviews 1, 3 and 40, 2009), suggests a negative perception of the 1980s transformation. All of those interviewed were referring precisely to the change to a more privatized institutional structure. For instance, a representative of the academic team of UNED (Interview 40, 2009) described the economic model after the 1980-1982 crisis as the end of one successful model and the start of a new one, which has been more socially, economically and politically fragmented.

Similar points were mentioned by the representative of the State of Nation Report Project, the representative of PROSIC and the former Ministry of Science and Technology (Interviews 1, 4 and 11 respectively, 2009), because they coincided somehow with a negative perspective of the 1980s transformation. The former representative of the National Centre of High Technology (CENAT by acronym in Spanish) (Interview 9, 2009) synthesized the political position in that moment as “*apertura ultranza*” (an uncompromising opening).

By contrast, the new economy as mentioned in interviews with representatives of the private sector (Interviews 3 and 7, 2009) had different connotations. For private sector representatives, the new economy was mentioned as a positive idea.

All interviewed were emphatic in the necessity to consider the 1980-1982 crises in the global context.

The representative of the academic team of UNED (Interview 40, 2009) pointed out at least two situations in the Costa Rican context that consolidated the discussed economic and institutional transformations. One was the Free Economic Zones Law, and the other was the change in Central Bank of Costa Rica policies, both of which occurred after 1984:

“The Central Bank started with the liberalization of the financial policies and the dismantling of agriculture sector. [...] At the same time, the United States Agency for International Development was given strong financing support to Costa Rica, which was investment in private banks to promote non-traditional exports. As a consequence, CINDE was created.” (The representative of the academic team of UNED. Interview 40, 2009)

The same interviewee also described how although the legal framework was redefined in order to implement all of the structural adjustments, the consideration of social stability was still relevant somehow in the political scene:

“The structural reforms had political and economic dimensions clearly significant. One could consider that the reforms lost its political oxygen at the end of 1990s, when social struggles were conducted in order to defend telecommunications. On the other hand, privatization of banks activities were accepted but limited, and insurance management continued providing by a public agency. The political discourse was the necessity of a new adjustment programme according to Costa Rican priorities such as health and education”. (The representative of the research team of UNED. Interview 40, 2009)

According to the representative of the State of Nation Report Project (Interview 1, 2009), although Costa Rica started with the policies related to structural adjustment, it was done in a particular way:

“Costa Rica applied the reforms with a heterodox version in front of an orthodox proposal defined by the World Bank. The balance between state and market changed the country, but Costa Rica never applied all the reforms included initially in the Adjustment Programs proposed by the Washington Consensus”.

On this point, the representative of the State of Nation Report Project (Interview 1, 2009) also mentioned a useful anecdote to illustrate the Costa Rican interpretation of the Adjustment Programs:

“When Stiglitz<sup>99</sup> was recently in Costa Rica, some people in the meeting remarked to him that the problem in our country was that the adjustment programmes never were completely implemented. In front of this comments, Mr. Stiglitz answered: ‘probably to not complete the adjustments was positive to the country’ ”.

The adjustment programmes referred to in the quote above were promoted by the World Bank strategies for the developing countries. The adjustments related to, for instance, the reduction of the welfare state, which was not applied completely and Costa Rica was not implementing all the structural adjustments simultaneously. Nevertheless, the majority of adjustments were lately implemented. One such implementation was that investment in education was reduced.

This reduction affected high schools and higher education funding.

The consequences of these reductions are still evident, 30 years later; there is a complete younger generation that was confronted with the reduction of funding for secondary education. As a consequence a large portion of this generation was excluded from the high school system. The representative of the State of Nation Report project (Interview 1, 2009) said:

“We lost 10% of students in secondary school attendance in first cycle and 20% in last cycle of secondary. We never build a new high school anymore. Because of that, approximately one million of the populations -without secondary school- are not trained to compete in a more exigent labour market at the moment”.

In terms of higher education, the impossibility of increasing the enrolment is still an important problem in the country, with the consequent rise of the private education options. There was also a massive reduction in all the public support for the primary sector, fundamentally agriculture activities, and the reduction of health programs. (State of Education Report, 2006)

Nonetheless, representatives of central government presented a totally different perspective of the 1980s transformation.

---

99 Joseph Stiglitz, the former representative of the World Bank was in Costa Rica presenting at a Conference. The interviewer was quoting that.

These persons have a positive perception of the process. They consider this historical moment as the start of the opening of the country's economy that is considered a positive conclusion.

For instance, the representative of MEIC 2006-2010 (Interview 3, 2009), described the 1980s as the moment for the best change for the country:

“Costa Rica opened its economy before other countries, and was gradually eliminating protection to internal market and negotiating new ones, more in terms of open economy and in terms of giving more options to consumers. In the past, price and profits were controlled and decided by the state. It was not only Costa Rica but also the other countries did the same. The evolution in the incentives is an example. First were incentives by substitution of exportation, then incentives for exportation.”

He also pointed that:

“After the Uruguay Round, the country consolidated the open market model. So, we said: ‘in the past we paid to reward inefficiencies on ports and export condition, so, we paid for public inefficiency. But we have to change that, because we do not need to pay incentives in order to resolve state inefficiency. We need to give opportunities to everyone in an open market’. As a consequence, different regimes of incentives were promoted in order to promote Adaptation. For instance, recently free economic zone regime (FEZ) has been part of this new logic, in order to attract foreign direct investment. FEZ will change in 2014 and then, the country has to prepare itself for a new competitive context.”

As the representative of the State of Nation Report Project (Interview 1, 2009) indicated, it is important to point out here that:

“The transformations were not because Costa Rica concerns, but because the global strategies changed. In 1980s and 1990s, after the so-called Washington Consensus, the discourse for development changed”.



While in the 1960s and the 1970s, path dependency was the explanation for the opportunity for countries in the South to take part of the economic world; from 1980s and 1990s, neo-liberal theories were based on “monetary austerity, elimination of government subsidies, lower taxation, privatization, free trade, foreign direct investment.” (McEwan 2009)

In Costa Rica, this process was also related to the creation of a new kind of institutional structure. One can also consider different interpretations of the role played by this new institutional structure, rather than the public structure established for the welfare state, a more private approach had been established for the new economy. The representative of the academic team of UNED (Interview 40, 2009) considers these new institutions as examples of a weakening of the State:

“1980-1982 was definitely a turning point in terms of institutional transformation also. It was the rise of the new para-institutional structure. As a consequence of that new structure, you have here new private organizations and public departments which are ‘gallo-gallina’<sup>100</sup> institutional structures; because they are applying public policies, physically located in public buildings, but with market approach actions. PROCOMER can be considered as an example of that.”

Since the 1990s, the attraction of the FDI prioritized the attraction of the FDI-HT. By definition, the presence of the FDI-HT gave the country the opportunity to be included into the so-called KBE. At the same time, the bureaucracy was weakened, substituted by a para-institutional structure that supported all of the public administration including the promotion of the KBE-CR, which is a private market approach network. Simultaneously, the central government is trying to promote a national innovation system that tries to be an inter-institutional structure. As a result of this, although there are two different interests, sometimes the line between them is not perceptible and the KBE network and the national innovation system overlap.

---

100 “Gallo-gallina”: it is an idiomatic expression to suggest ambiguity. Its translation can be “*Not Martha or Arthur*”.

In this context, public universities play an important role and their academic level is recognized internationally, giving them the authority to be part of the national innovation system. These universities have been also an important element in the national strategy for national innovation system management.

That is to say, there has been an important participation by public universities both in the national innovation system that is a central government proposal and in the structure of the KBE-CR, which is a private sector network. However, as will be presented below, the role of the public universities is only partially recognised by the KBE-CR members.

In summary, the attraction of a different kind of FDI and the 1980s public institutions transformation increased throughout the last 30 years. The economic change was later consolidated in the attraction of the FDI-HT.

There were simultaneous initiatives to support the new economy promoted by the private sector and the national innovation system promoted by the central government. These two initiatives have overlapped.

The new institutional structure of the country promoted since the 1980s has taken a more private approach than in the past. This private approach has limitations for the promotion of public-private alliances. These alliances were part of a successful organization in national and international market participation. The absence of public-private alliances is affecting the new economy in that it is less nationally articulated than the agro-export based economy.

In this new structure, public universities also feature. Different representatives of public universities and private sector have varying perceptions of the consequences of the 1980s transformation. The next section is about how the KBE is working in Costa Rica, in particular in terms of its institutional framework and the roles played by each sector.

### ***5.5.1 The institutional configuration of the KBE in Costa Rica***

As was mentioned, the global economy puts a particular demand for small developing countries to be included somehow as a part of the global high technology world. At the same time, this global world is hierarchical and exclusionary. Each small developing country, such as Costa Rica, confronts the *opportunity* to be part of this new economy and the global model in different ways. The analysis proposed in this thesis specifically addresses what kind of KBE-CR is implementing.

As was mentioned in the Methodology Chapter, during the fieldwork for this research it was not difficult to contact people from different sectors, who are already involved in the KBE-CR, because all the representatives of the institutions and organizations that were part of the so-called KBE-CR were in contact constantly and working together. This is the first finding related to the KBE-CR: it is organized as a social network.

It is not the point of this thesis to present an analysis in terms of the World Bank or the OECD models for the KBE-CR, because the XXI Century Strategy<sup>101</sup> and CAATEC<sup>102</sup>, two of the NGOs working in this topic in Costa Rica, have already presented that kind of analysis in documents mentioned here.<sup>103</sup> Therefore, rather than explore the official representation of the KBE-CR structure, this section looks at the dynamic applied to consolidate the KBE-CR as seen in the research carried out. An important effort was undertaken in order to ask about the social process inside the structure of the KBE-CR as

---

101 See relevant information on the website <http://www.estrategia.cr/en>

102 See relevant information on the website <http://www.caatec.org/sitio1/>

103 See Background Chapter for detail about these two organizations. Their documents are also available in Internet in the websites quoted here.

the research was looking for both the relationship between different social actors and the relevance of the public policies in consolidating the KBE-CR.

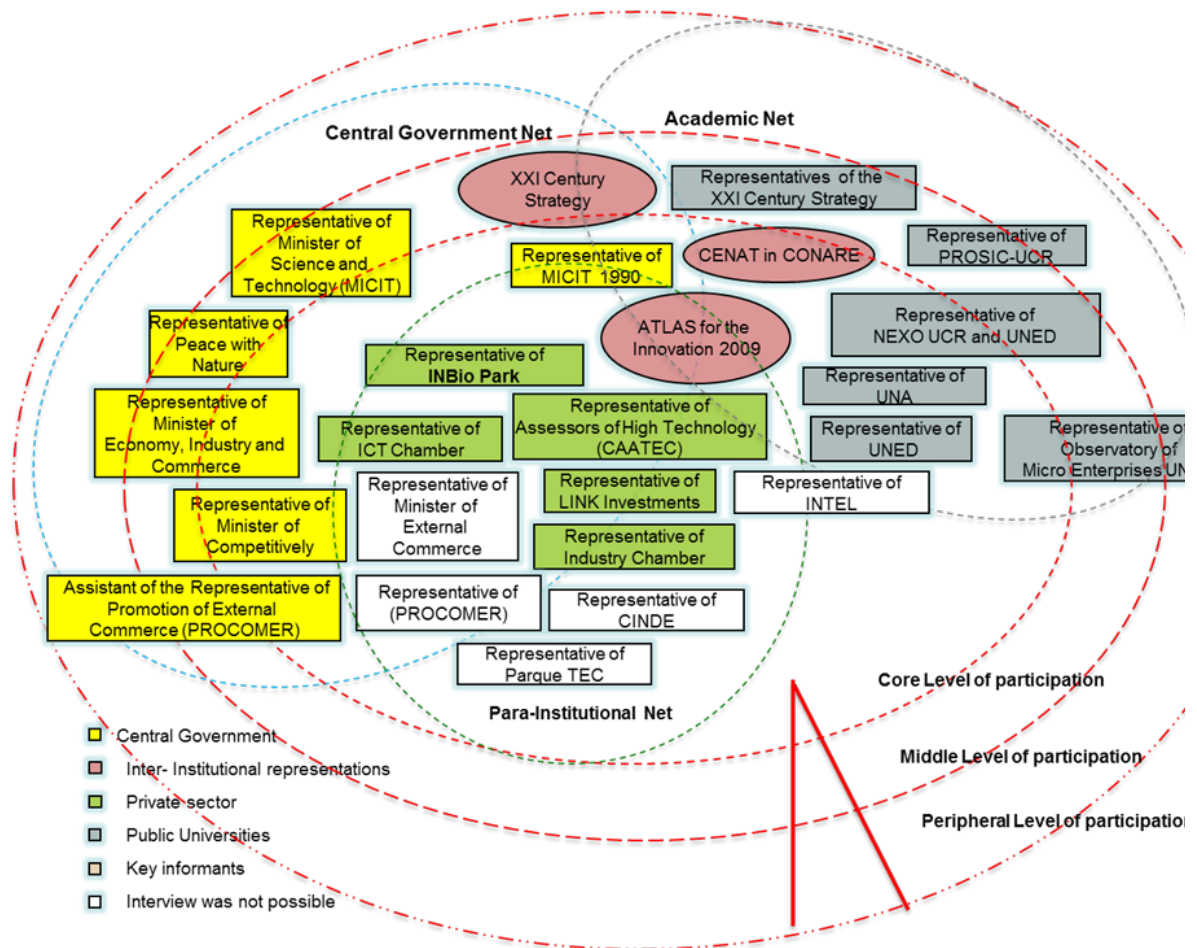
This is the next finding. The KBE-CR network was perceived as an overlapping of constituents by groups, nets and participants. Rather than an institutional or formal division, these 3 layers established the ways in which all the social actors involved interact.

On this point, the metaphor of a social tapestry proposed in this thesis is a useful framework through which to understand the dynamic of the KBE-CR as a social network. In the KBE-CR, the warp was identified as a structural frame constituted by institutions, organizations and individuals, while the weft is the strong part, based on relational processes.

Regarding the warp of the KBE-CR, three recognized groups were identified: private sector representations, the representatives of the central government and the representatives of the public universities. In terms of the weft, there were identified three nets as well: the central government net, the academic net and the 'para-institutional net'.

Concerning the structure, 3 levels of participation were identified which have hierarchical relations: the core level of the network, the middle level and the peripheral one. The next image, diagram 5.2, shows the warp and the weft dynamics of the KBE-CR.

*Diagram 5.3. The KBE-CR Network. By groups, nets and levels of participation*



Source: Own elaboration, with information from interviews.

The structure of the KBE-CR was perceived in this thesis as a complex relation of groups, nets and levels of interactions. There was also an overlap between the informal dynamic of the economic private groups on the one hand, and the institutional explicit public objectives to create a national innovation system on the other hand. These interests were present, with an important tension existing between private and public capitals claims, based on shared demands for a more operative action.

There were also power relationships detected in the structure. The next section is about how these groups, nets and levels of participation interact.

### ***5.5.2 The warp and the weft in the KBE-CR tapestry***

As was discussed above, the KBE-CR can be understood as a social tapestry. In this tapestry, the warp is built in terms of groups. The first group is the private sector, which is constituted by representatives of private organizations and companies (shown in green squares in the Diagram 5.2). This group was identified as key member of the network and, as a result, its members were key informants in this research. This group worked to attract investors and organizations in order to promote technological innovation in areas related to the KBE-CR.

The second group is constituted of ministries and other representatives of the central government (shown as yellow squares on Diagram 5.2). This group was made up of the representative of Ministry of Science and Technology (MICIT by acronym in Spanish) and its subdivision which was related to National System of Innovation, the representative of MEIC and its subdivision which was the Ministry of Competitiveness, and the representative of Peace with Nature (Paz con la Naturaleza), which was an environmental program of the President of the Republic initiatives.

The representative of MTSS and the representative of MAG were also interviewed. Some ministries of the central government were identified as core members of the KBE-CR by themselves rather than as central government representatives. This point will be addressed below.

The third group was made up of representatives from public universities academics (shown as grey squares on the diagram).

Some of these representatives are part of the KBE-CR framework, working directly in the nexus between the public HEIs and the productive sector. As was the case with the central government group, there were others members of the academic sector, mentioned because of their institutional role.

There were also some people (shown as white squares on Diagram 5.2), who were described as key members by other individuals within the network, but whom it was not possible to contact to conduct an interview.

In terms of weft, 3 inter-connected nets were identified (shown as line circles on Diagram 5.2). One of these nets was a small group, referred to here as *the para-institutional net*, which was perceived as being in charge of the KBE-CR. This para-institutional net worked closely with some members of what is referred to here as *the central government and institutional net* as well as with some members of *the academic net*, from the public universities.

The representatives of *the academic net* who were identified as members of the core of the KBE-CR were those who were working in the offices that conduct relationships between public universities and the productive sector. This academic net was also related to the promotion of the national innovation system. The national innovation system is a central government initiative, trying to build an institutional framework for innovation and technology promotion.

The difference identified in this thesis is that the KBE-CR is an informal network while the national innovation system structure is a formal central government project. However, as is shown in Diagram 5.2, some members of the KBE-CR are also part of central government and academia. As a consequence, the line between the groups in the warp is not clear.

This point relates to evidence of mixed group dynamics inside the KBE-CR. This dynamic was perceived in this research as being based on hierarchies.

In fact, there were no clear borders identified between academia, private sector and central government representatives within the hierarchies.

The dynamic of the KBE-CR is not clear in terms of boundaries between the three groups or the three nets mentioned above. For example, the core of the KBE-CR is made up of representatives from different groups and nets. The next section addresses this point in order to present the hierarchies within the network.

### ***5.5.3 The hierarchies of the weft***

As with the hierarchies inside the KBE-CR network, three levels of participation were identified (represented by three red circles in the Diagram 5.2). Located in the core level of the network were the most important member, these individuals were identified by the other members of the KBE-CR. This group was *the para-institutional net*, which included people from private sector, academia and central government. These people were working to promote the KBE-CR.

This core would be identified as the consequence of institutional change promoted since 1980s, when the state substituted the public employees' structure for a new NGOs one. As was mentioned, the explicit reason pointed out by the representatives of the central government and also representatives of the same NGOs was to create a non-governmental structure, with the idea of protecting the new economy from the problems of cyclical change, produced by the change of the governing political party each 4 years.

The middle level of the network was made up of people who participate constantly in all activities related to the topic of the KBE, but who were not the leader of these activities. The makeup of this level is more diverse than the core level. The people located here were part of this network because of their institutional role in specific institutions within central government.



Finally, the peripheral level of the KBE-CR network constituted fundamentally academics that had a recognisable trajectory in topics related to science and technology, but who were not directly connected to the implementation of the KBE-CR. It is for this reason that other members of the structure do not consider them key actors within the network.

The levels of participation described are defined from the interviewees' perception, rather than from institutional documents related to the KBE structure of the country. Analysing movements inside the KBE-CR network was a determining factor in understanding power relations. The hierarchies of the KBE-CR were defined by commercial roles, rather than central government representation.

For instance, the formal national innovation system structure promoted by initiatives like XXI Century Strategy is different from the KBE-CR network described here. However, some demands inside the KBE-CR network evidences the fragmentation derived from the institutional weakness. This institutional weakness is a consequence of the absence of a proper national innovation system that supports the private initiative. The next section is about how the members of the KBE-CR resolve the problem of the absence of an institutional framework. As a replacement for institutional framework, the KBE-CR is based on informal alliances.

#### ***5.5.4 Alliances inside the KBE-CR tapestry***

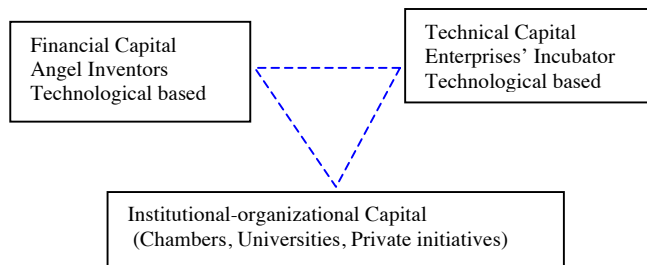
The division between the institutional framework and the social network process of the KBE-CR was identified in claims from different groups. For example, from the private sector representatives, the problem was identified as the absence of a national project that supports the KBE-CR. As a consequence, the members of the core level of the KBE-CR identified some mechanisms that would resolve this perceived absence of support.

It was usual that a person working in central government in 1990s, when KBE-CR was consolidated, would also be working in the academic sector when this research was conducted. For example the former ministry of MICIT in 1990 was member of academia sector in 2009. Furthermore, members of KBE-CR, whose were representatives of private sector or central government when this research was conducted, were part of the academic sector as part time lecturers or even head of some academic department in public universities in the past.

These kinds of inter-relationships explain not only of the existence of unclear borders between groups inside the KBE-CR, but also the relative facility to resolve immediate problems inside the network.

For example, Diagram 5.3 shows the alliance of three different members of the network in order to maximize the relevance of their capitals to promote the new economy. The important point related to this alliance is the dynamic of the group. They could agree a so-called *business plan* in order to promote an entrepreneur by themselves, because they had the know-how and the financial, technical and institutional capitals when working together.

***Diagram 5.4. Solution for KBE-CR Network working  
Financial, technical and institutional capital network***



Source: Own elaboration, with information from interviews and documents.

In this case, the members of the alliances were the representatives of financial capital and management support for entrepreneurs, provided by the “angel investment network” (Representative of LINK investment, interview 13, 2009).

There was also a technical capital represented by a business incubator park. All representatives were defined as promoters of the technological base. This means that technology and innovation were their priorities, however other kinds of initiatives related to creative industry could have been considered. Finally, there were the permanent demands to include some institutions (Chambers, universities or private initiatives) that provide participation by the identification of the new prospects for the KBE-CR (Representative of CAMTIC, interview 13, 2009).

The members of this *sub-network* were recognized by other interviewees as participants with important roles to promote KBE. In fact, there were part of the core level of the KBE-CR. Simultaneously; they were lecturers in public universities and members of private organizations or central government committees. This dynamic is useful in resolving the lack of proper institutional support, because this kind of sub-network had financial, technological and also institutional capital to be part of the KBE-CR network.

This is also a good example of how private organizations constituted a sub-network in order to protect themselves and ensure a better position for negotiation in the KBE network, not only nationally but also globally.

Relevant to the dynamic of the KBE-CR is the movement of individuals between different groups as part of different levels of participation in the KBE-CR. The boundaries between groups were not at all clear as members of different groups have different participation levels. For instance, in terms of hierarchies, the core and the middle level of participation in the network was defined not in terms of sectors but by specific names of people, directly related with the strategy of the implementation of the KBE-CR. As a consequence, the core included representatives of private sector organizations, institutions and companies, as well as academics from public or private universities and members of the central government; all specifically positioned in these levels with roles related to KBE-CR management.

As mentioned above, although some public policies related to attracting the FDI-HT from 1990s and the Law Number 7169 signed in 1990s gave a kind of institutional framework, in reality the dynamic of the new economy in Costa Rica looks more like a strong personal relationships structure. The representatives of FDI attraction and the representatives of the KBE-CR implementation worked to develop the network by themselves, rather than depending on formal public policies.

However, there was also a formal effort identified from the central government ministries to create an institutional framework, based on central government to promote the national innovation system as a public strategy.

Conversely, during this research it became evident that all the members of the KBE-CR network were identified because of her or his participation in the network directly, rather than because of their institutional roles. In this, it made no difference if they were representatives of public or private institutions or organizations.

There were also demands made by the core level of participants in the network to prompt members of other levels of participation in order to support initiatives for the KBE-CR. These demands were presented in particular from private sector organizations against the central government initiatives and against the public universities roles.

It is significant that these claims transcended the level of the informal relations that characterized the KBE-CR. For example, according to the representative of CAATEC (Interview 14, 2009), the proposal to attract Intel was led by the President of the Republic, who provided a guarantee for the success of the process himself. This point was mentioned by an interviewed (Interview 14, 2009) and is also mentioned by Ketelhöhn and Porter (2009).

Another example is that three members of the network core, the representatives of the CAMTIC (Interview 7, 2009), the Industrial Chamber (Interview 16, 2009) and the representative of the “angel financial capital” providing support for the KBE-CR (Interview

13, 2009), mentioned that the weakness related to articulation within the KBE-CR is evident in terms of the priorities' definition. This was particularly directed at the central government, and the difficulty in obtain resources to promote high technology as well as decision making on the public universities level that was affecting the response time to international demands.

According to the representative of the CAMTIC (Interview 7, 2009):

“Costa Rica has laws and institutions good enough to be more effective as a country into the KBE globally. The problem is the implementation of laws. There are not implemented”.

This perception was also supported by a UNED representative of the entailment university-productive private sector link group (Interview 30, 2009). According to this individual:

“The new economy has been an excellent opportunity, “in terms of Jeffrey Sachs, Costa Rica is at the moment in the second phase of development. The task now is to move as soon as possible to the third phase, where the objective is to add value in the production”.

Moreover, they pointed out:

“Our problem [talking about Costa Rica but about public universities as well] is that we are so slow to implement changes and we have many obstacles to get a consensus. [...] The private sector enterprises, particular the Small and Medium Enterprises live the day to day dynamic, the government live in the 4 year political period and the public universities live in the long term time. These timing are not possible to conciliate”.

Note here that the comment is coming from a person who is working in the public university and productive private sector link. This person's feeling that her own initiative is out of line with the institutional timing inside the public university.

This comment regarding timing is not only about the university's timing. It is also about the country's timing. It was part of the claims, made by representatives of the core of the KBE-CR, against the central government and the academic institutions as well as against all the sectors related to the national dynamic in the new economy. Timing is apparently one of the most important characteristics of the new economy and to be out of time in this area means failure.

As was mentioned, the knowledge structure in Costa Rica was perceived as a fragmented one. Interviewees, as a consequence of an institutional framework, did not perceive the KBE-CR network.

This shows that the KBE-CR is not perceived as a consequence of the formal knowledge structure. By contrast, the KBE-CR was perceived as a result of the many laws available in the country, plus the personal engagement of some people who decided to promote it.

The role of Intel in KBE-CR is not only very important, despite being controversial. Both former representative of CENAT (Interview 9, 2009) who were also part of the public universities groups, as well as the representative of CAMTIC (Interview 7, 2009) who was part of the national software industry and lectures in a university, consider that Intel is in Costa Rica because of a strategy based on higher education in engineering careers, placing the country in the new economy, with a labour force prepared to participate. This means Intel is in Costa Rica because the public policies are focussing on higher education in order to attract multinational companies such as Intel.

In contrast, the representative of the 'angels' international investors network (Interview 13, 2009), who is one of the private sector representatives in the KBE-CR, considered that Costa Rica is moving into a new economic project because Intel is there and attracting its partners. Costa Rica's inclusion in the global list is therefore seen as a result of Intel's presence.

It is a fact that Intel installed a testing plant in Costa Rica because of the confluence of the different strategic variables, defined by the company directly. One of these variables was the instruction level of the workforce available in the small country. On this point, the discussion is not a simple one, the dynamic of the FDI-HT, explained in Diagram 5.4, is enough to illustrate that the presence of multinational companies like Intel are the cause and effect and of the KBE-CR conformation.

The implicit conflict between private sector representatives and university representatives was a recurrent point during the interviews.

The permanent demand from the private sector for a workforce qualified to fill employment generated by multinational companies. However, the demand of the multinational companies is increasingly for young high school graduates with a second language, rather than for graduate's higher education profiles.

The job fairs organized recurrently in the country are evidence that they are looking for bilingual people to work in call centres; people who speak Spanish as well as another language including English, Portuguese, German and French, among others.

Even though the central government conducted specific efforts in order to build a proper institutional structure to management a KBE, according to some representatives of the private sector and central government (Interviews 3, 7 and 14, 2009), "the KBE-CR has to be outside of the national political structure to be operating effectively." (Interview 14, 2009)

In summary, the existence of the national innovation system structure in Costa Rica is connected to the building of the institutional structure to manage a knowledge economy that can support the inclusion of concepts like science, technology and innovation, as it has been globally. However, according to the KBE-CR network explored in this thesis, the specific character of the KBE-CR has been demarcated by the nature of the FDI-HT dynamic, represented by multinational companies such as Intel, Procter and Gamble and

Hewlett-Packard, among others which then attract other multinational companies to the country.

Simultaneously, the country is responsible for creating a national structure that can take advantage of the presence of these kinds of partners. In this thesis it is proposed that two forms of organization to promote the knowledge society can be identified in Costa Rica. On the one hand, there was a Costa Rican network which was characterized here as an informal social network, organized to promote the KBE-CR; and on the other hand, a formal initiative, fighting permanently to create a formal institutional structure that can promote the national innovation system. According to the informants interviewed, the informal structure that is supporting KBE-CR is more effective than the central government initiatives.

In other words, the KBE-CR network is a framework articulated by a strong social process, in order to organize the warp and the weft of the knowledge transference, with an intense movement between sectors and which makes a big effort to resolve the weakness inherited by the absence of a proper national innovation system. The KBE-CR is not a formal structure, but a social market approach network. An important distinctive feature of the KBE-CR network is the movement within the network, which is creating levels of participation composed of representatives from different groups and sectors.

## **5.6 Conclusion**

This chapter answers the first research question concerning what kind of KBE Costa Rica is promoting and the territorial and the institutional consequences of a KBE in a developing country.

The first conclusion is that the Costa Rican economy is based on a capacity to attract FDI. Some of this FDI is related to knowledge intensive activities that are identified as part of the so-called KBE. This kind of FDI is related to high technology assembly parts industries



(FDI-HT) that are concentrated in the Central region, exacerbating the historical imbalance between this part of the country and the peripheral regions. Besides that, Costa Rica is considered to be a Latin American example of success because of its capacity to attract FDI-HT. However, different kinds of FDI related to not only high technology but also all the three economic sectors, promoting economic activities without adding value at all were detected.

These latter kinds of FDI are located primarily in the peripheral regions. The answer to the second part of the first research question, concerning the territorial manifestations of the KBE in Costa Rica, is that there is an overwhelming difference between the central region and the others regions, depending on what kind of FDI each territory is attracting.

The main consequence is that the old definition of 6 regions distribution of the country has been substituted by a very fragmented dissemination of cores and peripheries as a consequence of the presence of different kinds of FDI. At the same time, the presence of differentiated territories characterized differently depending on the economic activity promoted there can be seen.

These territories have fewer opportunities to be competitive in the new economy because their relegated economic roles promote the presence of FDI that does not facilitate high added value economic activities.

On the other hand, the presence of other FDIs is encouraging an urbanization process in areas where the natural resources demand a different perspective for sustainable development. This is the case of pineapple plantations in wetlands, for example. These territories are cross-border between regions inside the country as well as between countries in the South and the North international border. The concept of cross-border territories will be explored further in Chapter 7 of this thesis.

Another consequence of these other kinds of FDI in relation to fruit plantations is the difficulty of building local institutional frameworks and value added chains.

The experience that confirms this consequence is the historical presence of FDI in coffee since 1880. However, nowadays the constitution for the national framework to work with FDI is different; in the past, FDI working on the agro-products was also part of the strong national network to promote value chains. Coffee, bananas and sugar cane were part of the attraction and management of the FDI with national roots, because the state was negotiating with national capitals and companies.

Following on from this last point, the third part of the first research question is related to the institutional dimension of the KBE-CR. The conclusion of this enquiry is that the KBE-CR is the result of a private initiative that struggles to build local value chains. Rather than a public institutional framework that promotes public and private alliances, the KBE-CR is related to multinational companies that are 'rootless' within the country.

This is important because the state does not have a national partner in this situation as it does with traditional products such as coffee and sugar cane. The state is an intermediate agency in this new relationship, negotiating with multinational companies that do not have foundations in Costa Rica.

On this point, analysis of the value chains is relevant because in the past these chains were based on national capital as axes and the state played a role in them. However, the recent presence of FDI is changing the characteristics of the value added chains dramatically so that they are now based on foreign capitals, managed by multinational firms.

On the other hand, as was previously discussed, theoretical analyses indicates that the new economy model is related to the urbanization of rural areas, the disappearance of the traditional forms of production and the rise of competence within the regions, which have also split and inequalities increased. As a consequence, there is now more fragmentation in local economies than in the past, a significant transformation of labour market characteristics and fewer opportunities to resolve disintegration problems in the country.

“Who defines priorities and to what ends?” (Christopherson and Clarks, 2007). Due to these changes, who are considering possible future economic scenarios in Costa Rica? Who is considering territories? This thesis proposes that the advantages and disadvantages of FDI are controllable and that it is the work of the state to take the control in front of MNCs’ strategies. This is a national imperative rather than a FDI company’s prerogative.

The next chapter will focus on the role of a specific social actor: public universities in general and the UNED in particular. Chapter 6 will analyse the role of the public universities in the context of the national innovation system structure and in relation to the KBE-CR network. The analysis of the internal and external perceptions related to public universities participation in KBE-CR will be presented, via the analysis of four relevant internal and external discourses.

## **Chapter 6: The role of public universities in the KBE-CR**

### **6.1 Introduction**

In the previous chapter the KBE of Costa Rica was presented in order to answer the first research question. The answer, in summary, was that rather than a proper KBE, a new economy is implementing in Costa Rica. This new economy is based to the presence of the FDI, and that the KBE had been based on FDI-HT. In terms of territory, the new economy is related to a more fragmented distribution of workers by sectors. As a consequence, distribution in Costa Rica is characterized territorially by the presence of multiple cores and peripheries, rather than old planning regions. In terms of institutional manifestation, the new economy is based on a para-institutional private social network. The tension between private sector, central government and public universities roles played inside the KBE-CR was also evidenced.

This chapter addresses the second research question concerning the role played by the public universities in general and the UNED in particular, in the so-called KBE in Costa Rica (KBE-CR). It is a fact that public universities are non-monolithic structures. The productive sector is heterogeneous as well because it includes enterprises ranging from small productive venture initiatives, up to the multinational companies.

The chapter explored the public universities roles described by the interviewees according to their conceptualizations of the academic, central government or productive private sector representatives. The argument is that the roles played by public universities in the KBE-CR were diverse, sometimes complementary and sometimes contradictory because they had been conceptualized by sectors in disagreement.

This chapter will first give a brief history of Cost Rica's public universities. Then, drawing on information provided during interviews, the chapter continues with analysis of the roles played by public universities in the KBE-CR.

Section 6.3 presents the conceptualization of teaching. Section 6.4 presents the central government and universities alliances as generative and entrepreneurial institutions in a triple helix dynamic. Section 6.5 will discuss the transference of knowledge since academia became a promoter of innovation for the productive private sector.

Conversely, beyond the KBE-CR, Section 6.6 is about communities and the social action of university projects with a territorial dimension. This section is presented because this thesis has specific interest in the territorial dimension of public universities in general and UNED in particular. Finally, conclusions in terms of internal and external tensions between different interests will be presented.

## **6.2 The starting point of the public universities in Costa Rican society**

As was explained in Chapter 4, when in 1888 the Ministry of Education Mauro Fernández closed the Universidad de Santo Tomás, higher education was postponed as a national priority. According to the official declaration' document prepared by Fernández, the closure was based on quality problems. Immediately after Universidad de Santo Tomás' closure, the teaching of Agronomy was largely promoted as a key support for the economic model of the country at that time, based on a liberal agricultural export model.

For 60 years subsequent to 1888, all Costa Ricans who wanted to study in a university had to conduct their higher education studies abroad. Nonetheless, new groups of intellectuals were growing, motivated by political ideas of the welfare state model.

According to Ramirez (2006), during the 1940s, one of these groups was very influential on the political scene and as a result Costa Rica experienced an important political and social transformation. He quoted Guier to say that the UCR was the axis of the second Costa Rican revolution:

“First, because the role of the School of Law, Economy and Social Sciences. Second because the teacher training were doing with scientific perspective. Third because to graduate professionals to conduct the development process after, fourth because it creates a cohesive national conscience and fifth because Costa Ricans have higher education in the country” (Ramirez, 2006:11).

The quote above is an example of the huge expectation of the public universities to serve and support the infrastructure of the country since they were first created. Like Ramirez (2006), many other authors have observed the role of the public universities in national social and economic development<sup>104</sup>. Since the UCR was created in 1940, higher education has been a fundamental part of public structures, not only as an academic project, but also as part of the political and economic dynamics in the country. The role of higher education institutions has been understood as part of the development structure, not only because of the social mobility of graduates, but also because universities have been an important part of the national networks for development.

Lascaris, quoted by Ramirez 2006, linked the creation of the UCR with the independence of the country. The truth is that the university graduates constituted a new social actor present in many groups of intellectuals (Ramirez, 2006) who were part of the political changes in the country in the 1940s and 1950s, when the welfare state was instituted. This observation holds true, even though this particular interpretation comes from a group closely related to the UCR.

The creation of the UCR was an opportunity to professionalize the public institutions staff. It also confirmed the role of a young political group, based in Law, Engineering and Education schools. With the UNA creation in 1973, the country established the School of Education in order to training teachers for primary and secondary schools.

---

104 See for example the synthesis of University and development Conference. In: Revista Reflexiones. Social Science Faculty. University of Costa Rica 1995

In 1975 the ITCR became the leader in technological topics, especially engineering schools and in 1977 the UNED was created to solve the problems of geographical coverage and the access of higher education to everybody. At the moment, the UCR is fifteenth and the UNA eighty-fourth in the list of the hundred best universities of Latin American.

Due to that fact that following the reduction of funding applied in the 1980s, the public universities did not have the capacity to improve enrolment significantly and the private universities have increased their participation in the academic supply. The higher education scene is changing dramatically; a huge increase in the number of private universities, from 4 to 50 universities in 2007, has occurred<sup>105</sup>.

Given the diversity inside the private universities group, this is not a positive situation for the country to be in. According to the representative of the UNED rector (Interview 48, 2009), a private university is currently considered to be an enterprise that can be selling as any other kind of enterprise in a specialized market:

“CONESUP<sup>106</sup> closed the opportunity to open of a new private university. As a consequence, the price of the existent universities increased. The prices have been defined in thousands of USA dollars” (Interview 48, 2009).

It is also important to mention that, in contrast to some other countries, in Costa Rica the four public universities are considered to be of a high standard in comparison to many of the private ones. The main weakness of the private universities is the heterogeneity of the sector; the majority of them are simply edifices of classrooms with no laboratories, computer clusters or even libraries in some instances.

In Costa Rica, public universities are concerned with teaching, research (basic and applied) and social action projects. These three dimensions are important but do not feature in the makeup of private universities.

---

<sup>105</sup> See State of Education Report, 2007.

<sup>106</sup> CONESUP by acronym in Spanish means National Council of Private Universities

However, the majority of the private universities are dedicated to teaching exclusively; few remarkable exceptions to this were recognized, such as EARTH University<sup>107</sup>.

Recently, two points have been of particular importance in terms of assessing the role of higher education institutions, public ones in particular; these are quality control and the social responsibility of the institutions. In Costa Rica, public universities invest resources in quality control. In 1987 the National System of Higher Education Accreditation (SINAES by acronym in Spanish) was created. As was mentioned in the background chapter, this is one of the most important efforts to guarantee quality in the universities. Related to the professionalization of academics, the UCR is the first-ranked in Central America with 489 PhDs followed by University of Panamá which numbers 335 (CSUCA-PAIRCA, 2008:20).

On the other hand, the social relevance of higher education institutions has been enacted in international higher education conferences. Social relevance is defined as a link between university and society. Furthermore, the link with the nation's productive sector is considered as a very important one. Historically, the *social relevance* of the public universities in Costa Rica includes the integration of teaching and research, through *social action projects*. Social action projects are usually activities developed by upper level students. Furthermore, social action projects, more than social responsibility in a market approach, suppose a compromise with social justice. That means public universities are obliged to contribute to their social context, in particular in poor communities.

This thesis proposes that, as part of a new economic dynamic of Costa Rica, public universities are now immersed in a different dictate than the dictate applied during the welfare state model.

The following sections demonstrate how this thesis identified and classified these dictates via the identification of roles played by universities in the KBE-CR. In order to present this argument, the next four sections will develop via the analyses of four different discourses.

---

107 Agronomical School for Humid Tropic Region. Escuela Agronómica de la Región Tropical Húmeda (EARTH by acronym in Spanish)



### **6.3 Teaching as labour professionalization**

The XVI State of Nation Report (2010) defines the new economy for Costa Rica as that constituted by non-traditional agro-exports, free economic zones industries, services such as central government employment and public services, commerce and private services like call centres. In contrast, it defines the old economy as being constituted of the agro-products for the internal market, traditional agro-exports such as coffee, banana and sugar cane, and traditional manufacturing.

This report pointed out that the labour market is characterized by the increase of the new services sector and numbers of people working in commerce. This report also explained that the new economy generates employment for the intermediate class, services and small owners primarily; while the agro-traditional activities are the most relegated. Similarly, the report says that the new economy includes activities that are in the two highest quintiles of income, whilst activities of the old economy generate the lowest quintile of income.

For instance, workers in agriculture have, on average, 5 years of education that is the lowest of all employee groups. This average is true of both old and new economy activities.

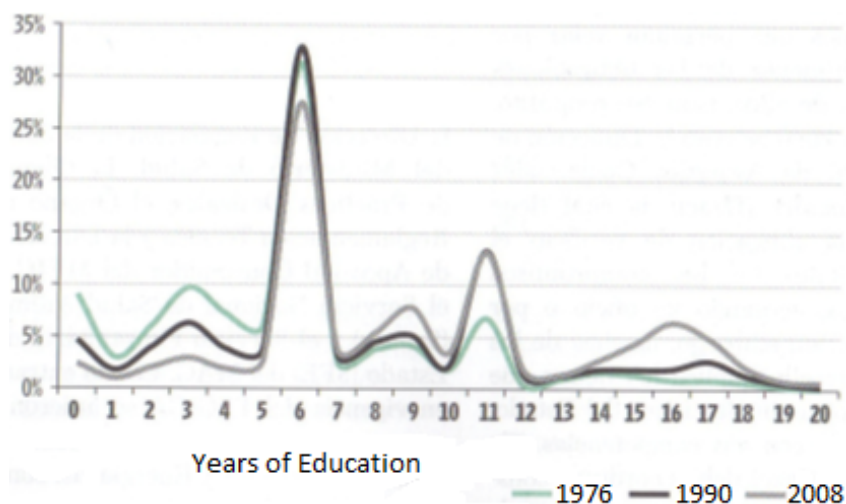
Conversely, groups constituted by experts and medium business workforces have the highest education average of all groups, with 15.2 years. These two groups are classified by the State of Nation Report (2010) as they are part of the new economy.

As has been discussed, the average years of formal education of employees is an important indicator of the opportunities available for individuals to be part of the labour market in the economic transformation. For instance, workers in agriculture, a group with a historically low instruction level average, consequently have difficulty becoming part of a more demanding labour market.

As low instruction level group, it is not easy to integrate new knowledge, given its limited access to formal or even informal education. As was also presented in Chapter 5, the primary sector has been concentrated in the peripheral areas.

Conversely, the XVI State of Nation Report (2010) pointed out a change in the average years of formal education for the labour force as a whole. In 2010, as Graph 6.1 shows, an increase occurred at around 16-17 years, which is the equivalent of an individual completing a university course. The graph shows the changes over time of the average years of instruction level of the population.

*Graph 6.1. Formal education years pass by the workforce (1976, 1990, 2008)*



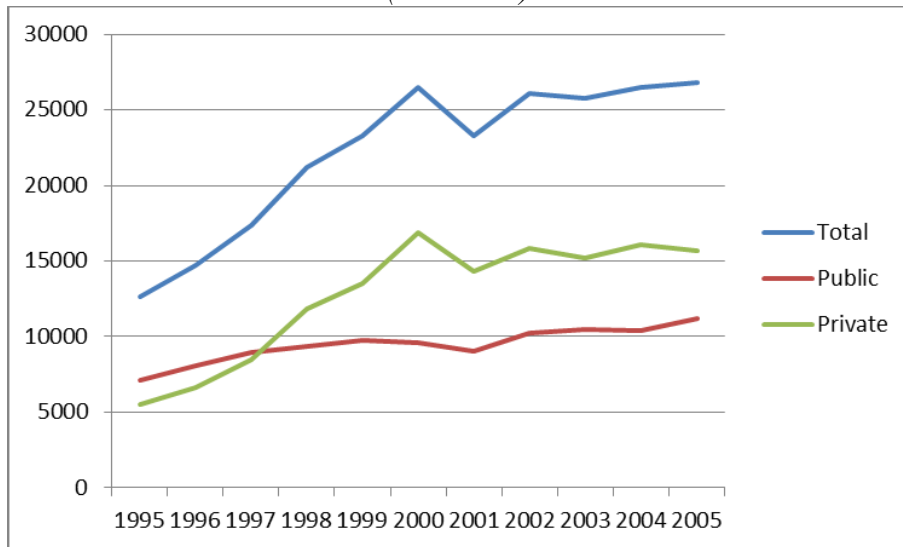
Quoted from XVI State of Nation Report, 2010, page 143.

Nevertheless, there is still 25% of the population for whom the average is 5 to 7 years. As was mentioned, this group is situated within the agriculture sector.

In terms of the numbers of graduates, Graph 6.2 presents the contributions of the public and private universities to the absolute number of graduates from 1995 until 2005.

Note the sustained increase in the total number of graduates since 1995, also the rapid increase of the private university graduates. This rise is related to the situation mentioned in Chapter 4, and the increase in the number of the private universities that leads to increasing numbers of graduates as a whole.

*Graph 6.2. Graduates of HEIs by total, public and private universities (1995-2005) (Absolutes)*



Source: Own elaboration with OPES (CONARE) collaboration. September 2009

This situation is also resulting in an oversupply of university graduates, who finish their courses and then do not get a related graduate level job (Ruiz, 2001a).

In looking at skills and training, it is also relevant to this thesis to present briefly the territorial distribution of university graduates. This issue is pertinent to the labour market capacities and to the country's capacity for innovation assimilation and the adaptation of the territories themselves, given the relevance of the instruction level in the new economy as presented above.

In terms of the distribution of graduates across public and private universities by careers, public universities had the highest number of graduates in Education, with 36%, while in the private ones, the majority of graduates were from Social Sciences (Anthropology and Sociology, Geography and History, Social Work, Psychology, Politics, Social Communication and Economy). Table 6.1 presents the information.

***Table 6.1. Distribution of graduates from public and private universities by careers (2001-2005) (Percentages)***

	Public 2001	Public 2005	Private 2001	Private 2005
Natural Resources	4.3	3.8	0.2	0.2
Arts and Letters	5.1	4.1	1.4	1.9
Engineering	8	8.5	5.5	5.1
Basic Science	8.2	10.2	3.8	5.5
Health Science	9.2	7.1	11.9	14.1
Education	33.6	36.3	33.6	32.6
Social Science	31.4	29.9	43.6	40.6

Source: Own elaboration with OPES (CONARE) collaboration. September 2009

Note the difference between public and private universities in Health Science, where private universities have 14% and public universities have 7%.

In contrast public universities have larger percentages than the private ones for Basic Sciences (10%), Engineering (8%), Arts (4%) and Natural Resources (4%).

However, interviewees from the private sector (Interview 4, 2009) considered Basic Sciences and Engineering's percentages in public universities to be very small.

The claim was that these careers are part of the competitive advantages of the country<sup>108</sup> in the new economy. Others interviewed mentioned the relevance of Natural Resources studies (Interview 20, 2009).

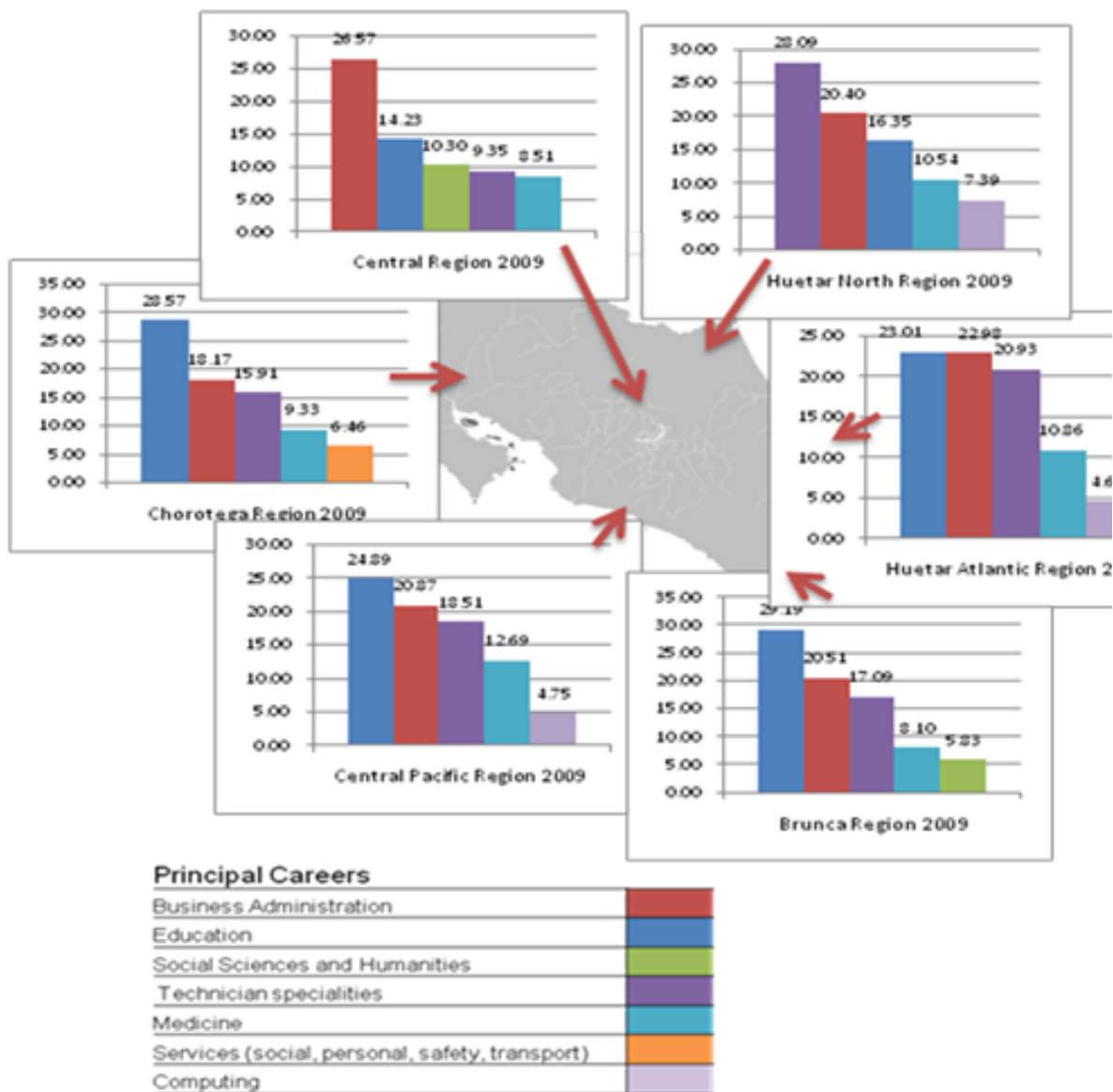
This point evidences again the tensions between private sector and central government and academics of public universities, as discussed in Chapter 5. The tension is focused around the topic of university autonomy with regards to the curriculum. This conflict is related to the needs of the labour market. According to interviews with the private sector, public universities have to offer training in skills that are applicable to the productive sector. These interviewees (Interview 4 and 20, 2009) considered that the productive sector needs graduates in Engineering. This point of tension will be elaborated upon below.

In terms of territories, the next graph presents the distribution of the five first careers by regions, according to CONARE information.

---

108 See Chapter 4, sections 4.4 and 4.5 related to *Costa Rica Green and Intelligent*.

Graph 6.3. Distributions of the HEIs graduates\* for career by region.  
 The first five careers mentioned  
 (2009)  
 (Relatives)



\*No distinction between public and private universities had been made in the source of this information

Source: Own elaboration, based on Household Survey data 2009

The national trend, shown in Graph 6.2, is an increase of the student population in all the careers observed between 2000 and 2009. Graph 6.3 gave additional information related to graduates for careers by region observed during the same period of time. There was not a big difference in terms of the highest number of graduates for career by region. In the Central region, Business Administration was located in the first place with approximately 27% of the students, while the percentage of Business Administration in other regions was located in second place, close to 20%.

Education is the other significant career shown on the graph, with 14% in the Central region and around 20% in the rest of the regions. The presence of Technician careers is significant and is arguably an important difference in terms of the contrast between central and peripheral motivations, because it is shown to be fourth in the Central region (9%), first in the North Huetar Region, with 28%, and third largest in the rest of the regions with around 20%.

Business Administration showed an important presence nationally, regardless of the regional differences in labour markets. This tendency could be related to the labour market opportunities connected to services sector, where financial services are part of the most important ones. It is also important for the promotion of entrepreneurs, which has become a very common discourse in public and private universities recently.

In summary, three circumstances have to be mentioned in order to close this section. First circumstance is the transformation of the public universities supply in relation to the worker profile demanded by the new labour market. Second circumstance is the oversupply of professionals that affects the labour market in terms of salaries. Finally, a third circumstance is the demand for technician graduates, rather than university graduates as demanded by multinational companies in the services sector.

In relation to labour professionalization, according to a representative of the rector of UNED (Interview 48, 2009), the curriculum has been changing gradually in order to solve the labour demand:

“In UNED, we have Business Administration as an important course now, different of the course that we had in the past. We start this course focused in public administration, directed to local governments sector. Maybe because of the low professionalization of that sector, the programme had been changing and now we are in Finance. The important point is the flexibility to adapt the curriculum to the labour market demand.”

This is not isolated to the UNED experience, but a reality in other university curricula also. Gradually, university courses have been changing their graduate profile, in order to respond to the labour market needs.

The second circumstance is the oversupply of professional graduates; this development is clearly evident in the salaries market. The oversupply is acting to decrease the level of professional salaries, in particular for traditional public services occupations (Ruiz, 2001a: 147).

The third circumstance is an actuality observed during the so-called Recruitment Fairs, promoted by multinational companies in Costa Rica. These companies are looking for bilingual technicians. The second languages considered are English, German, Portuguese and Chinese among others. These companies are primarily part of the FDI in services. Many are call centres that work by outsourcing for companies like Intel.

Here is a first point of tension related to universities and their proposed roles. The tension to be emphasized is focused on the role of teaching. As was mentioned above for some representatives of the private sector, as well as some representatives of the academic sector, teaching is about training.



According to these representatives, rather than professionalization for knowledge development, universities should be graduating employees for labour market demand. Moreover, private sector representatives made claims for more control over public university's curricula (Interview 14, 2009). Conversely, recruitment fairs were offering employment for technicians rather than for higher education graduates. As had been evidenced here, both external and internal representatives of the public universities observed this contradictory discourse. In other words, this point creates tensions not only outside academia but inside academia as well.

Nevertheless, a different point of view was presented in others interviews. Rather than just labour force trainers, public universities and central government representatives interviewed in this research (Interviews 6, 9, 12 and 48, 2009), all of them with high recognition as academics, considered public universities to be part of the country's knowledge structure for innovation. This point of view, related to the role of public universities in innovation and the knowledge structure of Costa Rica, is explained in the next section.

#### **6.4 Public universities as entrepreneurs: A quadruple helix dynamic**

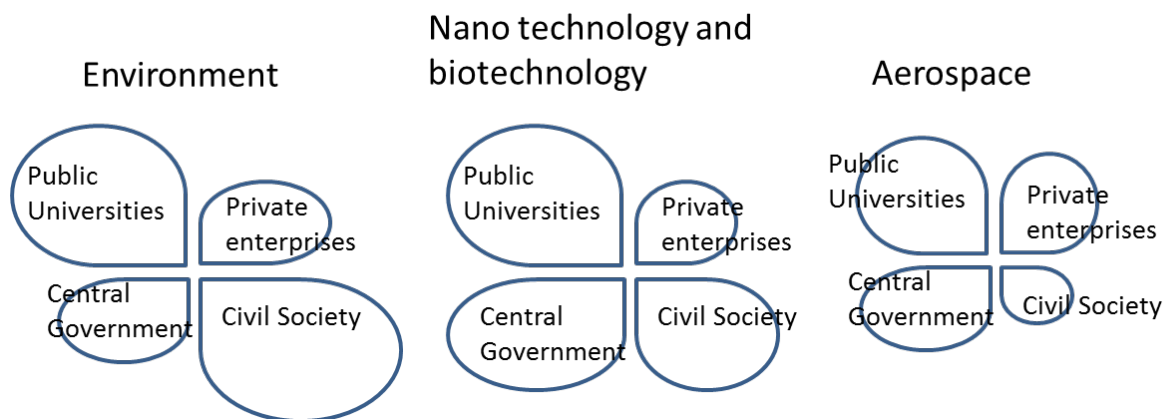
As was mentioned in Chapter 5, since 1999 CENAT and the public universities have been working in relation to innovation and knowledge structure for Costa Rica. The role of public universities in relation to the so-called triple helix model has been organized directly by CONARE via CENAT, and recently the National Centre for Biotechnological Innovations (CENIBiot by acronym in Spanish). According to the representative of UNED rector (Interview 48, 2009), the experience in Costa Rica had been that the public universities usually work with different partners, who contribute differently depending on the respective topic. All these different partners have been part of the knowledge structure of Costa Rica.

According to the representative of the UNED rectory (Interview 48, 2009):

“For example, environment as a topic has been worked deeply by the so-called civil society and universities. However the central government has a programme in this area at the moment, it is Paz con la Naturaleza (Peace with Nature); led by a person who was part of CENAT staff and now he is in this central government programme. In contrast, Nanotechnology and Biotechnology were the topics that must be worked by universities first, and then the way to transfer the knowledge to private sector will be identified. The same is the case in Aerospace Industry, which was working in a laboratory in the international airport with very limited action, until Dr. Franklin Chang enterprises created their laboratory to work on the plasma motor research. Before Mr. Chang enterprise, the development of the aerospace topic was circumscribed only on universities research with central government support.”

The next diagram illustrates the idea explained by the representative of UNED rectory (Interview 48, 2009), that the public universities’ participation in different topics is being made in partnership with other social actors contributing to the national innovation system.

*Diagram 6.1. Social actors participation in the Costa Rican scientific context*



Own elaboration, based on the representative of UNED rectory interview information (Interview 48, 2009)

The diagram also refers to the investment and the capital (Moulaert and Nussbaumer, 2005b) allowed by different social actors in order to promote a knowledge structure and in consequence, a national innovation system. The structure presented above makes important suggestions in terms of the makeup of the national innovation system. It also presents the degree of participation by public universities in this structure.

The first implication of this diagram is that there was not actually a triple helix (Etzkowitz and Leydesdorff, 1997) but a quadruple structure. That is to say that, civil society is a very important social actor and evidently relevant enough to be considered as a fourth participant in the helix. It is constituted of private organizations such as foundations, associations and non-profit institutions in general which are not parts of the public sector. They are usually NGOs, socially recognisable and have authority with specific topic. The second point is that there are different weights of participation, depending on different topics. That implies that each social actor was contributing differently in each topic.

The four public universities have a very important role as part of a consolidated national innovation system, accredited to produce and to transfer knowledge. On this point, CONARE reinforced its role in knowledge management through the creation of CENAT in 1999, in order to be permanently in connexion with science and technology progress of the country (Interview 48, 2009).

The creation of the CENAT inside the CONARE confirmed its explicit purpose of strengthening the public higher education role in knowledge management, as the base of the country's knowledge structure. This structure has been making an important effort in the production and transference of knowledge from the universities to the private sector. Moreover, the creation of the CENIBIOT in 2010 was described by the representative of UNED rectory as a promoter of agro-industrial research in biotechnology for the improvement of the competitiveness of this sector (Interview 48, 2009).

However, even though CENIBIOT was also presented as a triple helix initiative, it had to be supported by the central government with European Union financial support. The representative of UNED rectory (Interview 48, 2009) pointed out that:

“In our countries, the private enterprises do not invest in research. In our cases, the triple helix as it is in a strict definition is not working. The public universities and the central government promote the investment in research. They have the most important load to move that and to create opportunities in new topics. After that, they can transfer the knowledge to the private sector”.

Because of the protagonist role of the central government in the promotion of the national innovation system in Costa Rica, the role of the public universities as recognized authorities in knowledge production has been essential. On that point, the former director of CENAT (Interview 9, 2009), explained that:

“Since middle of the 1980s, a new institutional structure started. This structure was created to promote the new economic model based on the attraction of the FDI, but another kind of FDI. The strategy was to attract the FDI working in high technology, rather than those working on clothes manufacturing. There were created organizations such as CINDE which since the mid-80s has been a NGO considered the most successful structure in the line of attraction of the FDI, example internationally. Simultaneously, the Centre for Technological Management and Industrial Informatics (CEGESTI by acronym in Spanish) is also a NGO which was created in 1990 to support knowledge transference from academic to industrial sector”.

A former director of CENAT (Interview 9, 2009) also pointed out that the experience with CINDE and CEGESTI has been very successful from the start, because they prepared the strategy for the arrival of a different kind of manufacture.

Rather than textile assembly plants such as clothes manufacturing, characteristic of the 1970s and 1980s industrial companies, the central government strategy changed in order to attract high technology:

“Motorola was probably one of the first in participating in high technology industry, when it installed its assembly plant in Costa Rica in 1979 with 50 employees. It was increasing its operation and it had 1600 employees, when it closed in 1999. However, the installation of Intel Testing Plant in 1996 is considered the start point for the KBE-CR”.

In that context, the role that the public universities had been playing was the management of knowledge, as promoters of science and technology progress in the country and maintaining the link between this and the productive sector. Big efforts have been made in terms of the innovation process in order to improve performance in science and in technology.

The public universities have been part of these formal efforts; linking with the central government ministries in order to create a proper structure for knowledge transference. The government, via the MICIT, promoted at least two strategies in order to organize the national innovation system in Costa Rica. There have been specific initiatives for doing this, such as the XXI Century Strategy (2004) and the Atlas of Innovation (2009). These two inter-institutional and inter-sector initiatives were proposed to coordinate all the organisations involved in the science and technology dynamic, trying to organize the participation of the all sectors nationally. Many representatives of the public universities were present in this move.

In 2011, the fifth public university created recently was included in the national innovation system as part of a triple helix proposal: the MICIT, the private sector and the Technical University which is a public university created in 2007, that is still in administrative process in order to be included in CONARE. The idea is to join training in innovation plus needs detected by local enterprises via a postgraduate qualification in innovation.

The postgraduate qualification also has the support by the SEPT (Small and Medium-sized Enterprises Promotion and Training), a programme of the University of Leipzig, Germany. It is based on the development of skills to innovate.

There were many other initiatives, working not only in practical implementation but also in very important conceptual work around innovation, like PROSIC that was mentioned as part of the UCR initiatives. It is clear that the public universities have been providing the missing link in the national innovation system, sheltered by their non-political role in terms of political parties. The public universities have been permanent partners in the middle of the political cycle that affects the national innovation system consolidation in Costa Rica.

As members of non-monolithic structures, the public university representatives interviewed in this research had different conceptions about not only the role that they were playing, but also about the role that they had to play in the context of the national innovation system. However, it was evident that in the light of these differences of opinion it was possible to work in a variety of different ways inside of the national innovation system.

For instance, some people were making an important effort to link public universities and the private sector; some of them were working in initiatives that had a more institutional framework, while others were working directly in business where the university was a participant and a number of individuals were working directly in communities to support small local business.

In summary, the role played by the public universities in supporting the formal national knowledge structure has been ongoing, as the only partner that the central government has maintaining to promote the national innovation system.

This is the case because the private sector is not investing in research and knowledge production.

The so-called civil society also plays an important role as organizers. It has been the role of the public universities to provide the missing links between private sector and government.

This role that public universities had was considered by core members of the KBE-CR, as described in Chapter 5, as an alternative to solving the discontinuities generated each four years inside the central government because of the political cycle. In fact public universities are supporting part of the para-institutional structure mentioned in Chapter 5.

Here is also other tension point. The viewpoint of the representatives of central government and academic sector quoted here is presenting public universities as proper entrepreneurial universities. As representatives of private sector and the central government conceptualized it, public universities are the producer of knowledge in the *quadruple* helix relation. The role of public universities here was research, but as conceived and carefully defined by central government and the private sector.

The next section will examine other important roles played by the public universities. In this thesis, these other roles were identified as alternatives to their involvement in the knowledge structure and national innovation system. In particular, there were many experiences related during the research done to the problem of how to transfer knowledge, protecting it to ensure the advantage for the less advantaged social groups.

Public universities' role in Costa Rica is still primarily concerned with teaching, research and social action projects. As a consequence, rather than only entrepreneurial roles described above, other points of view were detected. The next two sections are about these other forms of contribution seen in the country by the public universities.

## 6.5 Public universities as suppliers of knowledge

The link between universities and the productive sector is related to both their generative and developmental roles. The experience with social action projects has also been important for the public universities in solving productive sector needs. This is because of the diversity of the productive private sector. The productive private sector is very heterogeneous. It is including a range from productive ventures that are not yet micro-enterprises, to multinational companies looking for opportunities to invest in a small country.

The role that the public universities can play in relation to the productive sector ranges from responding to the needs and resources demanded from the private sector to providing institutional support to resolve private sector problems, for micro-enterprise and multinational companies alike.

For example, according to a representative of the Technological Transference and External Link Office (OTTVE by acronym in Spanish) of UNA (Interview 52, 2011):

“UNA has three different kinds of links with the productive sector. The first is research that is promoted by somebody who wants to resolve a strategic empty space or a need detected by the community. [...] The second is Social action that is constituted by activities related to communities directly. Some of these activities can generate productive entrepreneurs. But we also have a third kind of link that is the selling of services, because many of the institutions or enterprises are not small. These big institutions and companies have the option to pay for services, and in fact them prefer to contract the university as provider because the quality of the services. These three roles are related because usually research gives the start point and it is the opportunity to work with communities or enterprises.”



The statement explains the reality of the public universities in general. The research practice gives the opportunity to explore with new technology to the possibilities for creating new enterprises with women in countryside communities.

As was mentioned above, this approach to research within the public universities means that the activities that relate universities and the productive sector are very diverse. Primarily because of the connection with social action, it is still possible to consider this as an inclusive role.

That is to say, the four public universities had the experience to solve the demands coming from the relation with the productive sector in a variety of different ways. The central role of research centres is undeniable. Historically UCR, ITCR and UNA had established research centres that have been part of the scientific developments in the country. As a result the relation with the productive sector was also a longstanding one. With reference to UNED, research was instituted as a Vice-rectory in 2007 and is therefore a relatively new link.

In order to organize the relation between the public universities and the productive sector CONARE created NEXO in 2005. NEXO which meaning in Spanish is nexus is an inter-public universities team, created to support the national innovation system in the specific area of the universities and productive sector relationship. It is not a specific office but an inter-institutional unit. Each public university has staff members from different departments participating as members of NEXO.

In the UCR, PROINNOVA-UCR (Interview 31, 2009) shares the coordinates between university and private sector. In the UNA it is OTTVE (Interview 52, 2011). In the ITCR it is the Centre of University Enterprises Relations (Interview 55, 2011), and in the UNED it is the International Relations Office (PRE by acronym in Spanish) (Interview 20, 2009). All of them provide the information to coordinate inter-universities actions. Each of them has had specific experience in relation to the link with the productive sector. This experience is related to the role that each office plays inside each university.

During this research it was evident that the nature of the role played by each university in relation to the productive sector was specifically influenced by the experience of each university and the staff responsible for filling these roles.

As a consequence of this the interviews conducted here present the diversity of activities that the public universities perform in order to resolve their day-to-day relationships with the productive sector.

In the case of ITCR, the link with the private sector had been historically established as part of the university dynamic. An important aspect of this relationship in the case of the ITCR is their role in negotiations with multinational companies. The office in charge is the Centre of Link University Enterprises, which has a crucial role working with CINDE on the establishment of conditions that attract FDI, in particular FDI-HT (Interview 55, 2009).

According to a representative of the Centre of Link University Enterprises-ITCR (Interview 55, 2011):

“CINDE informs our section about a new prospective investor which usually is a multinational company. Inside the university we organize a meeting with the schools involved in the thematic related to the interest of the new prospect. A meeting is conducted here in the university and together; we identify resources to resolve the needs in order to resolve the needs of the new investor. [...] We are so happy when CINDE confirm that the prospective investor company decided to invest in Costa Rica.”

This kind of role is very specific to ITCR’s profile and its particular relationship to the productive sector. The role is as entrepreneurial model and according to an interviewed (Interview 14, 2009) was crucial in the case of Intel attraction. This point has been referred to above and it will be presented in section 6.6 in this Chapter.

On another point, the representative of Proinnova and UCR in Nexo (interview 31, 2009), had a significant experience to discuss in relation to knowledge production, protection and transference. According to the representative of Proinnova (Interview 31, 2009):

“The role of Proinnova is related to production, protection and transference of knowledge. It is because the transference of knowledge from the university to the community is not a simple one.

It is not only about publications. The experience of Proinnova is important in terms of how many roles the universities can play in relation to the community and the answer is related to what kind of knowledge do you have to transfer and to whom”.

The Proinnova representative went on to point out that the lack of information related to intellectual property protection is part of the problems that Proinnova has had to solve on a regular basis, as part of the process of improving the public universities and private sector relationships (Interview 31, 2009). Specific experience in the area of intellectual property allowed this person to present some examples about production, protection and transference of knowledge, in order to explain this idea:

“a. The University of Costa Rica proves a new kind of technology to improve the quality of juices without spoiling the taste of the natural juice. Through the Industrial Secret they protect the knowledge before searching for a business partner to share it with. The business partner chosen was a cooperative because their regulation facilitates a bigger number of beneficiaries.

b. Pharmacy students from a university presented a project with the objective to attract the attention towards the danger of the interaction between the medicaments in chronic patients. The program of innovation established contact with a software provider so that he can convert the idea into a software application to be used in public hospitals and to sell to the private ones.

c. A course was created in a university and it was addressed to workers in a food company. The course had to be repeated every time the food company wanted to employ more people. They decided to convert it into an E-learning program so that the company could have it available at any time.”

As one can see, the last examples propose that public universities transfer knowledge to the productive sector via patents or licences continuously. The representative of Proinnova (Interview 31, 2009) went on to explain that

“The examples mentioned gives an idea about how important it is for the universities to be vigilant in terms not only the production and the transference of knowledge but the protection of it, in order to promote the benefice of the majorities. If you just publish everything, the big companies take the advantages immediately, while the small ones need time and support in topics such as technology, logistics or commercialization”.

It should be noted that the subject of intellectual property is considered controversial; opposite to knowledge protection, other academics (Vargas, 2010) promote knowledge preservation and dissemination. This point will be discussed in Chapter 7.

In the case of the UNA, the representative for NEXO is a staff member of OTTVE:

“This office was created in 1987 as strategy to organize the link with all the sectors: public and private, civil society organizations and institutions in which the UNA has projects in teaching, social action, research, production and development”.<sup>109</sup>

Furthermore, the representative of OTTVE had an important experience with MSMEs, despite the fact all actions related to intellectual property were part of the functions of a different UNA department (Interview 52, 2011). As a result of this, the representative of OTTVE described the role of the universities in relation to the productive sector in terms of different levels of transference of knowledge; from the social actions as they were traditionally carried out, to the selling of services.

According to this person:

“Our experience starts with the productive enterprise which means the preview step to constitute a micro-enterprise, until the MSMEs properly constituted and with big companies also. Because of that, the intellectual property is important but usually, it depends on the priority of the researcher and the research context. Sometimes the idea is to transfer the knowledge to the entrepreneur immediately. In fact, the university selling services brings the financial resources to invest in social action projects.

---

109 Retrieved from <http://www.una.ac.cr/ottve/>

Researchers usually do that as a strategy to funding initiatives that, on the other hand, would be not possible to sustain financially because the limited funding of the university”

Moreover, local experience as part of research universities can facilitate specific contributions on a local community level, generating suitable employment for inhabitants of the region. The representative of Regionalization Department in UNA (Interview 54, 2011) gave an interesting example that illustrates this idea:

“The university has an experimental laboratory in Punta Morales, which is a poor small community in the Costa Rican Pacific coast. After an experiment conducted by a specialist, the conclusion was that oysters could be produced there. That knowledge must be transferred to the community to take advantages quickly. The laboratory found the candidate to transfer the knowledge when the miscellaneous worker of the laboratory -who is a woman resident of the community-, takes the training to start a small business producing the oysters herself. At the moment, the woman has a local market good enough to continue with the business. The next step is to train this person to manage her micro enterprise properly.”

In the case of UNED, the representative in NEXO is the PRE, which is part of the Planning Vice rector of UNED. According to the representatives of DIC (Interview 20, 2009)

“The coordination was directed via different schools. The role of the PRE is to include the recent experience of UNED research and the consolidated experience of the social actions into the NEXO strategy.”

For example, UNED has a very important project working on the link between universities and productive sector at an institutional support level. This is the Small and Medium Enterprises Development Observatory (O-MIPYMES by acronym in Spanish). According to the representative of O-MIPYMES at UNED (Interview 30, 2009), it was created with two objectives:

“The first was to connect all the public and private companies, organizations and institutions that work in the subject of the micro-company. The second was to integrate with all of them a network that allows informing and giving advice to a micro-company and having information that facilitates the companies, organizations

and institutions to give a better service. It was organized as a network, which has thematic clusters with the capacity to develop a specific background about Micro, Small and medium enterprises.

These clusters work for example in financial necessities, or commercialization issues among others. This project was supported by the Ministry of Economy, Industry and Commerce of Costa Rica and it was part of the Iberian American network also. It is considered an example to be repeated by other countries in Central America.”

UNED also had four projects connected to the Natural and Exacts Science School, looking at the agro-industrial MSMEs support. There were also running a project related to the support of the social network to consolidate local research clusters via University Centres Research Network (PROTO-RED the name in Spanish). This project was being promoted by the Vice rector of Research in UNED and the promotion of Intelligent Community Centres (CECIs by acronym in Spanish) to training rural communities in ICT implementation in local level, which was represented by the Social Action Direction. There were also some projects related to tourism which were part of the Social Science School and some specific activities related to the Management Administration School.

The most important contribution of the Natural and Exacts Science School has been the result of a consistent relationship with the productive sector, in particular through agro-industry, which has constituted some of the most significant actions of this school.

An example, presented below, is the link between the National Production Council (CNP by acronym in Spanish) and UNED through the UNED-CNP agreement.

However, as a distance learning university, UNED brings up a different territorial question. Regarding its link to the national innovation system, concerning its interrelatedness to its region. As a public university present nationally, the pressure to resolve the particularities of the different territories is particularly important to UNED. Because of this, the next section looks at the territorial dimension of the public universities in general and UNED in particular.

There can be no doubt that the public universities have been a part of the social process to promote transference of knowledge in Costa Rica. Historically they have been an important social actor for the benefit of the productive private sector.

Rather than playing an accessory role, they have been building their own strategy, in particular for knowledge transfer, based upon two different perspectives, as supporters of communities needs and as consultants to the multinationals companies.

Here is a third tension point. It is related to universities concerns. The mixed role played by public universities in relation to providing knowledge to the private productive sector has been also about small entrepreneurs in small business. It is not an entrepreneurial university scheme. Sometimes the universities take the role of entrepreneurial partner, which is a recently defined position regarding the market approach. At other times they were developmental institutions practicing governance, which had traditionally been a social engagement role.

Since their creation, public universities have also been an important partner for community initiative. As was explained in the last section, sometimes these initiatives arise as part of research projects and then, after a successful result, the knowledge is transferred to beneficiaries who transform into a small business based upon this research result.

It is clear that university staff were making an important contribution, even when the demands came from MSMEs or from a multinational company. However, it is a fact that entrepreneurial and developmental roles identified here respond to different conceptualizations of the university. Moreover, suddenly the selling of services relegates the developmental role. It is because of this that it is proposed here that even within this mix of roles exists a significant tension.

Beyond the entrepreneurial and developmental roles, discussions inside the KBE-CR dynamic presented above in sections 6.3 to 6.4, there was also one important role played by public universities which deserved thorough attention in this thesis: the role played in

communities. Far from KBE-CR concerns, section 6.6 will illustrate the perspective on communities.

## **6.6 Universities as communities developers**

The communities' perspective and the universities perspectives themselves have been shaping roles.

Recently, these roles played in communities explicitly mentioned a territorial dimension as well. Public universities have been supporters of different demands to any of those previously discussed here, which are the community's needs.

Drawing in information collected during fieldwork, different ways in which universities interact with communities were identified. The public universities contributions in communities were also about knowledge preservation and dissemination, but in a different perspective. On one hand, some traditional experiences in the university-community relationship such as University Community Work (TCU by acronym in Spanish) can be seen; this represents a social action approach. On the other hand, the final graduation work that usually is the first contact that the student has with the labour market is part of the experience that students and lecturers have with regards the national context of the university. Note the difference in terms of the approaches; one is a social action while the other is usually based on a market approach.

For example, the TCU in UCR consists of 300 hours of university community work that is a compulsory service that students have to do to contribute to communities with specific needs, in both core and peripheral regions. The TCUs projects are related to teaching and research experience, but they are specially part of the social action activities. In many cases, students can contribute by helping to resolve specific problems related to community development. There is an important challenge faced by the universities in that they are responsible for establishing sustainability in the period subsequent to the TCU efforts.



The sustainability of TCUs efforts can be difficult in the light of fragile frameworks in the communities. The TCUs are also an experience common not only to Costa Rica but also other countries in Latin America. This point will be examined further in Chapter 7.

At this stage it is important to look at social action projects conducted by public universities, as examples of university's experiences. As was also pointed out, these projects have recently been related to the role of productive entrepreneurs as a consequence of the pressure to generate alternatives for employment in poor communities.

The pressure comes from internal sources, as well as from groups external to public universities. The fact that the demand for support activities which can generate employment is growing, is arguably evidence of the social role public universities have to play in order to resolve the demand to support development.

In the section above, a discussion of how the mixed experience of public universities with regards to social action and the market approach was presented in order to support the range of approaches being adopted in the face of demands coming from the national context. Here a different approach is presented, which can be seen when these demands come from both public and private organizations, from poor communities and the productive sector equally. This section also addresses how the territorial dimension has become relevant for public universities in general and UNED in particular.

### **6.6.1 UNED University Centres**

As was presented in Chapter 4, UNED has 32 tutorial points nationally called university centres. The territorial dimension of the role of UNED is presented in its Strategic Plan of the University Centres. Regarding this Plan, the most important point to consider is the recurrent idea of regionalization as a strategy to promote the potential positive effect of UNED centres on the country's territorial dynamics.

As was mentioned in Chapter 4, the UNED centres had been located in areas where the support of the community had been enough to initiate its basic functions, such as enrolment and tutorial classes. Because of this, many of the UNED centres began in local high schools, in a classroom assigned as an office for UNED functions.

As a result of positive responses, the UNED centres have been installing their own buildings. As part of the fieldwork of this thesis, a telephone questionnaire was carried out in 2008 in order to identify the local action of the UNED centres.<sup>110</sup> There were many examples of the social action of UNED centres, promoted both as part of the UNED initiatives or as part of the inter-institutional projects.

Regarding UNED initiatives, the university centres should have a local committee as part of their administrative structure, but these committees were reported as not functioning properly, according to heads of UNED centres (Telephone interviews).<sup>111</sup> It has not been possible to work properly with local committees because of the legal implication of these committees being not yet clearly defined and some conflicts relating to the authority of these committees having not yet been resolved. However, in some places it has been possible to operate a local committee, as it was shown in the interviews. The local committees were described as important tool for contacting local groups and some of them take advantage of the partnerships that they have as community representatives, which are useful for promoting local actions and investing them as social sustainability.

Evidence would suggest that the strength of the link between each UNED centre and the community was dependent on the personal characteristics of the head of the centre.

For instance, successful centres like Palmares in the Central region, or centres of the Chorotega region had an active community member as their head.

---

110 See Annex 3: UNED Centres' description.

111 See Annex 3: UNED Centre's description.

Whereas centres in the central region or in the periphery did not report community action, pointing out the lack of resources to do so. There can be no doubt that lack of resources is a real situation confronted by university centres, in particular in terms of their resources for community actions, but regardless of this some heads of UNED centres managed to resolve these shortcomings with local support.

### **6.6.2 University Extension Direction of UNED**

The University Extension Direction activities were diverse, including free courses and the Local Development Training Programme (PGL. The PGL is a local management programme<sup>112</sup> (Interview 34, 2009). The free courses were created in direct response to the needs of the community, *English for communal and local tourism* for example, or *Child development*, *Domestic Violence Prevention* and *Deaf Language*. The degree of implementation of such courses depended on the needs of the community, the initiative of the head of the centre and the permanent presence of a University Extension Direction staff member in the centre.

One of the more important University Extension Direction activities in the local context was the PGL. The PGL was created in 1999 as a training course named Local Management Technician. In 2003, it was fully integrated into the University Extension Direction. In 2004, the PGL signed an agreement with the Municipal Strengthening and Devolution Project (FOMUDE by acronym in Spanish) and in 2008, with European Union financial support, the Municipal Training and Instruction Institute<sup>113</sup> was created out of this programme (Interview 34, 2009).

---

112 See <http://web.uned.ac.cr/pgl/index.php/acerca-del-pgl.html> for more detail.

113 See <http://web.uned.ac.cr/pgl/index.php/component/content/article/36-informacion-general-pgl/64-primer-instituto-en-centroamerica-especializado-en-formacion-y-capacitacion-municipal-y-desarrollo-local.html> for more information

According to a representative of the PGL of UNED (Interview 34, 2009):

“The model of the PGL is the Groups of Territorial Action (GAT by acronym in Spanish). The Regional Development Plans are prepared with the UCR where all about Geography is relevant, including transport and buses schedules. The initiatives have three scenarios to start: 1- Step by step when the local support is weak. It is the more difficult scenario. 2-With a local existing network which facilitate the work. 3-With the collaboration of the Inter-universities Regional Committee (CRI by acronym in Spanish). 114 There were two important experiences: knowledge management in the rural contexts and the democratization of participation in a local level.”

This representative of the UNED PGL also pointed out that:

“The programme has been successful because of the partners at a local level, in particular, the local governments. Usually, the work has been based on networks built on good motivations, which can be built also in a regional level or even inter-regional. We are not yet there but the network is strong and it can move to interregional actions. [...] In terms of populations, the idea is to give instructional opportunities not only for professionals but also for people who are not going to the university”.

Again, UNED’s role at a local level is possible because of local structure that supports institutional initiatives.

### **6.6.3 The third task in the UNED Schools: social action-teaching activities**

Another important aspect of the UNED centres local actions, mentioned during the interviews in 2008, was the Technician in Agro-industrial Management degree and the Management Training Programme, both of which form part of the open options of Agro-industrial Engineering Degree course of the Exact and Natural Science School of UNED.

---

114 The Inter-universities Regional Committee (CRI by acronym in Spanish) will be presented below.

The two courses were created as a result of a thesis produced by an UNED staff researcher member, in order to achieve a Masters degree.

The research was related to the exploration of the agro-productive sector needs, in particular the knowledge needs and the resources to resolve the requirements they have in terms of training.

A recurrent idea of this thesis was the evident lack of resources available to resolve the peripheral agro-industrial sector training needs. An important UNED proposal in response to this was to create the Technician on Agro-industrial Management degree. This degree course was in place in 2004. The instruction level of the target population was high school graduates. As a consequence, it was defined as a two year training programme. However, the quality of the academic programme, its contents and evaluation processes, allowed it to present as a technician degree.

When all issues related to academic requirements were resolved, the rector of UNED and the representative of the Technician Programme presented the initiative to the CNP, as the governing public agency for this area.

According to the representative of the Technician on Agro-industrial Management degree and the Management Training Programme (Interview 56, 2011):

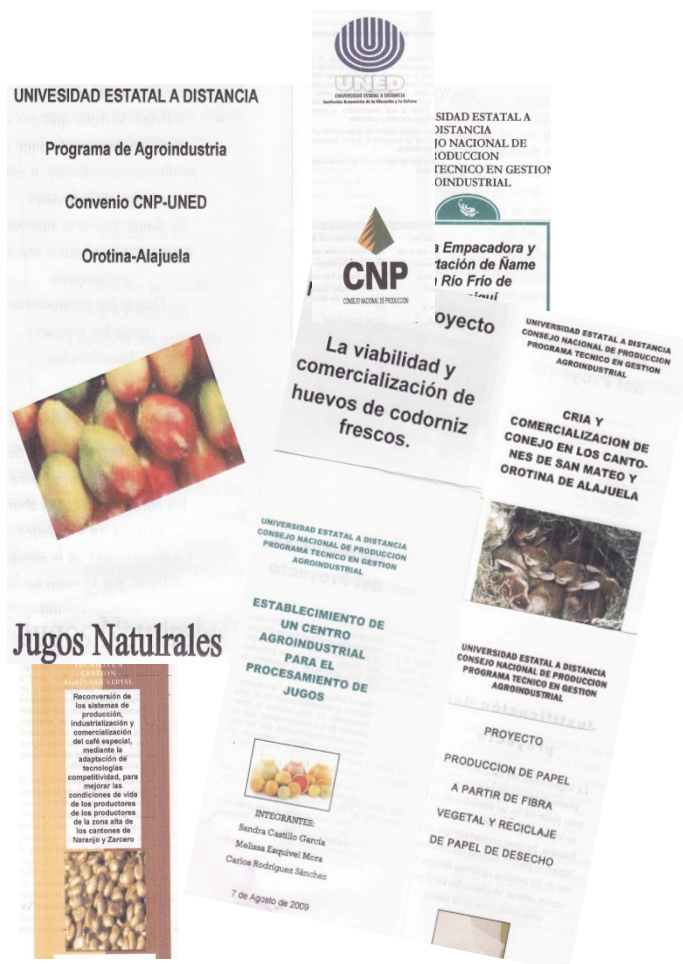
“At the same time, the necessity to include a different population was detected. Workmates and subordinates of the first group members constituted the new group. This new population was not high school graduates, but working also in the agro-industrial sector with many needs in training and professionalization as well. As a consequence, a *Management Training Programme* was created, which instruction level requirements focus into basic abilities: writing, reading, and to be acquainted with basic mathematics operations. At the end, there were three groups with 200, 300 students in the Technician programme and 250 students in the Management Training Programme. As a consequence of the very successful result, a third group with 250 students were supported by the IMAS.”

In terms of territorial distribution, the representative of the Technician on Agro-industrial Management degree and the Management Training Programme mentioned that these two programmes were implemented almost nationally and across a very diverse range of producers (Interview 56, 2011). The methodology of the courses focussed on problem resolution strategies.

Picture 6.1 (Source: own elaborated with Expo-projects UNED-CNP Information (Interview 51, 2009))

### Brochures of Expo-projects UNED-CNP

August, 2009



In terms of products, in August 2009, there were 14 Expo-projects in UNED (Interview 51, 2009). As it is presented in the picture below, these 14 projects were about different kind of products including: industries producing compost, animal concentrate foods, meats, cheese, fruits such as papaya, strawberries, ñame, honey and a small company working in coffee production. The coffee production small company received a quality national prime.

Unfortunately, according to the representative of the programme the central government changed its strategy in 2010 and the funding for CNP and IMAS were reduced (Interview 56, 2011). Simultaneously, for political reasons the new reduced funding was designated to work with a different educational institution.

This is a very important example of a social engagement project for two reasons. On the one hand, it provides evidence of the important role of UNED in the professionalization of the productive sector, in particular the productive sector as developed by small, unskilled producers. The success of these programmes is also evidence of the effective support given by the university to peripheral communities. On the other hand, this example demonstrates a very common end for this kind of institutional initiative, not only UNED but many public other institutions; that the process is abandoned for so-called *political reasons*. As a consequence, a successful project is restricted and the social sustainability of the initiative is disregarded. The result is that resources are wasted and the community members left without.

#### **6.6.4 The link research-community**

Finally, as was mentioned in Chapter 4, UNED has been strengthening its research area recently. As part of this strategy, in 2007 the Research Transference of Technology and Education for Development Centre (CITTED by acronym in Spanish) was opened.

According to the representative of CITTED (Interview 29, 2009), it has been working with communities using a *Kaizen* approach. *Kaizen* is the Japanese philosophy of business management that promotes permanent, sustainable improvement (Suarez & Dávila, 2008).

The idea is to support the improvement of the local producer via activities with funding availability, without funding availability and through the generation of funding availability by the participants. These communities are generally peasant settlements, supported by the Institute of the Agrarian Development (IDA by acronym in Spanish). As a result, there is a huge demand for support for issues ranging from productive technology to social family problems.

The representative of CITED (Interview 29, 2009) pointed out that the plan is to work in five areas: biotechnology, agro-industrial training, bioremediation of soils, geographical information system design in order to support planning for communities who need attention, and English learning.

In August 2009, during this research, a reopening of the CITED remediation building was conducted (recording in this research as activity number 35, 2009). There was also a fieldwork trip, visiting the three peasant settlements that were direct beneficiaries of the activity centre: *El Futuro, La Perla y Los Angeles*.



Source: CITED re-opening event. UNED's representatives visiting La Perla productive initiatives. San Carlos. In the first place in the picture the Rector of UNED and the Head of CITED (Interview 35, 2009).

According to the representative of El Futuro (recording in this research as activity number 35, 2009):

“When the UNED arrived here, we knew that it meant development.”

The CITED work is also part of the *Inter-universities Regionalization Programme* of CONARE, which deserves a section apart, because of the significance of this effort.



An important contribution was made to resolve the lack of the ICTs in the peripheral cantons. In 2009, the Ministry of Science and Technology and the UNED signed an agreement to install 15 CECIs, located nationally, all of which would be situated in communities far from the central region.

Finally, this thesis will specifically address the recent effort of public universities to work on a regional level. The next section is dedicated to presenting the Inter-universities Regionalization Program of CONARE. It also examines the generative and developmental roles (Gunasekara, 2006) that public universities have been playing. The change in these roles has a significant territorial dimension because the actions conducted in this Program are all done so out of the Central region of Costa Rica. This is the inter-universities' institutional policies, recently incorporated into the CRIs, which are constituted of staff members from the four public university structures, created to act together in the implementation of actions which resolve specific community needs on a regional level. CRIs are part of such engagement strategies.

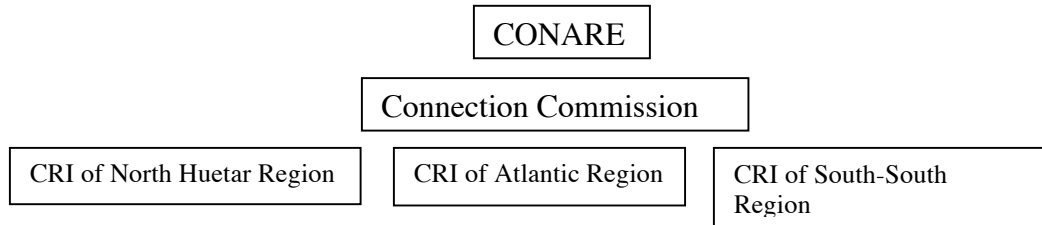
### **6.6.5 The territorial dimension of public universities**

Regional development has been adopted as a key concept by public universities. Olguín et al (2010) pointed out that the first step was the Regionalization Agreement, signed by the four public universities in 1998. In 2006 rules were defined for presenting and funding the regional projects.

In 2007, the public universities created CRIs. They were created as a structure for the four public universities to work in coordination, specifically in the peripheral regions of the country.

Furthermore, the Connection Commission (Comisión de Enlace in Spanish) was to be the connection between the rectors and the CRIs. The next diagram explains this structure:

**Diagram 6.2. The Inter-universities Regionalization Programme**



Own elaboration based on interviews information, 2009

According to a representative of the Connection Commission of UNED (Interview 27, 2009), by 2007 CONARE had two different ways of funding public universities' actions. First, there was traditional funding for research that is organized by competitive funding contest. Second, a new source of funding was created to directly address the regional level actuation.

According to the representative of CRIs coordinator of UNED (Interview 27, 2009):

“Initiatives mean *specific actions to resolve specific problems, territorially distributed*. It is to support the region development. It is not formal education programme but regional collaboration. The idea is that the regional level proposed something specific and the CONARE regionalization funding sustaining it. The idea is to have local professionals working there. The objectives are to promote participation, to the regional development and to be pertinent in order to resolve the region needs”.

CONARE decided to take these second financial resources to support the so-called *initiatives* rather than research or teaching activities. The representative of Connection Commission of UNED (Interview 27, 2009) also pointed out:

“The rule to include a project in this scheme was that it has to be something related to applied activities, rather than to conduct a diagnostic or any other basic research scheme. Academics and members of institutions recognized the organizations and institutions identified as examples of the regional development. After that, the proposals were defined considering the participation of the local population, the pertinence of the idea in terms of regional development, and in process of 2 years.”

Something not mentioned directly, but implicit in the objectives, was the demand for success in the regional level participation of public universities. This is not only an institutional demand, but a kind of moral obligation made of the entire participants in the different levels of the simple structure, as explained in the diagram presented above.

The *initiatives* proposed were specific to topics such as training and teaching activities, like business management to start a new small productive enterprise, English classes for local eco-tourism guides or even support to help families with social conflicts such as domestic violence. In fact, each CRI prepared a proposal to address the specific needs of each region.

As a matter of fact, each proposal had specific characteristics depending on the existing framework identified on individual regional levels, the experience built by each proponent in the local level and the real options to coordinate the inter-universities accomplishment. This was not easy work. However, during this research there was also evidence of the difficulty of defining regional structures to act effectively.

On that point, evidence was found of both a summary of achievement examples and a critical revision of the process. The next two subsections present the information about these two points.

### *The achievement examples*

As has been mentioned in the literature review, the preconditions of a region or even a small territory are very important in order to take advantage of any endogenous or exogenous process (Fernandez, 2001; Tödtling and Trippel, 2005; Vázquez-Barquero, 2007). The arrival of the Inter-universities Regionalization Programme of CONARE cannot be an exception to this.

According to the representative of the Connection Commission of UNED (Interview 27, 2009), each CRI had a specific profile of interests, the nature of which depended on the leader of the process, the history of the local university actuation and the proposals presented to the Regionalization Program:

“In the South-South Region, the core of the actuation of their CRI was defined in local tourism training and in the attention of the social problems which affect the region. In the Huetar Atlantic Region, the main objective has been defined in terms of consolidating the regional institutional network, in order to act properly, joined efforts with other institutions.

By contrast, in the North Huetar Region, an existing experience related to regional development, established by the ITCR some time ago, has been the base of the CRI, which is working immediately with the local productive sector.”

The public universities’ experience in Costa Rica on a regional level is very important. Their attempt to build a regional institutional framework, working directly with communities can be considered as a good education and the lessons learned during the process very important for the building of regional projects in the future.

For example, this last quote about the relevance of existent resources in the region being instrumental in the success or failure of the regional development, something that is a permanent reference in the review literature.

As a matter of illustration, two different examples of the universities' experience of the regionalization commissions are to be presented below. The aim is to illustrate the relevance of the history of the region in the actuation of the Inter-universities Regionalization Programme of CONARE. The two different experiences selected as examples were the North Huetar Region CRI and the Atlantic Region CRI.

### **The North Huetar Region CRI**

The North Huetar Region CRI was working intensely with the local productive sector of the region. Before starting the presentation of the CRI North Region work, it is important to know something about antecedents.

According to the representative of Agronomy School of ITCR University Centre of Santa Clara, San Carlos (Interview 47, 2009):

“The history of the ITCR university centre in the North Huetar Region, in Santa Clara, San Carlos has been very successful in terms of the link university-local productive sector. Since the foundation of this university centre, it has been working in Agronomy in a close relationship with the agro-productive sector and with all the private sector enterprises in the region. At the same time, the ITCR is an owner of farmable land and production itself, as part of the strategies that it has there to promote practices and laboratories for its students.”

Furthermore:

“Rather than a university located there, the ITCR Santa Clara has been part of the social network of producers of the region. As a local university centre and as a producer also, the ITCR knew the needs and the problems that different kind of

producers had in common in the region. Because of that, in 2001 the staff of the Santa Clara decided to promote a local network, looking for to strengthen the local producers by the strategic alliances.

The relation between them was presented in terms of not as competitors but as partners with similar problems to resolve in order to get markets outside the region. As a consequence, there was the origin of a regional initiative, the Special Economic Zone in San Carlos.”

The creation of the Special Economic Zone in San Carlos gave the opportunity to consolidate a very important network, which involved the public and private sectors working on a solution for the problems of the productive sector. When the idea of the Inter-universities Regionalization Programme of CONARE was presented to the North Huetar Region CRI, the leader was the ITCR.

During a group interview of the North Huetar Region CRI, the representative of the ITCR in the Huetar Region CRI (Interview 36, 2009) said:

“The idea has been to work step by step, having a local framework which supports the work, involving a regional level for regional development with public and private participation. Indeed, the eventual possibility of an inter-regional network, working in the common problems of the rural, which is not only agro anymore.”

In addition, the representative of the UCR in the Huetar Region CRI (Interview 36, 2009) supported the idea of being operative as a group. He pointed out

“The ITCR already had efforts and strengths that the CRI decided to take. We also learn from others’ mistakes, without repeating them.”

The representative of the UNA in the Huetar Region CRI (Interview 36, 2009) contextualised these points:

“Our task is to contextualize the university work. The CRI is a way for the interchange ‘between and within’. It is about how we can professionalize the segment of the national population which is not going to the university.”

This person went on to conclude that the regionalization process is about the management and democratization of knowledge in a rural world. Moreover, the representative of UNED in the Huetar Region CRI considered that

“The effort to act together, joining efforts for the first time has been the most important challenge and the better part of the experience.”

In summary, there are two important points to highlight here. First, the role of the ITCR as Entrepreneurial University (Etzkowitz, 2011) in the North Huetar Region, allowed it to be a participant in the local productive sector network.

At the same time ITCR, in an associative governance role, also contributed to this local network (Gunasekara, 2006). Second, as a consequence of the ITCR’s experience with the Special Economic Zone (Zona Económica Especial in Spanish) model, the members of North Huetar Region CRI adopted it as strategy in order to act quickly and effectively (Interview 36, 2009). This experience should be considered when looking at how inter-universities action in the regional level can be organized.

### **The Atlantic Region CRI**

A brief discussion of the Atlantic region is important in order to contextualize the relevance of this case here.

The characteristics of the Atlantic Region are very similar to the Limón province. The territory spans the whole Caribbean coast of Costa Rica. The city has been recognized as a multi-ethnic environment because the Chinese-descendent and the Afro-descendent populations are part of the majority in the south of the province, close to the city. This province is also the location of the most important seaport in the Caribbean. The banana plantation has been the main product of exportation from the south of the region. The Atlantic Huetar region has been historically relegated from the national public policies.

In comparison to the North Huetar Region, the CRI strategy in Atlantic Huetar region is vastly different. This CRI had not carried out previous work in the region that would have allowed them to build a network like the Special Economic Zone, even though the public universities had previously been trying to propose an institutional consolidation that would have enabled this. As a result of this, the CRI members decided to work first on a regional level institutional framework, building inter-institutional structures. Simultaneous to this they were consolidating the specific initiatives proposed to the CRI by persons from two universities in particular, the UCR and the UNED; the two public universities that already have university centres in the region.

During a group interview for the Atlantic Huetar Region CRI, the representatives of the UCR and the ITCR agreed on the necessity of work in Limón by way of the institutional framework consolidation first<sup>115</sup>. The representative of the UCR pointed that:

“We worked first on the axes of the strategy: social integration, social and port tourism. The result gave the evidence in the need to work in education and communal level. Limon is a multi-ethnic province. The work has to be proposed in the regional level, more than each academic from the public universities proposing isolate initiatives.”

As the quote shows, this CRI took the time to first define the global context before they defined the initiatives.

These two representatives also explained that when thinking about development, they considered that CRIs need a future imaging of the region in order to promote consistent actuation on each regional level. They also considered the relevance of the National Plan of Development and the Actuation Plan of each public university.

---

115 The representative of UNED was excused to be in the interview because a family situation and the representative of UNA was not in this interview because he was in the North Huetar Region CRI group interview.



The necessity to define regional images was based on the absence of a national or regional plan.

By way of example, they mentioned a recent project called *Limón Ciudad Puerto* (*Limón city-port*) that is a project created only for the city in the region. They considered that kind of project promoted a core-periphery relation within Limón.

At the same time, the Huetar Atlantic Region CRI was working on consolidating social action, and simultaneously creating social articulation.

This is the situation in Talamanca, a territory with a very important indigenous population concentration not only in the region but also in the country as a whole. In this case, there was important work with e-learning via the ICTs availability in the area.

In summary, the Huetar Atlantic Region CRI contributed to the lessons learned in the process of regional development by universities, providing an example of the relevance of contextualization in both the location and the timing of the universities' actuation. This particular aspect of CRI has been related to associative governance initiatives, rather than generative role strategies (Gunasekara, 2006).

### *The review of the process*

In 2009, the Research Vice-rectory of the UNED conducted an evaluation of the inter-universities regional development projects, advocated by UNED participants, in order to identify their weaknesses and strengths. The report was prepared by Olguín et al (2010).

In that report, the authors pointed out that the difficulties that needed overcoming for the regional UNED projects were both internal and external. In the internal context, the main difficulty is the fragmentation within and among the universities, which was hindering the action of the participants in these first time initiatives. In terms of the external context, the main difficulty identified by the evaluation was the absence of a strong coordination between institutions in the regions, as a result of the lack of a regional institutional structure that could support the process.

In summary, the roles of the public universities in communities have been diverse. Through teaching, research and social projects, public universities have been more part of governance than other roles. Providing more than missing links, public universities have been part of a social tapestry.

Here is a fourth tension point. Communities representatives' viewpoint is that public universities still promote development. This viewpoint is crucial in this thesis. Rather than academic discourse, communities' representatives have perceptions based on specific experiences such as social projects mentioned here. The Inter-universities regional Programme that has been recently presented by the 4 public universities was also presented. This inter-universities programme has also an explicit concern with the territorial dimension of the social action projects that are relevant to considerate.

Given the relevance of the entrepreneurial viewpoint, this thesis takes the relevance of the fourth point of view based on communities concerns and proposes to revise them integrally.

## **6.7 Conclusions**

This chapter answered the second research question that is about the role that the public universities have been playing in the KBE-CR.

In the first section, the historical origin of public universities was presented, in order to explain how graduates from these institutions have been playing important social and political roles in the national scene.

Then, based on interviewees' perspectives, this chapter has presented how public and private sector, academics and central government representatives identified entrepreneurial and governance roles played by public universities. Passing through the evidence collected in this research, four points of tension were identified. Section 6.3 was focused on the first point of tension that was the role of teaching. The section explained how a narrow conceptualization of teaching reducing it to training to the workforce. In Section 6.4 the second point of tension explained how public universities are doing governance not only entrepreneurial roles in quadruple helix structures of knowledge. Section 6.5 provided examples to illustrate the third point of tension about how the link with the productive private sector is addressing conflicting pressure arising from the different elements of that sector, from MSMES to MNCs. In this case, public universities were the entrepreneurial partners. Finally, as a contrast to KBE-CR, section 6.6 explained the fourth point of tension that was about how communities' representatives understand the role of public universities. Communities' representatives still consider universities as "promoters of development" (Representative of La Perla. Interview 29, 2009).

These four points of tension can be related also to different discourses identified in the interviews. A first discourse could be defined as an academic discourse properly related to the KBE. It was about generative roles such as quadruple helix roles described above.

A second academic discourse was related to work with labour market solutions for multinational companies. A third discourse was the discourse of governance and developmental universities roles, being part of MSMEs productive private sector alliances. Finally, outside of KBE-CR, a fourth discourse was identified. It was the communities-representatives' discourse demanding social action projects. These four discourses were identified in both academics and non-academic representatives.

This diversity of roles is a reflection of the non-monolithic nature of the university. It was established in the starting point of this thesis. However, the tension inside discourses and concomitant roles were creating inconsistency. For example, it is not feasible to transform teaching into workforce training without considering the uneven distribution of the labour market described in Chapter 5.

The specific contribution to knowledge production was reinforced by roles such as being part of the national innovation system's institutional tapestry. The institutional role of the public universities had also been included in an academic discourse mentioned above. This discourse promoted the national innovation system; join to the central government initiatives. At the same time, this discourse was also related to the link with big companies and the effort to provide graduates to resolve the labour market demand.

There were also controversial generative and entrepreneurial roles inside academic discourses, in particular the commercialization of knowledge via selling services. As was mentioned, the topic of the intellectual property of public universities' knowledge is a very conflictive one. As with other political topics, related to the privatization promoted by the new economy, the patents or licenses or industrial secrets are part of the topics that divide inside the public universities' academics.

On one hand are those who wish to promote privatization of knowledge and on the other hand are those who wish to promote disclosure of public knowledge.

But in addition, the public universities are building the social tapestry in the peripheral territories, providing the support for local development. This is part of a different discourse. This topic will be presented in the next chapter, where an innovation system with a territorial dimension will be explored.

This multiple dynamic of the public universities as providers for multinational companies and for meeting the needed community needs is controversial and sometimes contradictory. The diverse discourses described above were opposed, for instance, in the debate about intellectual property or in priorities for funding.

In the Latin American context where many public universities have had social action projects, the context of the funding reduction affected that directly. Indeed, the social action projects that have been part of the daily role of universities in the past have been reduced at the present time because of the reduction of financial resources. At the same time, the entrepreneurial university model takes a more prominent place, forcing the universities to work with a market approach. This is probably one of the more controversial points, related with novel debates about ethics and autonomy in public university academic discourses.

In other words, the role of the public universities in general and UNED in particular has been diverse, described in four discourses. Public universities had been playing different roles, related not only to the KBE-CR, but also to the national innovation system, the productive sector and the communities. The roles played in relation to the KBE-CR and to the innovation system were close to the definition of the entrepreneurial university (Etzkowitz, 2011). Conversely, universities conserved and even improved their role in terms of social actions projects. That is the case of the Inter-universities initiatives in regional level promoted in Costa Rica since 2007. These social action projects were engagement and associative governance approach. They were based in communities' discourse, rather than the entrepreneurial model.

In summary, it is possible to indicate that the public universities were playing diverse roles that contribute not only in terms of specific actions but also in terms of public policies related to knowledge promotion and the national innovation system. These roles were identified in four different academic and non-academic discourses. However, these roles were also part of contradictory actions.

As a consequence, rather than structured roles public universities representatives described their contribution to the KBE-CR based on diverse understandings of higher education institutions responsibilities. In some cases these understandings were controversial or contradictory, creating internal conflict.

This is an implicit internal conflict within universities because even though they are non-monolithic institutions, the entrepreneurial generative discourse is supporting the attraction of the FDI-HT, while the engagement developmental discourse is promoting projects in a local level with a community-based approach.

As was discussed in this thesis, it is not possible to resolve regional development inequalities with a community-based approach from a FDI-HT attraction perspective. There is an important contradiction not discussed yet in academic spheres. The next chapter has been prepared to answer the last research question of this research, related to the public universities roles in order to promote a less unbalanced interpretation of a economy based in knowledge promotion.

## Chapter 7: Regional development in the knowledge society

### 7.1 Introduction

The purpose of this chapter is to answer the third research question; how can public universities contribute to a different interpretation of the KBE? Furthermore, can the UNED encompass economy, society and ecology in order to create balanced local and regional development in Costa Rica by the use of a KBE model?

As was presented in Chapter 5, being a discourse prepared for developed countries and promoted initially by multinational financial organizations, the KBE is defined by a market approach. As a consequence the KBE is, by definition, the model of the core regions and countries, to the detriment of the peripheries. In developing countries such as Costa Rica, the expression of the KBE can also be circumscribed to the presence of FDI, in particular FDI-HT and the rise of the service sector.

Nevertheless, the national economic scene engages a large percentage of the working population in so-called old economy activities, peripheral by definition to the new economy. The map of the labour market is also defined by the dynamic of the new economy, fragmented in relation to access to the national innovation system dynamic. These peripheries were described in Chapter 5 as *differentiated territories*, in which populations are looking for strategies to survive.

In Chapter 6 public universities' roles in KBE-CR, deduced from interviewees discourses, were presented. In these discourses it was identified that the communities demanded both the market approaches, which promote entrepreneurial roles, and the governance roles. The evidence for a more progressive role for UNED demanded by communities was also presented.

This chapter argues that territorial fragmentation into multiple small cores and peripheries is prompting new roles for the public universities on a regional level.

At the same time, according to the evidence, the learning region model proposed for KBE to promote regional development does not work for peripheral regions in developing countries. This is because, by definition, the learning region is closely related to the FDI-HT model. As a consequence, a learning region is not applicable for peripheries in a developing country. Peripheries do not have enough endogenous resources to catch exogenous resources such as FDI-HT. Consequently UNED representatives, as part of a distance learning university and principally as a public university, must try to adopt a progressive role in order to propose an alternative version of the KBE-CR model.

Drawing on documents and evidence provided during interviews, this chapter presents the scene as it was described by the interviewees and looks at the proposals identified via the contrast between national and international experiences collected during the fieldwork trip, the four academic and non-academic discourses identified in the interviews, and theoretical discussions.

A progressive role for UNED will involve obstacles. The main obstacle they faced is a result of the absence of a proper regional scale institutional model. This point will be presented in section 7.2. Subsequently, the analysis will move to explore the options that exist to resolve regional territorial fragmentation and the institutional proposals to overcome the problem. On this point, experiences of higher education in Costa Rica will be presented as evidence of opportunities for UNED to play progressive roles. Finally, a proposal related to the territorial social innovation system based on higher education participation in associative governance with a community approach will be presented.



## **7.2 The institutional uncertainties of the regional level: the absence of a devolution process**

As has been previously mentioned in this thesis, Costa Rica does not have a proper devolution process in place. Simultaneously, the territory has been divided into a number of small territories in order to decide political, administrative and planning objectives.

On the one hand, the country is divided into 7 provinces and 81 cantons for political-administrative reasons; the 7 provinces have representation in the Legislative Assembly that is part of the central government structure, but they are not a provincial government. In addition, the 81 cantons have local government with some attributions about management of territorial capital, but some of them are too small to be able to manage their natural and productive resources properly and are extremely vulnerable to the impacts of multinational companies' negotiations. The regional division in place at the moment was established in 1972 and ratified in 1982. However, there are as yet no proper regional authorities. Beside the absence of regional authorities, all the public institutions including the public universities do regional planning dividing the national territory in regions. Usually, this planning division divides the national territory in 6 regions.

On the one hand, provinces, cantons and regions have different territorial distribution. Simultaneously regions have neither an institutional nor a political role. That is to say, regions do not have a political presence, but are nevertheless the level on which the planning work of the public institutions occurs.

On the other hand, local government - 'municipalities'- are engaged in their own struggles to achieve more power by the promotion of devolution and decentralization processes. These struggles are related to the management of their own territories, as well as promoting local government federations to join forces in order to solve political and territorial conflicts independently of the central government power.

The non-overlapping of planning and political territorial distribution described in the last paragraphs promotes a tension in terms of power relationships on a regional level. It is the case that the absences of regional authority create a vacuum in terms of decision makers and institutional responsibilities. This situation exacerbates the vulnerability of regions. It is also important to consider how this conflict may be increased, when decisions about resources and development potentially have an impact upon regions' resources. The next table presents the distribution of territorial divisions in terms of institutional presence. Note again the overlapping of scales such as cantons and regional distribution, considering organizations operating on a political and planning level.

Table 7.1. Distribution of territorial and institutional structures by regions

<i>Name of the region</i>	<i>Local governments included in the region</i>	<i>Regional organization</i>	<i>Other organizations</i>
Central	45 cantons (distributed in 4 provinces: San Jose, Alajuela, Cartago and Heredia)		FEMETRON PRUGAM
Brunca	6 cantons (5 of them are in Puntarenas province and 1 in San Jose)	JUDESUR	
Chorotega	11 cantons (Equal to Guanacaste province)		
Atlantic Huetar	6 cantons (Equal to Limon province)	JAPDEVA	
North Huetar	5 cantons (4 of them are in Alajuela province and 1 in Heredia)		Special Economic Zone
Central Pacific	8 cantons (part of Puntarenas province)		

Source: Own elaboration

As the information in Table 7.1 shows, some regions are organized with an autonomous institution or private organization, which sometimes have economic resources but do not have an institutional representation.

Observe the territorial equivalence in terms of region and province territories in the case of the Chorotega Region and the Guanacaste province, and Huetar Atlantic Region and the Limon province, where the territory is almost the same. Nonetheless, there are no proper territorial authorities.

Besides this weak regional institutional structure, the regional level is used by public and private institutions in Costa Rica to present general trends, institutional reports and even strategic plans for institutional actuation. Paradoxically, the regional level has been important as a forum in which to overcome some of the problems related to the institutional disarticulation. For instance, during this research representatives of public institutions involved with community level initiatives limited by the absence of a proper regional structure were contacted. The next section explains some examples of this in order to explore how such an institutional, political and human tangle can work at the regional level.

### ***7.2.1 The problem of the different dividing lines***

In one of the interviews conducted, the representative of the SEPSA of the MAG (Interview 28, 2009) mentioned that:

“You have a small community over there, which is part of one region for one institution and it is part of the other region for another one. As a consequence, it is a ‘no man’s land’ in terms of the inter-institutional committee, because it is not possible to put all the institutions together there. Even local governments sometimes are not responsible for small communities because the borders were defined arbitrarily and the canton line *divided* the community into two parts.”

The problem about the non-overlapping of the official political, administrative and planning borders explained above is exaggerated by the problem of the idiosyncratic regional distribution defined by each institution.

As was presented in Chapter 5, the presence of the primary sector is still important in the peripheral regions. On this point, the institutional framework of the sector is relevant. Here is an example mentioned by the representative of SEPSA (Interview 28, 2009), illustrating the challenge of the primary sector organization. He pointed out:

“In the MAG we have the inter-institutional committee, called Agricultural Sector Regional Committees, which act in a regional level, in conjunction with all the other public institutions. Sometimes there are also universities’ representatives, when some university has a big regional university centre. They are part of the committee in the corresponding region. We also have Local Sector Committee (COSEL by acronym in Spanish), which works in a canton level. At the moment, the agricultural sector is called by a head of central government institution as well to present a new proposal for an inter-institutional organization in a regional level. This head of central government institution presented a proposal that is defining “territories”. These “territories” do not coincide with the Agricultural Sector regional Committee (CSRA by acronym in Spanish) or the COSEL either. As a consequence, everything has to be revised and to start again”.

This example mentioned above shows how the overlap of territorial distribution in cantons, regions and provinces promotes the problem of institutional coordination. It is important to ask here who is responsible for decision making in this situation. One should also note the vulnerability of these territories, deprived of institutional definition. The next section illustrates how important the decision as to who is responsible could be.

### ***7.2.2 The problem of institutional authority***

Again, the importance of the primary sector in the peripheral regions is relevant to this issue.

The fragmentation of the inter-regional territories was also confirmed in Chapter 5.

As a result of this fragmentation, the difficulty of defining the leader of the regional planning procedure is not surprising; this was addressed by the SEPSA representative. (Interview 28, 2009):

“In the past you have rural characteristics everywhere, and agriculture was an important activity. But now it is different. Have a look for instance at Guanacaste province. There are still a lot of areas related to agriculture; however, there are lots of areas dedicated to local tourism and there are also big international hotels. Other areas are National Parks. That is not only rural anymore. Rural development is not only about MAG as it was in the past. It is about ICT and MINAET as well. That is why I think that the leader of the development planning must be the MIDEPLAN”

This last example raised two important points for consideration. The first point concerns the different institutional authorities; the MAG, the ICT is the public institution in charge of tourism, and the MINAET. All of these institutional authorities are involved in a regional situation with others and have no power to lead the process. The interviewee (Interview 28, 2009) proposed that the MIDEPLAN should be the leader due to its institutional role in planning. Again the leader was defined in relation to the central government, rather than the local authorities.

The second point raised relates to the fragmentation and transformation of the regional context. Following the rise of the service sector, the reduction of the primary sector and the importance of environment protection projects, the regional context has been transformed dramatically. Some areas are still agro-vocational, while some areas are now services-vocational.

The challenge of the protection of the natural environment affects some small areas on a totally different level. Rural areas are now changing their landscape according to service sector activities such as tourism or even plantations, which changes their labour dynamic completely.

For example, regarding the example of the MAG actuation quoted above, the representative of SEPSA (Interview 28, 2009) pointed out that:

“The MAG has Regional Sector Agro Committees and Canton Committees. When the canton is very small, there are two or three cantons together to have a Committee. This Committee have spokesmen from each public institution related to agriculture. However, when it is to talk about regional development, I think it is very complicated. It is not suitable for the agro sector to be the leader of a development plan. Some people say that the agro sector is still the motor of development, but I think that it is not true”.

The observation offered by the representative of SEPSA -a public worker for the MAG-, refers to the difficulty of inter-institutional structures being effective in the planning, implementation and sustainability of development plans at the regional level. There are a number of problems related to the role of each institution and the question of which institution should take the lead. However, as has been presented here, the problem stems on the lack of devolution process.

The representative of SEPSA (Interview 28, 2009) also addresses the multi-dimensional meaning of development, in particular development when rural is not rural as it was characterised in the past. This is a very important point to consider, in particular because of the vulnerability derived from the lack of institutional roles, added to the transformation processes of the rural environments.

Additionally, the representative of InBIO Park (Interview 17, 2009) pointed out that:

“Some rural cantons still consider urbanization as the only way for development. For example, a candidate of the local government of a poor North border canton included the option of drying the *wetland* in order to transform it into cultivable land.”

The last quote is also an example of how the rural environment is changing. In this quote the contender defined development as a synonym of the urbanization process. However a *wetland* is a natural treasure and to dry it is an environmental destruction. Nonetheless, urbanization is considered the main option for this canton to achieve development. It is because development is promoted in terms of the central region conditions rather than in terms of the specific conditions of the peripheral regions.

On the contrary, the peasant inhabitants in the North border cantons who participated in the UNED documentary *Para que vuelvan las mariposas (To the return of the butterflies)*, mentioned above in Chapter 6 denounced the destruction of the natural environment. The North border cantons have environmental destruction basically caused by the pineapple plantations. In the documentary, the peasants also criticised the destruction of the productive and social tapestries in relation to the peasant productive structure.<sup>116</sup>

Numerous paradoxes related to the transformation of the rural areas of Costa Rica were detected. The transformation of rural areas converted now into peripheries by the new economy was evident. Points were made about the degrading of the landscape by FDI through the construction of big hotels, pineapple plantations or real estate business; in particular in the poorer areas where vulnerability due to a lack institutional presence was taken advantage of by endogenous and exogenous unscrupulous actions. Such interventions were promoted as development when in fact they resulted in destruction and demolition of the regional environment and productive local tapestry.

In summary, in the absence of regional authorities, three negative consequences were detected. First, each public or private institution corroborated its own definition for the regional distribution of the national territory, in concordance with its own subjective understanding. As a consequence, definitions of boundaries for regions as well as priorities of work in each repeatedly do not agree or overlap.

---

<sup>116</sup> See video [www.uned.ac.cr/multimedia/paraquevuelvanlasmariposas](http://www.uned.ac.cr/multimedia/paraquevuelvanlasmariposas)

Secondly, there was an absence of power in local and regional authorities to make decisions on regional territories. As a result, no control over the endogenous resources was evident. There was also evident a defencelessness in relation to endogenous and exogenous companies' investments which are resulting in the destruction of the natural environment.

Thirdly, the dynamic of an urban-rural binomial, which was characteristic of the old economy, has transformed into a new dynamic characteristic of the new economy - described in this thesis as a core-periphery binomial. The dynamic of core-periphery is associated with the presence of FDI.

Conversely, public institutions conducted alternative proposals for the regional distribution of the territory. One of these proposals was conducted by SINAC. It will be presented below as example of innovative models for regional development in Costa Rica.

### **7.3 An alternative for regional development: ecological models**

An alternative method for inclusion of the regional level is the ecological definition of a territory. The consideration of the ecological characteristics of a territory promotes consideration of the basic features of a social innovation model, rather than a traditional territorial innovation model which sometimes does not have roots in the specific region (Moulaert & Nussbaumer, 2005b).

An example was identified in the Ecological Management of the Territory (Gestión Ecológica del Territorio in Spanish).

It was promoted by SINAC, which is a division of MINAET. Representatives of SINAC and representatives of INBio Park developed the proposal. During this research, a group interview was conducted with the professional team that presented this proposal.



The representative of SINAC (Interview 22, 2009) pointed out:

“The Ecological Management of the Territory is still a proposal, because some articles of the Biodiversity Law which created SINAC were impugned in front of the Constitutional Hall of the Justice Supreme Court. As a consequence, we cannot yet act as a regionalized division, working as decentralized office.”

However, they had been working on a conceptual proposal based on an ecological approach. With regards to this proposal, the representative of SINAC (Interview 22, 2009) said:

“SINAC has its own regionalization of the country; divide it into 11 areas of conservation. They were originally only a kind of administrative division. [...] Then, a more holistic interpretation was proposed, including Coco Island as a marine area, and the regionalization was based not only on the natural support but it is combining social and economic variables to define a territorial distribution. [...] We have been exploring how the model of the central region is reproduced in the peripheral also and the more developed areas are the more environmental destroyed”

Furthermore, the representative of INBio Park (Interview 22, 2009) added that:

“The proposal has been defined by us, as a result of the Millennium Goals and agreements in biodiversity. Some countries such as Brazil or Bolivia have this kind of proposal, but the Costa Rican version is different because of the scale, our country is very small.”

However, the representative of the INBio Park in SINAC (Interview 22, 2009) team also explained the potential of this proposal:

“We can see biological corridors and small territories. People working for instance in organic agriculture, forest plantation or payment for ecosystem services can use it not only as natural environment regionalization, but social and economic also.”

Payment for ecosystem services is a concept promoted by INBio Park representatives. This concept refers to how local governments can promote private partners, such as national or international companies, who pay for environmental conservation as part of social responsibility or via research funding. Another strategy is research that identifies potential uses of natural resources such as the production of medicines (Interview 17, 2009).

Concurrently, as part of social innovation in peripheral regions, the narrow interpretation of development as synonymous with urbanization is promoting a predatory economic growth model in peripheries, with catastrophic consequences for the natural environment. Payment for ecosystem services has to be evaluated carefully as a market approach applied to environmental conservation; it presents positive as well as negative potential. For example who pays for the ecosystem services and how could be an issue for this proposal if the private partner who pays for the services imposes exogenous rules on the local community (Wunder, 2005).

Nonetheless, the ecological management of the territory proposal is valuable for a social innovation process; because it not only addresses economic growth but also applies a multi-dimensional concept of development. There was, for example, a new regionalization of the country defined by Ecological Management of the Territory SINAC-INBio Park project. This regionalization was based on the interrelation of the social, economic, political and natural support of territories.

As a consequence, there was a suggestion that regions located in North and South borders of Costa Rica are cross-border regions, in view of their natural, cultural and economic dynamics.

The cross-border dynamic was also mentioned in Chapter 6, with reference to the UNED experiences with students from Nicaragua, who are crossing the border to attend tutorial classes in an UNED tutorial centre in border territory. It is a fact that a cross-border dynamic everyday assembles a region that includes people from two countries, Costa Rica and Nicaragua.

Another important element integrated into this proposal is the necessity of including natural environment as a form of capital in the local governments' agenda of regional development. The case of the peripheral cantons is urgent because in many cases, the ignorance of the value of the natural environment promotes the adoption of exogenous investments that are in conflict with natural sustainability. This is the case with the pineapple plantations in the North border of Costa Rica.

In other words, natural capital or natural environment is very important because the peripheral cantons tend to adopt the urbanization process in a Central Region style as a method for development. However, as was presented in Chapter 5, the economic growth dynamic applied in the Central Region appears to be in conflict with sustainable development. Because of that, the ecological proposal promoted by SINAC-INBio Park must be studied. It is also important to consider the potential partner for payment of ecological services, in order to prevent simply a different version of exogenous control for peripheral communities being imposed.

However, even though the relevance of ecological considerations for regional development is not in doubt, this proposal based on ecological consideration was not yet implemented. As a consequence, the deficient regional institutional structure still represents an obstacle for regional development strategies. On the other hand, public universities are not a regional authority.

That means that public universities are not allowed to solve the institutional lack themselves.

As a consequence, the roles that public universities in general and UNED in particular, can play in the regional development of *peripheral territories* must be designed in the context of non-institutional authority, and in recognition of the new dynamic of core-periphery inside the regions. The next section addresses these points.

#### **7.4 The challenge of the regional imbalance resolution**

Before the proposal for regional development is discussed, it is important to mention the limited impact of action from the regional level on the global economy in developing countries, in particular from a KBE perspective. As mentioned in Chapter 2 and examined in Chapter 5, the KBE in developing countries is related to FDI, in particular FDI-HT.

In developing countries, this FDI-HT has also been identified as a catalyst of concentration rather than balanced development. Instead of the imaging of the Silicon Valley paradigm, the regional level has suffered the fragmentation and destitution of its traditional socio-productive tapestry (Cimoli and Correa, 2000).

Fernández (2001) pointed out that the post-fordism model, promoted in the 1980s, has a special interest in the territorial dimension. In the 1980s, capitalism changed from a vertical, structured form of organization to the so-called flexible accumulation. Flexible accumulation was a model developed to address a new kind of market that was more diverse, fragmented and specialized.

According to Fernández (2001), the organizational structure promoted in *regional economic development* is part of post-Fordism, related to the new economic paradigm. This new economic paradigm promotes the idea that regions are connected directly to the global economy, via networks. This is the focus of the learning regions proposal.

However, as was explained above, the learning region paradigm is not the solution to promote development in developing countries. By definition, learning regions are based in a concentration of resources that is difficult to accomplish in peripheral regions. Moreover, when that concentration of resources could be possible, the imbalance with neighbours' territories is also encouraged and the result is more regional imbalance.

Even so, small and medium enterprises networks located in peripheries try to be effective enough to be part of value chains. Usually in the KBE, a multinational company leads a value chain. As a consequence, in the new economy it is a very difficult task to build a value chain of small and medium enterprises when they are located in the peripheries. This problem is equally true for banana, pineapple, or software producers.

Concurrently, it is not clear if it is possible for all regions or small territories to be part of the new economy. Explicitly, it is not clear if it is possible for the peripheral regions to be part of the KBE, in particular in the KBE-CR. This is so because peripheries are *differentiated territories*. As has been defined here, *low instruction level population and marginal participation in new economy activities characterize differentiated territories*.

For instance, the representative of the MIDEPLAN (Interview 8, 2009) who is a central government representative pointed out that:

“It is not possible to think that all the country can be part of the KBE. Some peripheral regions have agro vocation and in that context, it is not possible to think that the KBE model can be over there.”

Furthermore, the representative of the Industrial Chamber of Costa Rica (Interview 16, 2009) who represents the productive private sector said:

“In Costa Rica you cannot go out of the Central region. There is not a good transport infrastructure or a ICTs infrastructure over there, at least not good enough to support the installation of a free economic zone related to high technology or services.”

In contrast, the representative of the ICTs Chamber (Interview 7, 2009) pointed out that:

“In our country, we do not have to think in closed clusters like they are in India. We can build here a more open model of clusters, because the social conditions and the infrastructure allow doing that. You have educated people and basic infrastructure such as electricity, clean water, and safety everywhere.”

This interviewee (Interview 7, 2009) is a member of the core of the KBE-CR. He was talking about the role of the peripheral regions in the KBE. Nevertheless, his concept is promoting a different conceptualization of regions and clusters. His response could be interpreted as presenting a new territorial perspective for KBE-CR, beyond the central region concentration.

As was addressed in Chapter 4, the infrastructure is considered a weakness on a national level. It is also a fact that the central region centred model has historically been promoted in Costa Rica. As a consequence, the marginal participation of peripheral regions in the new economy activities is also related to weak infrastructure, particularly roads, air and ICTs infrastructure.

For instance, the road network (in terms of length in kilometres) is distributed across the country in an unbalanced ratio; the Central region has 30% of it, followed distantly by the Brunca region in the south of the country with 17%, the North Huetar region with 16% and Chorotega region with 14% in the north of the country. These are the borders regions of Panama and Nicaragua respectively.

Simultaneously, 9.4% of the road network is located in the Central Pacific region and 12% in the Atlantic Huetar regions, which are the country's connections to the principal seaports<sup>117</sup>.

A further deficiency not yet addressed relates to the quality and coverage of the road network in Costa Rica. On one hand, it is considered a fact that there are not enough inter-regional road connections. On the other hand, climate conditions impact negatively on the road networks during the rainy season, destroying it partially and requiring parts of it to be constantly re-built.

As a result of the climate inclemency each year, or because of the terrible quality of road construction (corruption?), the truth is that the national road network represents a huge weakness in terms of the country's regional economic adaptation and geographical integration. This was one of the most significant points mentioned by members of the private sector being interviewed during this research.

According to the representatives of the private sector, central governments are not doing their best to resolve the problems related to the road network and this is affecting not only the national but also the international trade. It is considered one of the most important limitations to Costa Rican export trade.

In terms of the air travel infrastructure, the information available is the public investment in millions of colons, which indicates that in the last 10 years, most investment has been placed in the Chorotega region (40%) with the construction of a new international airport. The second region to place investment has been the Central region, with the modernisation of the most important international airport of the country. Finally, the Atlantic region has received 24% of public investment. There was no investment in the North Huetar region during that decade.

---

<sup>117</sup> Retrieved from MIDEPLAN information presented in <http://www.mideplan.go.cr> 28/11/09

With respect to ICT infrastructure, according to MIDEPLAN information quoted above, there is an important increment in terms of the number of households with a computer, which has grown from 18% to 36% over the same period in the Central region. It is remarkable that the peripheral regions have been increasing their percentages of the households with computers, from 5% in 2002 to around 15% in 2008. Even so, the percentages in the other regions are still half that of the central one, which has historically been the highest.

At the same time, the density of Internet connection has been improving, with the Central region having the biggest percentage, from 10% in 2002 to 15% in 2008. Simultaneously, there are two other regions growing quickly in this respect. They are the Chorotega region and the North Huetar region however the percentages are still lowest than the metropolitan area.

Since 2009, a ICE's representative has been part of the Costa Rican ICTs Chambers. This relationship has been part of a strategy to promote better results for both bodies. It is for ICTs Chambers to improve its institutional structure partners, just as it is up to ICE to achieve advantages as part of ICTs private sector network partners in Costa Rica. This is a good example of public-private alliance.

However, the topic of ICTs is an exceptionally political one in Costa Rica. During the interviews for this research, there were different opinions about the quality and coverage of the existing infrastructure to provide telecommunications services. The discussion about the privatization of the *Grupo ICE* is inevitably part of the debate about how good the public service provider is. The promoters of privatization do not usually discuss the coverage of services. They discuss rather the quality of the services in the metropolitan area.

On this point, while some representatives of the private sector considered Costa Rica to be stuck with an old and inefficient public service agency (Interviews 7, 13 and 16, 2009), those who still considered that the ICTs service must be provided by a public agency, believed that the ICE services are good (Interview 9, 2009).



In summary, firstly, it is a fact that the new economy promotes concentration and it is opposite to the development of the periphery. Secondly, the lack of an institutional framework and the absence of a devolution process in the regional level increase the difficulty of proper regional development actions in Costa Rica.

Thirdly, the presence of different kinds of FDI nationally is putting pressure on the central government to resolve the peripheral regions' infrastructure problems.

The concentration of infrastructure and economic growth in the Central Region of Costa Rica is the consequence of a centralized economic model that has historically been encouraged. In addition to this, the new economy promotes fragmentation by exacerbating the concentration of activity in the Central Region. Given the concentration of technology and resources, the KBE-CR as it has been applied in Costa Rica does not offer a method for solving uneven regional development.

On that scenario, the role of public universities to promote a more balanced version of KBE-CR must consider the difficulty of peripheries to participate in the new economy dynamic. Taking this into consideration, productive sector needs in peripheries could be understood from the perspective of a social innovation system with a territorial dimension.

However, the work of public universities to promote a social innovation system with a territorial dimension is still controversial. This is because of the interaction of the four internal and external discourses of universities roles mentioned in Chapter 6. In the next section, some evidence documented during this research show how higher education institutions are in the middle of these controversies.

### **7.5 Difficulties of social innovation system with territorial dimension**

In this thesis, the topic of regional characterization has been presented from different perspectives (Gunasekara, 2006; Tödting and Trippel, 2005).

The argument put forward in this section attempts to explain the proposal for a social innovation system in order to promote balanced development, as was proposed in Chapter 5. Summarizing conditions in the peripheries, the effect of FDI nationally promotes a fragmented labour market dynamic that at the same time encourages socio-productive changes. The so-called new economy is attacking the tissue of traditional production systems in Costa Rica.

This thesis suggests that the fragmentation of the territories has resulted in a division between the core and the periphery of the country. This division of the territories depends upon participation in the so-called old economy and the new economy. Rather than a learning region model, this research proposes to consider a social innovation model with a territorial dimension. In this point, a region is a social territorial units constituted as a differentiable territory (Coraggio, 2009) in terms of social, economic, and political dynamics.

Regarding an innovation system with a territorial dimension, differentiable territories (Coraggio, 2009) must be presented from a territorial social innovation approach (Moulaert and Nussbaumer, 2005a and 2005b). This approach coincides with the idea that endogenous development is the result of complex dynamics on the local level (Vazquez-Barquero, 2007) and of the optimal structural condition rather than just the promotion of a cultural transformation (Scott and Garofoli, 2007). In order to schematize this presentation, features of innovation have been defined as they were explored during the interviews: the core of innovation, the public institutional frame and the cultural elements (Moulaert and Nussbaumer, 2005a).

Regarding the core of innovation, the views of those interviewed from different sectors were divergent. The representatives of the academic sector and central government identified education as the core of innovation. However, institutional reform was defined as the core of innovation by some representatives of the private sector, in particular members of private organizations located in the centre of the KBE-CR (Interview 14, 2009).

According to these interviewees, institutional reform will be necessary in order to generate a more flexible public structure.

In relation to this last point, representatives from all sectors recognized the role of the public institutional framework as relevant. However, while some representatives of the academic sector defined the role of the institutions as structuring innovation and development in general, members of the private sector and even representatives of the Ministries of the central government defined the role of the institutions as a supportive one only.

The conflict inside different discourses concerning the role of the public institutional framework was explored in Chapter 5. The argument put forward in this thesis is that the role of the public institutional framework is questionable when we consider the functioning of a para-institutional private structure, which is perceived as efficient in the logic of the new economy that is, by definition, the opposite to peripheral development.

The cultural elements were perceived as at times the best promoter of innovation. For all those interviewed who believed in the Costa Rican historical difference, in contrast to neighbouring countries for instance, the culture is the clue to continuing a development style which has equity at its core (Interviewed 1, 4, 6, 34 and 40, 2009). However, others interviewed, in particular the representative of the private sector and central government ministries (Interviewed 3, 14, 15 and 16, 2009), claimed the opposite. According to the representative of CAATEC (Interview 14, 2009):

“In this country having money is a sin” (Interview 14, 2009)

Opponents to the idea of cultural elements as the key to developmental reform presented the argument pointed out above. This argument referred to the stereotype of the passive Costa Rican style of education as the opposite to entrepreneurship.

Regarding the discourses described in Chapter 6, entrepreneurship is important because it is considered a symbol of cultural transformation in the new economic paradigm. This is also an aspect in the claims made against the higher education system.

Members of the core of the KBE-CR identified the weakness of entrepreneurial culture in the curriculum in general. For example, the representative of the Ministry of Economy (Interview 3, 2009) claimed that:

“Our universities are still creating employees rather than entrepreneurs”.

The last quote is also an example of the pressure over public universities curricula, because the implicit claim relates to the passive role of university graduates. In other words, it is pointed out as a weakness.

With reference to the territorial dimension, an absence of a national territorial consideration is evident. The only territory mentioned refers to the Central Region. This aptitude was not new and it is possible to affirm that it was not a consequence of the topic explored during the interviews. It is the usual territorial aspects of the issue that people use in Costa Rica to discuss development. As a representative of the Atlantic Region CRI (Interview 49, 2009) pointed out:

“The proposals that people presented to resolve the peripheral regions needs are usually meseteras.”

*Meseta* means plateau in Spanish. *Meseteras* is a common adjective used by populations in the peripheral regions of the country.

It refers to ideas promoted for regional development. They are usually projected from the central plateau to peripheral regions. It is not an expression with geographical substance only. This expression denounces the imposition of the ideas from central onto peripheral regions. In many cases the characteristic standardization of the ideas proposed from the central region express the ignorance of the real conditions in the periphery.

Consequently, during this research an explicit question about the role of the regions in the KBE-CR was included in the interviews. In response to the call for attention pointed out in the Atlantic Region CRI interview, the proposal presented in this chapter explores the link between the national innovation system and the territorial dimension on a regional level within the country, in order to avoid the plateau approach described above.

Nevertheless, even with *meseteras'* initiatives, the evidences collected here suggested that public higher education institutions were making a contribution to promote regional development with a less imbalanced territorial model. Although these initiatives are not social innovation systems models yet, they are promoting value chains and social innovation processes with a territorial dimension. The next section presents examples related to a new regionalization proposal and to a university contribution model. All of these examples were consistent with the idea about regions as differentiable territories.

#### 7.5 Alternatives for social innovation process: value chains encouragement

The preconditions of each region, or even small territory, before the arrival of the new economy have been an important factor in defining the impact of the new economy model. The capacity of each territory to confront the new economic model and to try to be part of it is also important (Fernandez, 2001; Tödting and Trippel, 2005; Vázquez-Barquero, 2007).

This means that old urban territories were better prepared to incorporate different economic activity than the old rural ones. This has exacerbated the long-term process of fragmentation. Fragmentation between core and periphery is arguably a key element of the global dynamic (Christopherson and Clark, 2007).

In contradiction to this, a recent recipe for regional development was defined as the ability to attract FDI, the inclusion-exclusion in the global value chains that has many limitations (Gereffi, 1999).

It is a fact that value chains have different manifestations (Gereffi, 1999). However, the general model of global value chains is based on exogenous investments.

This does not only apply to the national scene, but the global market dynamic as well. Furthermore, it explains the presence of important firms in some territories. Simultaneously, the effect of such exogenous investments is the correlated creation of the new peripheries. This is fundamentally related to the territorial fragmentation of each region's capacity for participation in the national economy.

As a result of this, the strategies in place to connect development and territory have to be based on a model that considers peripheries rather than central concentration. It is a different logic that the KBE which is concentrated in the core areas. The proposal here is a new social innovation system (Moulaert and Nussbaumer, 2005a and 2005b) focused on peripheries in Costa Rica. This system is based on small differentiable territories, created in relation to the specific potential of each small territory. The experience of the public universities, in conjunction with the productive sector, in the small communities is also relevant here. Two examples are presented below in order to illustrate universities experience in this topic.

The first experience documented was part of the social action projects of UNED, promoted by the Environmental Education Centre of UNED. This specific experience documented here was one of the inter-universities initiatives. This initiative was briefly mentioned in Chapter 6. Here it is incorporated again as an example to illustrate the role of public universities in knowledge transference for poor communities located in peripheries. Its title was "Development of sustainable production models for small producers in the North Huetar Region of Costa Rica".

This initiative was working with six associations of peasants in North Huetar Region communities in Los Chiles canton. Some of them were women associations. They were working on vegetables, farm, cheese and milk production.

According to the peasants, needs related to basic infrastructure, seeds and production processes in general were urgent to be solved.

A multi-disciplinary team constituted by 13 professionals from UCR, ITCR and UNED conducted the training. This multi-disciplinary team was possible because three public universities worked together as part of CONARE's initiatives described above in Chapter 6. The professional team proposed training in organic methods. The groups of peasants were trained using a "learning by doing" methodology.

The first step to this initiative was to identify all groups' needs related to production processes. Then, the multi-disciplinary team applied knowledge to improve production by the use of cheap organic practices. Vegetables such as lettuce, celery, onion and basil were produced. The products were commercialized on Saturdays in local peasants' agro products fairs, as well as in restaurants and hotels located in the same community or in the region. The next pictures show infrastructure changes prepared for vegetables production.

Picture 7.1

Vegetables production in the community of Canalete, Los Chiles, Costa Rica



Land as it was when the multi-disciplinary team arrived to Canalete, Los Chiles



Infraestructure build during the project to produce vegetables

Source: Final Report of the project.

Contribution of Dr. Jaime García an UNED academic who worked in this initiative.

Another crop produced was forage. A complete training scheme to produce and store forage was conducted. Firstly, for those who work with livestock, perennial forage was produced in order to reduce cyclical costs such as seeds and land preparation. Secondly, materials and production models with capacity to adapt to the environmental conditions were studied. Thirdly, some different biomass forage high productive species and quality types were tested. Finally, fresh and stored methods for forage were tested in order to produce forage in association with other local plants and trees.

This initiative was conducted with high control by peasants and professionals working together. All data about seeds, cycles of production and storage were analyzed and the results were presented in reports. The initiative was a success. It will be replicate in other communities with similar conditions in peripheral regions.

This model of public universities working with poor communities to promote local value chains has been applied in many communities before. That is the experience of the Centre of Environmental Education of UNED. This programme is part of its social action activities.

Another experience documented which was notable was a private university working with an ecological scheme; the EARTH University. The EARTH University works according to an ecological definition of territories: the humid tropics. The ecological concept gives the university the opportunity to transcend a narrow approach. According to the representative of Continuing Education of EARTH (Interview 33, 2009):

“The university decided to work about ecology rather than about country, because the humid tropic is a cross-border characteristic, beyond the political problems. It can represent Central or South America countries equally than it can represent countries from other continents. At the same time, humid tropic countries are very poor, depending on agriculture whose practices are opposite of the sustainable development. Because of these reasons, the EARTH works as a regional university.”



In terms of teaching strategies, in the past EARTH has worked with representatives of the public institution and producers on a local level, but because of a high employee turnover and the difficulty of sustaining such efforts, the university decided to work with high school lecturers from technician high schools. The representative of Continuing Education of EARTH (Interview 33, 2009) pointed out that:

“Costa Rica has a good technician training skills. There you have INA for instance, for people who already finished high school. But, we have a big group of population who never finished the high school. This group who did not graduate in high school is the indefensible group in terms of training. Because of that, we decided to work with lecturers of the technician high schools. They will be lecturers forever, so you have safe the sustainability of the process. We created a workshop which prepares lecturers to teach technician high school students of year 9 in technical skills to present a productive project, conducted in the technician high school where they study.”

The representative of Continuing Education of EARTH (Interview 33a, 2009) also said that these lecturers organized a national contest to attract “angel investors” and get financial support for the productive projects presented during the competition.

“The process has been successful. Because of that, the MEP, the EARTH and the Cooperative Group (Movimiento Cooperativo in Spanish) signed an agreement to support the idea to include the workshop as part of the official curriculum in year 9 of the technician high schools. The workshop is called Exploratory Workshop for Business ideas. During this workshop, all the students in year 9 get training in entrepreneurship with collective approach, rather than just an individual goal.

If these young people abandon high school after year 9, as it is usual in our country, they have at least an idea about how can they create a business with collective perspective, as the cooperatives promotes.

There are also the young people, without a high school degree. We continue our support also with them. [...] These projects proved that all that you invest in agriculture sector in the rural areas in Costa Rica, give you a lot of ‘profits’.”

EARTH also works with peasant settlements of IDA, IMAS and international cooperation organizations such as the Spanish International Cooperation. The academic project starts with undergraduate students, but gradually the process includes applied research, focusing on the improvement of the quality of agricultural activities. As a result of this academic project, EARTH runs the Promoting Sustainable Markets (PROMES by acronym in Spanish), that work in the North Huetar Region to encourage local value added chains and eco-tourism.

Universities combine their associative governance role, promoting alliances between public institutions, with a generative role because it is an incubator project (Gunasekara, 2006). The introduction of a collective dimension for entrepreneurial initiatives is a positive contribution to this dynamic. The negative here is the possibility of financial sustainability; usually national banks do not have funding for high-risk business such as local initiatives. As a result, EARTH promoted IMAS participation. However, this is not sustainable in the long term. Again a national project promoted by the central government is needed in order to guarantee financial sustainability.

This is also an interesting example for the evaluation of tensions described in Chapter 2, concerning satisfaction of public, private and collective needs via the use of public and private capitals.

Drawing on concepts described in interviews, the capacity of universities to promote development on a regional level has been explained. It has also become clear that there is a need for a new glossary, in order to consider a different approach. The next section addresses this issue.

## **7.6 A glossary for social innovation system**

Drawing on the theoretical framework of regional analysis, the argument this thesis has made is in terms of multi-level institutional structures rather than regional organizations (Pike, 2009). It is not about bounded territories, but the notion of a national project with local dimensions - in plural because the specificity of different peripheral regions. This section presents a conceptual framework for this social innovation system.

The social innovation system has been proposed in reference to the social region metaphor and community-based approach of Moulaert and Nussbaumer (2005). It can be described as an ecological approach that allows working in terms of differentiable territories (Coraggio, 2009) constituted as core and periphery. The argument made is that the peripheries have similar conditions in terms of the difficulties involved in being included in the social-productive dynamic of the new economy.

Any exercise to define an exhaustive list for community development dimensions would be insufficient. However, following Moulaert and Nussbaumer (2005) it's proposed that there are four kinds of capital: Natural, Institutional, Human and Business Capitals.

### ***7.6.1 Natural Capital: environmental resource***

Natural capital is very important in the peripheries. As was mentioned above, a new competitiveness index that can give value to the natural environment is urgent. The natural capital should be considered not only as a resource, but also as a capital itself.

Public universities are producing and transferring knowledge related not only to the protection of the environment, but also to production methods that have a sustainable approach. Research about sustainable production has to be reinforced.

It is also necessary to assess the value of the natural environment in order to include these methodologies into a new competitiveness index, with a community-based approach.

### ***7.6.2 Institutional Capital: relationships and organizational provisions***

The role of the universities as promoter of social networks has been an important contribution in governance roles (Gunasekara, 2006). In the absence of the national project and the coordination of regional authorities and local public institutions, many communities have been helped by the role of the public universities as social weavers.

### ***7.6.3 Human Capital: qualified people to solve the development demand***

The usual literature about innovation and higher education describes the relevance of the professionalization of skills in order to reinforce labour markets, capable of addressing new demands.

The academic role of public universities in a regular innovation system is related to the professionalization and the training of the existent labour force via strategies like lifelong learning. In the peripheries, the relevance of a more creative approach is evident. Given the deficiencies evident in the instruction level, the challenge of the peripheries is the existence of a population that lacks high school level or even the lowest instruction level education. As was mentioned, UNED has CONED, which is a distance high school project. In this way UNED is addressing the problem of population without high school level of education. Distance learning is also pertinent for lifelong learning and other academic strategies to improve the qualification of populations in differentiated territories.

These kinds of strategies allow for resolving different necessities such as economic transformation inside peripheral communities.

The training of unskilled populations in order to add value to local production processes, mentioned in Chapter 6, is also an important example. The agro-producers populations are part of significant groups that require training in order to improve gains over local production.

Women as a group relegated from social and economic development deserve a point apart. As was cited in Chapter 2, the feminization of poverty in Costa Rica has also been identified (Chant, 2000). As Chant (2000) also pointed out, the inequalities transcend gender, race and class divisions. In this sense, the experience of UNED has been satisfactory providing an opportunity for women to study in a higher education institution. The idea is to continue resolving inequalities, in particular with vulnerable groups such as women. As Katz et al (1993) pointed out that:

“On a daily basis and over the long term, women must move to secure their economic support, integrate their productive and reproductive activities and take advantage of opportunities for personal development and autonomy. [...] Their capacity to do so is often severely constrained by ideologies about sexuality and appropriate behaviour for women, by the responsibilities of their gender roles and by a variety of political, economic, social and environmental conditions”. (Katz et al, 1993: 266)

In relation to feminist geographies, UNED has a testimonial video, produced by the Audio-visual Department of UNED titled *To build the future (Para construir el future* in Spanish), in which female students from different academic levels, tell their experience of how geographical location, motherhood or living away from family was not an obstacle to them getting a job, a postgraduate qualification or finishing the undergraduate degree, because of the opportunity UNED gave to them. The next quote is a testimonial by a Masters student and provides an example of this:

“I decided to study at UNED because it fitted my lifestyle the most; also it was the only higher education institution that existed here at the time. Also, in my situation, I didn’t want to be away from my family and I wanted to keep participating in different community development activities because I like to participate with the committees. And to be honest, it was these factors that made me keep studying with UNED.”

This account corresponds to an interview of a privileged woman, who decided to improve her horizons via a postgraduate qualification in a distance learning university. Many other cases show UNED students who are supported by distance learning model. There are many women just starting the process of someday getting a proper paid job. These women make up the majority of UNED’s student population.

Another video – also mentioned in Chapter 6 - includes references to another important group of families that is constituted by workers –women and men- of the small peasant communities in the North border of the country, who are experimenting with sustainable technologies for agro-ecological production, even though they have a pineapple plantation close to them. This group can be considered an example of resistance (Katz, 2004) in terms of their production technology and the so-called *organic products*; growth as an example of an ecological vision for community life. This group receives training in organic production systems via the Inter-universities Regionalization Programme of CONARE mentioned in Chapter 6.

Finally, an example that can illustrate the pertinence of the community-based approach is the existence of the cross-border regions. As was mentioned in Chapter 6, some UNED students come from Nicaragua. They are an example of the existence of the cross-border regions.

These types of regions are a better example of the community approach because, despite the borderline imposed by political dynamics, these regions survive by doing a very important territorial integration, involving all the four capitals mentioned into their daily life. Cross-border regions also illustrate differentiable territories as a crosscutting concept, given the applicability of the concept in that kind of territory.

The women building a new life for themselves in the communities working to change quality of life via organic production and the populations crossing the border to study are examples about what human capital means in peripheral areas. Extensive and diverse, the populations in the peripheries demand specific alternatives. These alternatives are not only required for the unskilled population, or only for men. They are required for the populations that are excluded from participating in the new economy in a number of ways.

The final idea to consider is the promotion of universities' actuation in engagement or in generative roles (Gunasekara, 2006), from individual initiatives to organizational structures (Etzkowitz, 2011). As has been explained by many authors such as Scott and Garofoli (2007), to develop an entrepreneur's environment rather than a promotion of individual initiatives, the proper structural conditions of a business framework are needed.

#### ***7.6.4 Business Capital: investment in infrastructure and economic support***

A competitive territory definition for the community approach is that which can generate welfare for its population, which has the capacity to include all dimensions of the community in order to achieve development, rather than just economic growth. Because the territorial dimension in question here is the peripheries -urban or rural-, the implicit concept of resistance, reworking and resilience as conceptualized by Katz (2004) is also relevant.

Related to this is the challenge presented to UNED in terms of how to retain local talent in the original territory. With regards to this point, the creation of entrepreneurial culture and professionalization of the labour market are not the result of isolated promotions.

Rather, this must be the result of a national project with a local dimension that has a community-based approach. It is important to mention here the example referred to above, applied by EARTH University, in which entrepreneurial training is incorporated into a collective or associative model such as cooperatives.

This model has the potential to be more sustainable for small businesses that usually have problems surviving because of the absence of a real added value chain (Gereffi, 1999). The peripheries have to create a new version of these value chains, directed towards local markets, rather than to a multinational company structure.

Before concluding, it is important to mention that the tensions identified in Chapter 2 are part of the community-based model for regional development. These tensions have been identified as manifest in three specific ways: firstly the interaction of public-private and collective capitals in order to resolve needs satisfaction. In relation to this, the use of institutional resources constitutes an important element in peripheries, given the limited endogenous resources. The social actors' engagement in building a sustainable community project is also of significance here.

Secondly, there is evidence of tension between core and peripheral areas. Defining the last as differentiable territories, peripheries have to construct a different model. Here the suggestion is for a community-based model.

Thirdly, there is a tension in terms of the universities' role. Some projects are part of a generative style, while others take on a developmental role. In fact, peripheries need an important contribution in terms of public universities assuming their scientific responsibility, scientific responsibility as defined by Hinkelammert (2003).



## 7.7 Summary

This chapter has addressed the third research question, related to the pertinence of the KBE for a developing countries context. Even when the KBE is encouraged as a model to promote development, the truth is that in developing countries the KBE is related to FDI-HT, which is concentrated in core regions. Given that fact, an alternative model for development has been proposed.

The first task to address is the absence of regional authorities. The absence of a proper devolution process is probably the most important aspect here. It is important to mention that universities are not regional development agencies; however, they can play a role in promoting alternative models.

The second task to address was how universities were doing contributions at the regional level via the promotion of productive value chains with local roots. These value chains were promoted from alternatives models. Rather than the inclusion in a multinational company's value chain, universities were making efforts to encourage local producer. The strategy of knowledge transference and promotion was the clue to achieve productive goals.

It is also about examples of resistance, working in a different logic of the new economy, recovering the primary sector workers, by providing them with alternatives not only to produce food and but also to be part of a local economy.

Finally, the different roles that the universities can play are part of the tensions that need to be resolved. The generative role has been closely related to the productive private sector.

According to the representative of the inter-universities regionalization project evaluation (Interview 46, 2009), the weaknesses of the process was related to the absence of a conceptual discussion about regional development, as well as the difficulty of proper articulation among universities:

“The good and bad of the North Huetar Region CRI was the adoption of a pre-existing structure. It was positive in terms of results because they concentrated the efforts to achieve objectives, but it was not a positive experience in terms of the inter-universities structure building. We have to wait until 2011, to appreciate the process of a real regional inter-universities structure.”

The last observation is relevant in terms of the difficulty for the public universities to build a new experience on the regional level. According to Olguín et al (2010), the necessity there for a wider discussion about region, development and regional development was detected. The need for a proper conceptual framework for regional development in relation to the public universities actuation is very important, and will be discussed in the next chapter.

The fourth discourse is the discourse of communities. KBE-CR has led to public universities supporting community initiatives. Regarding the role of the public universities participation in the national innovation system structure, this is related to the production, protection and transference of knowledge.

In Costa Rica, as in other Latin American countries, the relation between universities and society as a whole can exist not only through teaching and research centres, but also through the *social action* activities. This is the other facet of the public universities' role in the country. As a consequence of this, community members quoted in this research consider public universities as development promoters.

Teaching includes social action projects via the TCU. The research centres have the capacity to include innovation in the productive sector; while the social action initiatives have been the third task, traditionally informed by attention to the communities and social needs.

However, a recent demand, identified in this thesis as the market approach, is prompting the public universities to organize a different kind of social action that is more related to a strategy of linking universities with productive sector initiatives.

As mentioned above, there is a very important difference between the *social actions* as was traditionally achieved by public universities and the demands made through the linking of universities with the private sector, which has been growing in the context of the new economy.

In this research, the traditional social actions as well as the link with the private sector were considered relevant. Both the social action projects related to engagement and associative governance (Gunasekara) and the entrepreneurial university strategies (Etzkowitz, 2011) were documented. It is clear that these two roles sometimes generate a conflict, given the difference of approach. According to the representative of Administrative Vice rector of UNED (Interview 43, 2009):

“Sometimes the universities confront a social demand and others it is a political one. The objective is to respond to the Costa Rican society. [...] In relation to the demand from public or private sector, the idea is to work with everybody in balance”.

Moreover, the experience constituted by the traditional social action and the new private sector negotiations give public universities the required familiarity to have a very inclusive role.

This is because of the fourth discourse evidenced; the role of universities as promoters of development. This role is demanded by poorer communities in the country; as was explicitly mentioned by participants in the CIPET event in La Perla San Carlos presented in Chapter 6 and confirmed by the references to a social innovation model with communities as base referenced in this chapter.

## **Chapter 8: A new approach for knowledge economy in developing countries**

### **8.1 Introduction**

With a summary of the three research questions addressed in this thesis, this chapter presents the key findings of the research. It will then go on to offer suggestions for a conceptual framework of the KBE in developing countries, thus contributing to the theoretical debate surrounding the pertinence of regional development models. A contribution to the debate about universities' role in regional development models with a community-based approach is presented. Finally, topics for further research are suggested.

Important conditions under which these findings are being presented should be highlighted; the absence of a national development plan with regional scale as well as of a devolution process are two obstacles to consider when addressing uneven regional development in Costa Rica.

Regional inequalities are one of the most important problems in public agendas, in particular for public universities. Communities' representatives in peripheral areas considered the role of public universities as development promoters. As a result of these two factors, questions about how public universities can contribute to solving regional inequality in the context of the new economy or the so-called the KBE are pertinent.

The research findings presented here can contribute to elucidating the KBE as part of one open economy dynamic, attracting FDI in a small country.

The review of universities' experiences shown illustrates how a community-based approach is viable as a method for promoting alternatives to the KBE model.

## **8.2 Findings of this research**

This section provides a summary of the findings, reviewing the empirical chapters presented above.

### ***8.2.1 An open economy with a multi-faced reality***

The first research question is: Has Costa Rica become a more knowledge-intensive economy in the last 30 years? Furthermore, what does a knowledge-intensive economy mean for a small developing country such as Costa Rica? And does the KBE have a territorial manifestation in Costa Rica?

This thesis proposed that rather than a proper KBE, the model promoted by the Costa Rican KBE (KBE-CR) is an open economy in which FDI attraction is at the centre. This FDI attraction is related to high technology (FDI-HT) among other kinds of FDI attracted. In terms of territorial manifestations, the KBE-CR is concentrated in the Central Region. In terms of institutional organization, the KBC-CR is grounded in a social network rather than a public policy.

Related to the economic model, findings in Chapter 5 indicated that in fact, the economic activities in Costa Rica have been changing over the last 30 years. These changes were related to the start of an open economy model, based on export and the attraction of FDI. In the 1990s, the central government promulgated the 7169 Law in order to establish the relevance of science and technology for the development of the country. The attraction of FDI was to be related to high technology industries and more value added economic activities.

According to the evidence integrated here, the prerogative declared in the 90s related to what FDI priorities had not been accomplished and as a consequence, a variety of FDI have been installed in the national economic scene of Costa Rica.

Evidence shows that different kinds of FDI have been installed in the country territorially, with a concentration of FDI related to high technology and value added industries in the Central Region. Primary sector and less added value activities have tended to be located in the peripheral regions, exacerbating the unbalanced economic growth scheme, historically existent in the country. At the same time, the Social Development Index's (SDI) highest scores were concentrated in the central region. These central region cantons were also registered as urban territories. Conversely, the lowest scores of SDI were concentrated in the peripheral, rural cantons.

Regional boundaries defined in 1973 by a planning proposal have, however, been diffused by the new economy. Inside each peripheral region, some cantons are still relegated from the core of the country's economy. Simultaneously, others cantons are slowly moving from agriculture to service sector activities. The relevance of different kinds of FDI in peripheral regions is related to national territorial fragmentation. As a consequence, recent fragmentation within regions is redefining regionalization for the country. This new regionalization is related to the local labour markets. For example, rural areas in the past have been transformed into pineapple plantations or big hotels with very different consequences for local labour markets. At the same time, the historical relegation of peripheral regions difficulty a skilled population to work in the recent increased services sector.

Simultaneously, because the KBE-CR was related to FDI-HT more value added activities were concentrated in the Central Region. Initially, one specific multinational high technology production company promoted the process.

Its assembly parts plant installed in the country in 1997 made a difference in terms of economic figures in the country.

More than 10 years later, the KBE-CR is still connected to this company and its partners, who tend to be part of the service sector economic activities. The economic dynamic of this multinational company affected the wider economic structure of Costa Rica.

For instance, export reports and GDP indexes with and without this multinational company participation were examined and showed that this activity is concentrated in the central region; the Central Region is the territory of the KBE in Costa Rica.

From the study of the labour market it was possible to see the dynamic of the FDI in Costa Rica. Firstly, a difference was observed between central and peripheral regions. Rather than an exception, this case study demonstrates a significant trend of the FDI in small countries. The FDI related to high technology human capital and resources concentrated in one region exacerbates regional differences. Simultaneously, the dynamic of the FDI outside of the central region is fragmenting the traditional productive fabric of the country, creating differences among and inside the regions. It was also observed that rates of unemployment and poverty in peripheral region were increasing rather than descending in the last 10 years.

A significant obstacle to work at the regional level is the fragmented institutional scenario, largely inherited by the permanent restructuring of public institutions, promoted since the 80s and the Washington Consensus. The absence of a proper regional structure and regional authorities is one important deficiency to solve in addressing regional development projects.

In consequence, related to the territorial manifestations of the KBE-CR, this thesis proposed to study the Costa Rican regional inequalities as a core and peripheral imbalance, rather than an urban-rural imbalance or Central and peripheral regional imbalance. The terms of core-periphery imbalance considers the role of each territory, whether it is a region or a canton. Based on the territorial manifestation of the KBE-CR and the presence of the FDI, territories can be differentiated by participation in the labour market of the new economy in general, and the KBE-CR in particular.

In terms of institutional framework, the evidence collected in this thesis showed that the promotion of KBE-CR had been supported through a social network rather than a public policy.

The KBE-CR network was constituted of central government, private sector and some academic representatives. This network was based upon para-institutional functioning as a substitute for a proper public sector structure and was established with a market approach. Its main role was to facilitate FDI attraction.

The social tapestry of the KBE-CR showed participation of people from different sectors such as academia, central government, private sector and NGOs. In the warp of this tapestry different groups were identified; these groups were made up of inter-sector representatives that provided a structure for the KBE-CR. The weft was based upon 3 relational networks: the central government net, the academic net and the here called para-institutional net, which are essentially private organizations. In other words, the warp was based on a para-institutional dynamic, while the weft had a para-institutional net constituted by new economy promoters. These promoters were specifically focused in private objectives. The private organizations' representatives also demanded a more active role of central government and public universities inside the KBE-CR dynamic.

Inside the KBE-CR dynamic, four different points of tension related to public universities roles were identified. These four points of tension were also understood as four different discourses putting pressure on public universities to play contradictory roles. This point will be discussed in the section 8.2.2.

In summary, the answer to the first question is that Costa Rica, rather than a proper KBE had been promoting an open economy that is related to the attraction of high technology companies installed in the central region, while the rest of the country continued to be part of non-intensive knowledge economy activities. This has territorial consequences because it exacerbates the inequalities between regions, and institutional consequences because it is dividing the efforts into a market approach strategy versus a public policy approach with different social groups and different territories included.

It is a fact that regions are not monolithic entities.



However, in the national scenario, the fragmentation in terms of territories and in terms of institutions is an obstacle to solving regional inequalities. This is because it is not easy to organize a regional proposal, particularly in the absence of proper regional authorities and a national plan with a regional scale.

Moreover, a KBE-CR focused in the Central Region and in very specific economic activities, with weak local value added chains, was seen to be exacerbating the national fragmentation. The trajectory of the country into the new economy is still weak, especially in terms of public and private alliances and the building of local value chains to generate links between multinational companies and smaller, local enterprises. In this context, the network supporting KBE is dominated by resultant tensions of power relations. Human, financial and technological capitals represented by different social actors face permanent adjustments.

### ***8.2.2 Non-monolithic public universities elucidating an imperfect market***

The second research question is: What role have HEIs played in the process of becoming more knowledge-intensive? And what role has the UNED specifically played?

The answer is that, as non-monolithic institutions, universities have been part of the adaptation of the country to the new economy. Adopting entrepreneurial or developmental roles, public universities have been an important partner in all the new economy processes. Moreover, not only because of the human capital preparation but also because of the participation in many activities to improve the productive sector performance as a whole, public universities have been part of the economic process. Many of these activities performed by public universities have been presented within a market approach.

Alternatively, the public universities in general and UNED in particular have been making an important contribution to communities via the social action programmes. This all means that universities in Costa Rica have adapted the KBE model in many different ways. Universities are part of a local quadruple helix model supporting the KBE network and at the same time, they have been part of the community-based strategies. The challenge is how this experience can be transformed into an alternative model for regional development in differentiated territories.

Drawing in the concepts explained above, four points of tension were identified. The first point of tension was detected around a narrow conceptualization of teaching. The second point of tension was related to how public universities are doing governance as part of the para-institutional structure of the quadruple helix. The third point of tension centered around public universities' pact with productive private sector, even when productive private sector includes both multinational companies and small entrepreneurial ideas. Nevertheless, opposite to the KBE-CR market approach, communities' representatives understood the role of public universities as "promoters of development" (Representative of La Perla. Interview 29, 2009); this was a fourth point of tension identified.

Implicit in these four points of tension, four internal and external discourses could be identified. Of these, two were academic discourses.

Following Elwi's definition, one was a generative role, closely related to the KBE and the quadruple helix. The second was related to working with labour market solutions for multinational companies. The third was an internal-external discourse of governance and development. Finally, opposite to the market logic, the discourse of communities-representatives' demanding social action projects was also identified. Inside universities, this discourse was observed in social action projects departments.

This thesis examines how these four internal and external discourses coexisted inside and around public universities, pressuring them to fulfill each role. In other words, public universities' roles were described by these four discourses, based on diverse and at times

contradictory understandings of higher education institutions' responsibilities. In some cases this lead to internal conflict.

This internal conflict is implicit within universities because even though they are non-monolithic institutions, entrepreneurial generative discourse is supporting the attraction of the FDI-HT, while engagement in developmental discourse is promoting projects on a local level with community-based approaches.

As was discussed in this thesis, it is not possible to resolve regional development inequalities with a community-based approach from an FDI-HT attraction perspective. There is an important contradiction here not yet being discussed in academic spheres. In fact, examples described in Chapter 6 enabled an understanding of how some departments in public universities were working with communities through social action projects, while in offices nearby a professional team worked for a multinational company. The independence inside *University concept* allowed institutions to work simultaneously with and against the logic of the market approach.

While some universities' programmes were managing the crisis for less favoured social sectors with the use of governance and social contribution, others were part of the para-institutional net via the use of entrepreneurial roles. A significant increase in entrepreneurial discourse promoters was also detected. This increase could be also related to the existence of institutional funding. This thesis pointed out that this is a conceptual challenge not yet being debated in academic or public spheres.

### ***8.2.3 UNED: the university of the differentiated territories***

The third question is: How would UNED contribute in order to accomplish a more regionally balanced Knowledge-intensive economy model?

Three points were made in Chapter 7. Firstly, given the evidence of the non-pertinence of the KBE for resolving regional inequalities in a small country, the necessity for an alternative model was clear. Secondly, inside the four discourses an eminent transformation of the nature of universities was identified. Thirdly, no previous debate around these two points mentioned could be identified.

Nonetheless, the conflict evidenced inside the KBE-CR related to capital management in terms of public, private and collective objectives, was replicated in public universities' discourses in terms of knowledge management. Again, tensions for public, private and collective objectives around protection and transference of knowledge evidence tensions for knowledge privatization or democratization.

In front of this conflict, the argument is that if UNED in particular and public universities in general were to transform and change their nature in the context of the new economy and the pressure of internal and external discourses, a debate about alternatives for peripheries has to be accomplished.

The proposal of this thesis is that the role of distance learning education can be used to promote alternatives for social and economic groups which are excluded from the new economy's logic, located in peripheral territories. Using resistance practice such as organic process production or cooperatives for young people, evidence quoted confirmed that initiatives based on a community approach were possible and even efficient in a market logic perspective.

### **8.3 An alternative conceptual framework of KBE for developing countries**

This research proposed that the official discourse of the KBE, as Leydesdorff defined it, is not an option for resolving inequalities between regions in a small developing country. The main obstacle is that the model promotes concentration rather than the equal distribution of economic development.

In a narrow interpretation, its generative role promotes the privatization of knowledge. As a consequence, a new definition of economies constructed from knowledge democratization must be proposed for developing countries. Drawing on the review conducted in this research, some conceptual points have to be reviewed as part of a new definition for regional development in developing countries. This new proposal is built upon a social region metaphor, with a community based approach and social innovation principles.

The reformulation of a regional model includes the review of past concepts. The next subsections present this review.

### ***8.3.1 The broken rural and urban division: a new differentiated territories concept***

Rural areas are not scenarios of agro-production in traditional productive structures, but rather the location of FDI related to tourism, real estates and plantations. In fact, the rural environment is different that it was in the past, particularly in terms of economic activities. As a consequence, regional development planning now has to be less based on concepts such as rural and urban now than it has been in the past. Evidence collected in this thesis suggested that the conflict is now between core and periphery, rather than rural or urban tensions. Furthermore, the aim here is to contribute to the debate about the dynamic of the peripheral areas. Drawing on the differentiated territories cross-cutting concept (Coraggio, 2009), this thesis contributes to a better definition of the role of a distance learning university and of public universities in the development of peripheries, as they are already working as part of an inter-universities regional programme.

Differentiated territories have been defined here also as a cross-border concept, based on the reality of economic conformation of territories, derived from the fact that FDI presence in peripheral regions is cross-borders.

The peripheries show similar conditions in terms of low instruction level population, insufficient endogenous resources, limited or even insignificant roles in added value chains, among others.

### ***8.3.2 A new definition of competitiveness***

To explore the dynamic of natural-biological, institutional-cultural, human and business capitals, and their different logics in terms of power relations and economic scenarios, a new conceptualization of competitiveness is needed.

As Fajnzylber (1985) suggests, the definition of competitiveness is based on local attributes, rather than on imposing exogenous ones.

The capital's dynamic can be evaluated via Moulaert and Nussbaumers' (2005b) analysis. This is a good alternative analysis because it is the analysis of social innovation strategies for local development, based on the relation of different capitals. This analysis is presented here in terms of how a regional development model works in a developing country context, and if it is possible to attain some balance, especially in terms of capitals.

To explore different kinds of capitals and different logics in the management of these capitals, it may be constructive to reiterate the dynamic and the struggles inside and outside the KBE network, in particular in the Costa Rican context. The important idea pointed out by Moulaert and Nussbaumer' (2005b) is that different capitals are managed in different ways to resolve needs. In a KBE-CR network, each participant takes part of the dynamic, supplying different kinds of capital. As a result of this, sometimes one participant of the network (individual, organization or institution) can play a different role and acquire or lose power in a specific transaction.

For example, when the KBE-CR started, central government used their resources and power to attract partners in terms of FDI.

To achieve this, institutional, financial and socio-cultural capitals are needed. In that moment, the dynamic was presented as a public-private alliance for the satisfaction of a collective need for highly qualified jobs.

However, the dynamic in peripheral areas has been different. Unbalanced transactions in terms of capital interchanges created an extra tension between natural capital destruction, few qualified jobs and the absence of local value chain opportunities. Even when central government created a para-institutional structure to support the FDI process (PROCOMER and Costa Rica supplies), local value chains were still weak.

This impoverished integration of value chains is the rule rather than the exception for peripheries, given the global economy dynamic.

### ***8.3.3 The “old” and the “new” economy***

The study of the national labour market dynamic and its territorial manifestations has been extremely significant, since it is an important indicator of the economic role and the inclusion-exclusion of the inhabitants of a territory in the economy. This study showed that the “old economy” is still relevant to a significant percentage of the economically active population in peripheral regions. As a consequence, in order to make visible this condition, the appellation “old economy” is inaccurate. It has to be substituted by “traditional economy”.

### ***8.3.4 Intellectual property discussion***

The role of higher education institutions in regional development models within a community approach is one of the elements to be reviewed in a new approach. Rather than a narrow role, defined only by teaching, the universities can play an important role in development on a local level through their contribution to knowledge production.

This context demands different concepts, where patents and licences must be substituted by alternative forms of preservation and dissemination of knowledge from a community-based approach that opposes a market approach logic of knowledge management.

#### **8.4 Recommendations for further research**

The recommendations for further research start with the recognition of some limitations met by this research. Then the suggestions for future topics will be set out.

##### ***8.4.1 The limitations of the quantitative approach***

The statistical information based on censuses was available until 2000. Since then a new census has yet to be compiled. This is a very important limitation because the KBE model has been promoted especially during the last decade when information has not been available. As a substitute, the State of Nation reports corresponding from 2007 to 2010 were consulted. These documents are based on the Household Surveys. The State of Nation Project is also a recognised source nationally. However, a new census is going to be conducted in May and June 2011. Further research about labour market transformation by region and canton will be possible by October 2011. This is the starting point for the recommendations outlined in section 8.4.2.

##### ***8.4.2 Recommendations for further research***

The FDI dynamic has to be studied thoroughly in order to obtain accurate information about the labour market dynamic. The FDI usually promotes inequalities among and inside the regions, which is the cause of disintegration across the country.



Drawing on the 2011 census, the study of the labour market transformation will be important, not only to explore the trend of tertiary sector but also given the rise of the FDI, related to the industrial sector as well. There is likely to be an important reinforcing process related to cantons that contain secondary and tertiary sectors workers.

The KBE in developing countries has to be studied as one consequence of the open economy. Rather than an economy based on production, protection and transference of knowledge, the KBE in a developing country is connected to FDI-HT, still incipient with low added value and little capacity for local value chains.

“There is an implicit demand to the universities in order to resolve the unemployment crisis. On that point, the triple helix model in developing countries asks for more research in terms not only of how many social actors comprise the helixes but about the differential contribution given by each member of the helix. The knowledge of capitals interchange dynamic played inside the helix in each country can contribute to the understanding of the weakness of local networks to promote a proper social innovation model”.

Finally, the proposal of differentiable territories (Coraggio, 2003) and the multi-peripheral distribution as a new regional distribution of national territory is a challenge in terms of the proposal to resolve uneven development, in particular from the perspective of a distance learning university. The studies of the ecological-economy, the so-called eco-Keynesian models (Hudson, 2000) and the value chains proposal have to be included in the analyses. There are also issues to study related to financial resources, infrastructure, labour market, the existence of cross-border regions dynamic, and the multi-scalar nature of a development strategy and the power relations of the social actors.

It is not the role of the universities to provide financial solutions or regional institutional framework. Even so, universities are promoting collective structures for local initiatives. The challenge is to apply scientific responsibility (Hinkelammert, 2005) and to play an alternative role to that suggested by market approach models.

## Bibliografy

- Amin, A. and J. Goddard (1986). Technological change, industrial restructuring and regional development. London. Boston. Sydney, Allen & Unwin Ltd.,
- Anselin, L. and M. Madden. (1990). New directions in regional analysis. Integrated and Multi-regional approaches. London and New York, Belhaven Press. A division of Pinter Publishers.
- Arbo, P. & P. Benneworth (2007). "Understanding the regional contribution of higher education institutions: a literature review. OECD. Education Working Paper No. 9."
- Arguedas, J. C., Murillo, D., Sánchez, L. (2008). Estudio de las subregiones de Costa Rica: un análisis de competitividad, especialización y localización de las actividades económicas (1984-2000) Economía. San Jose, Costa Rica, Universidad de Costa Rica. Licenciatura en Economía.
- Armstrong, H. and J. Taylor (1985). Regional economics and policy, Blackwell Publishers.
- Barrientos, A. (2009) Labour market and the (hyphenated) welfare regime in Latin America. Economy and Society. Volume 38. Number 1 February 2009. Retrieved from <http://www.informaworld.com/smpp/title~content=t713685159> 13/12/2010
- Barrientos, O. & G. Chaves. (2008) Región Huetar Norte. Oferta exportadora actual y oferta potencial de productos agropecuarios alternativos. SEPSA-PROCOMER
- Benneworth, P. (2007) Understanding the regional contribution of Higher Education Institutions: a literature review. OECD working paper No. 9
- Benneworth, P and G-J. Hospers. (2007) Urban competitiveness in the knowledge economy: University as new planning amateurs. Progress in Planning 67 pp 105-197
- Bloch, T. (1985). "Regional Sources of Economic and Social Information on Central America." Latin American Research Review 20(2): 142-147.
- Boucher, G. Conway, Ch., Van Der Meer, E. (2003) Tiers of engagement by universities in their region's development. Regional Studies, Vol. 37.9 pp 887-897, December 2003
- Bourdieu, P. (1986). The forms of capital. Handbook of research for the Sociology of Education J. G. Richardson. New York. Connecticut. London, Greenwood Press.
- Bourdieu, P. (2001). "El capital social. Apuntes provisionales." Letra Internacional 70.
- Bouzas, R. (2005). "The "new regionalism" and the Free Trade Area of the Americas: a less benevolent view." CEPAL Review N° 85.
- Brenes, L. Hernández, V. Madrigal, J. (2010) Informe técnico: Primer diagnóstico nacional de MIPYMES. Observatorio de MiPYMES. UNED San José
- Brenner, N.; B. Jessop. M. Jones G. MacLeod. 2003 Introduction: State Space in question. In: Brenner, Neil. Bob Jessop. Martin Jones & Gordon MacLeod. State/Space. A reader. Massachusetts, Oxford, Victoria and Berlin. Blacwell Publishing.
- Brugger, E. A. (1982). "Regional policy in Costa Rica: The problems of implementation." Geoforum 13(2): 177-192.
- Bryant, R. L. (1998). "Power, knowledge and political ecology in the third world: a review." Progress in Physical Geography22(1): 79-94.

- Bukve, O. (2000) Toward the End of a Norwegian Regional Policy Model? In: Danson, M. Halkier, H. Cameron, G. Governance, institutional change and regional development. Ashgate. Aldershot
- Bulmer-Thomas, V. (1987). The political economy of Central America since 1920. Cambridge. New York. New Rochelle. Melbourne. Sydney., Cambridge University Press.
- CAC Consejo Agropecuario Centroamericano & SICA Sistema de Integración Centroamericana (2008) Central American agricultural policy 2008-2017. A competitive and integrated agriculture for a globalized world. CAC San José
- Cabrer-Borras, B. and G. Serrano-Domingo (2007). "Innovation and R&D spillover effects in Spanish regions: A spatial approach." Research Policy**36**(9): 1357-1371.
- Callois, J. M. and F. Aubert (2007). "Towards Indicators of Social Capital for Regional Development Issues: The Case of French Rural Areas." Regional Studies**41**(6): 809-821.
- Capello, R. R. Camagni. B. Chizzolini. U. Fratesi. (2008) Modelling regional scenarios for the enlarged Europe. European competitiveness and global strategies. Springer. Berlin
- Casado-Díaz, J. M. (2000). "Local Labour Market Areas in Spain: A Case Study." Regional Studies**34**(9): 843 - 856.
- Castells, M. and A. Portes. (1989) World underneath: the origins, dynamics and effects of the informal economy. In: The informal economy: Studies in advanced and less developed countries. London. Johns Hopkins University.
- Castells, M. (1991) The informational city: information technology, economic restructuring, and the urban-regional process. Basil Blackwell Oxford
- Castells, M. & P. Hall. (1994) Technopoles of the world: The making of the 21<sup>st</sup> Century Industrial Complexes. London. Routledge
- Castells, M. (2000) Is the economy socially sustainable? Abstract. Retrieved from [http://www2.computer.org/plugins/dl/pdf/proceedings/icse/2000/2147/00/21470002.pdf?template=1&loginState=1&userData=anonymous-IP%253A%253A127.0.0.1 10/12/09](http://www2.computer.org/plugins/dl/pdf/proceedings/icse/2000/2147/00/21470002.pdf?template=1&loginState=1&userData=anonymous-IP%253A%253A127.0.0.1%2010/12/09)
- Castells, M. (2004). The Power of Identity: The Information Age: Economy, Society and Culture, Volume II. London, Blackwell Publishing.
- Castells, M. (2008) La ciudad de la nueva economía. La factoriaH:\PhD files\resources\knowledge economy\_innovation\_networks\La ciudad de la nueva economía-Manuel Castells.mht,
- Chant, S. (2007) Gender, generation and poverty. Exploring the feminization of poverty in Africa, Asia and Latin America. Edward Elgar. Cheltenham, UK. Northampton, MA, USA.
- Chambers, Deborah. (2008). Integrating data sources. In: HSS8004: Qualitative Methodology in the Arts, Humanities and Social Sciences Module. HASS Postgraduate Research Training Programme. Newcastle University. Retrieve March 20, 2008 from [http://blackboard.ncl.ac.uk/webapps/portal/frameset.jsp?tab=community&url=%2Fbin%2Fcommon%2Fcourse.pl%3Fcourse\\_id%3D\\_7391\\_1](http://blackboard.ncl.ac.uk/webapps/portal/frameset.jsp?tab=community&url=%2Fbin%2Fcommon%2Fcourse.pl%3Fcourse_id%3D_7391_1)
- Charles, D. (2006). "Universities as key knowledge infrastructures in regional innovation systems." Innovation: The European Journal of Social Science Research 19(1): 117 - 130.

- Chatterton, P. (2000). "Will the real Creative City please stand up?" *City*4(3): 390-397.
- Chomsky, N. (2006) Sobre democracia y educación. Escritos sobre Ciencia y Antropología del entorno cultural. Vol. 1 Paidós. Barcelona, Buenos Aires, Mexico.
- Christopherson, S. & J. Clark. (2009). Remaking regional economies. Power, labor, and firm strategies in the knowledge economy. London and New York, Routledge.
- Cimoli, M. and N. Correa (2002) Trade openness and technological gaps in Latin America: a "low growth trap". Laboratory of Economics and Management. Sant'Anna School of Advanced Studies. Working paper series
- Clark, J., H-I Huang and J. P. Walsh (2009) A typology of "innovation districts": what it means for regional resilience. Industry Studies Annual Conference May 2009. University of Illinois at Chicago. Chicago, Illinois.
- Cloke, P. Crang, P. Goodwin, M. (1999) Introducing Human Geographies. Hodder Arnold London
- Coleman, J. S. (1988). "Social Capital in the Creation of Human Capital." The American Journal of Sociology94: S95-S120.
- Coleman, J. S. (1990). Foundations of social theory. Cambridge. Massachusetts. London, The Belknap Press of Harvard University Press.
- Coraggio, J. L. (1983). Social Spaceness and the concept of region. In: Moulaert, F. and Patricia Salinas. Regional Analysis and the new international division of labour.
- Cooke, P. (2002) Knowledge Economies.Clusters, learning and cooperative advantage. Routledge. London
- Cooke, P. and K. Morgan. (1991) The Network paradigm: new departures in corporate and regional development. Cardiff: Regional Industrial Research, 1991.
- Cortes, A. (2004). "Estimating the Impacts Urban Universities on Neighborhood Housing Markets: An Empirical Analysis." Urban Affairs Review39(3): 342-375.
- Conrford, J., Richardson, R., Sokol, M., Marques, P. Gillespie, A. (2006) Benchmarking and Fostering. Transformative Use of ICT in EU Regions.Sixth Framework Programme. Report Version: D1.1
- Cumbers, A. Birch, K. MacKinnon, D. (2006) Revisiting the old industrial region: adaptation and adjustment in an integrating Europe. Working paper No. 1 Centre for Public Policy for Regions, University of Glasgow
- Daniels, P. & F. Moulaert. The changing geography of advanced producer services. Belhaven Press. London and New York
- Daniels, P. & F. Moulaert. (1991) The changing geography of advanced producer services. Belhaven Press. London and New York
- Díaz, R. Pelupessy, W. Sáenz, F. (2009) Cadenas Globales. Enfoque y aplicaciones para agroindustrias de países en desarrollo. EUNA Heredia Costa Rica
- Doleroux, D. & S. Parto. (2005) Regional innovation systems: current discourse and unresolved issues. Technology in Society. Elsevier. [www.elsevier.com/locate/techsoc](http://www.elsevier.com/locate/techsoc)
- Didriksson, A. (2003) De la reforma a la innovación: la universidad de nuevo necesaria. Perfiles Educativos. Tercera Etapa. Mexico. UNAM. Centro de Investigaciones y servicios educativos. Vol 25, No. 101 pags 23-49

- Drucker, P. (1968 ). The age of discontinuity. Guidelines to our changing society. With new introduction by the autor 1992. New Brunswick and London, Transaction Publishers.
- Drucker, P. (1997) *The effective executive.* Heinemann. London
- Drucker, J. and H. Goldstein (2007). "Assessing the Regional Economic Development Impacts of Universities: A Review of Current Approaches." *International Regional Science Review* 30(1): 20-46.
- Dunford, M. & L. Greco (2006) *After the three Italies. Wealth, inequality and industrial change.* Blackwell Publishing. Malden. Oxford. Victoria
- Duranton, G. and M. Storper (2006). "Agglomeration and growth: a dialogue between economists and geographers." *J Econ Geogr* 6(1): 1-7.
- Ebdon, D. (1985) *Statistics in Geography.* Blackwell
- Edelman, M. (1983). "Review: Recent Literature on Costa Rica's Economic Crisis." Latin American Research Review18(2): 166-180.
- Eisenhardt, K. (1989) *Building theories from case study research.* *Academy of Management Review.* Vol 14 No. 4 532-550
- Escobar, A. (1995). Encountering development. The making and unmaking of the third world. Princeton, New Jersey, Princeton University Press.
- Etzkowitz, H. & Leydesdorff, L. *Universities and the global knowledge economy : a triple helix of university-industry-government relations / edited book.:* Pinter, London
- Faber, B. (2003). "Creating Rhetorical Stability in Corporate University Discourse: Discourse Technologies and Change." *Written Communication* 20(4): 391-425.
- Feller, I. (2004). "Virtuous and Vicious Cycles in the Contributions of Public Research Universities to State Economic Development Objectives." *Economic Development Quarterly* 18(2): 138-150.
- Fernández, O. (1998) (Compilador) *Política social y descentralización en Costa Rica.* UNICEF. San José
- Fernández, V. (2001). "Estrategia de desarrollo regional bajo el nuevo escenario global-local: revisión crítica sobre su(s) potencialidad(es) y límites." Revista EureXXVII(82): 43-63.
- Fernández, V. Gil, M. Magnin, J. Vigil. (2006). Capacidades estatales y desarrollo regional. Realidades y desafíos para America Latina. Santa Fe, Universidad Nacional del Litoral.
- Furtado, C. (1964). *Development and underdevelopment.* London, England, Cambridge University Press.
- Flowerdew, R. & D. Martin. (2005) *Methods in Human Geography. A guide for students doing a research project.* Pearson Prentice Hall. Essex
- Foray, D.. (2000) The Economics of Knowledge. Edition La DECOUVERTE, Paris
- Fürst, E. & W. Hein. (2002) *Turismo de larga distancia y desarrollo regional en Costa Rica.* CIPE - DÜI - DEI San José
- Ganeva, I. & H. Nuhn. (1989) *Desarrollo polarizado y política de descentralización en América Central: El caso de Costa Rica.* Friedrich Ebert Stiftung San José
- Garcia Teurel, M. (2003) *Apuntes de economía ecológica. . Boletín Económico* 2767,

- Garita, L. (1992) La transformación del estado y sus repercusiones en las universidades públicas. In Villasuso, J.M. (1992) El nuevo rostro de Costa Rica. Centro de Estudios Democraticos de América Latina (CEDAL).
- Garnier, L. (2004). Knowledge and Higher Education in Latin America: incommensurable commodities. In: Odin, J & P. Manicas. Globalization and higher education. Honolulu, University of Hawai'i Press.
- Garnier, L. & L. Blanco. (2006). Costa Rica: un país subdesarrollado casi exitoso, No published yet.
- Gereffi, G. (1999) International trade and industrial upgrading in the apparel commodity chain. *Journal of International Economics* 48 (1999) 37-70
- Gereffi, G., J. Humphrey and T. Sturgeon. (2005) The governance of global value chains. *Review of International Political Economy* 12:1 February 2005:78-104
- Gerry B., Ch. Conway, E. Van der Meer. *Regional Studies*, Vol. 37.9 pp 887-897. December 2003.
- Gillespie, A. (1983). *Technological change and regional development*. London.
- Gillespie, A. Richardson, R. Cornford, J. (2001) *Regional development and the new economy*
- Godin, B. (2006) The Knowledge-based economy: conceptual framework or buzzword? *Journal of Technology Transfer*, 31: 17-30, 2006
- Godin, B. (2006) The Knowledge-based economy: conceptual framework or buzzword? *Journal of Technology Transfer*, 31: 17-30, 2006
- Goddard, J. B. and Chatterton, P. (1999) Regional development agencies and knowledge economy: harnessing the potential of universities. *Environment and Planning C. Government and Policy*. 1999 Vol. 17 Pag 685-699
- Goddard, J. (2000) The role of a university in its region. University of Newcastle Special Research Lecture. UNIREG Project. Retrieved from <http://research.ncl.ac.uk/unireg/hefce/hefce.htm>
- Goldstein, H. and J. Drucker (2006). "The Economic Development Impacts of Universities on Regions: Do Size and Distance Matter?" *Economic Development Quarterly* 20(1): 22-43.
- Gomm, R. Hammersley, Martyn and Foster, Peter. 2000. *Case Study Method*. Sage Publications. London. Thousand Oaks. New Delhi
- Gramsci, A. (1971) *Selections from the prison notebooks*. New York and London
- Granovetter, M. S. (1973). "The Strength of Weak Ties." *The American Journal of Sociology* 78(6): 1360-1380.
- Granovetter, M. (1985). "Economic Action and Social Structure: The Problem of Embeddedness." *The American Journal of Sociology* 91(3): 481-510.
- Griffin, K. B. (1968). "Latin American Development: Further Thoughts." *Oxford Economic Papers* 20(1): 125-132.
- GUNI Report (2008) Volume 3: Higher Education in the World: New Challenges and Emerging Roles for Human and Social Development.
- Gunasekara, C. (2006). "Universities and Associative Regional Governance: Australian evidence in non-core metropolitan regions" *Regional Studies*, Vol. 40.7 pp. 727-741. October 2006

- Hadjimichalis, C. (2007) Non-economic factors in Economic Geography and in "New Regionalism": a sympathetic critique. Department of Geography, Harokopio University, Athens. Retrieved from <http://www3.interscience.wiley.com/journal/118603084/abstract?CRETRY=1&SRETRY=0> 18-10-07
- Hall, C (1985) Costa Rica. A geographical interpretation in historical perspective. Dellplain Latin American studies No. 17 Westview Press. Boulder and London London, Westview Press
- Hall, C. & H. Perez. - J. V. C., Cartographer (2003). Historical Atlas of Central America., University of Oklahoma Press, Norman
- Hall, P. (1998) Cities of tomorrow. Blackell Publising Oxford
- Hall, P. A. (2002). The role of government and the distribution of social capital. Democracies in flux. The evolution of social capital in contemporary society. . R. Putnam.
- Harriss, J. (2002). Depoliticizing development: The World Bank and social capital, Anthem Press. Glasgow
- Harvey, D. (1996). Justice, nature and the geography of difference. Massachusetts and Oxford, Blackwell Publishers.
- Harvey, D. (2000) Espacios de Esperanza. AKAL
- Harvey, D. (2006) Spaces of global capitalism. Towards a theory of uneven geographical development. Verso London and New York
- Hayek, F. A. (1945). "THE USE OF KNOWLEDGE IN SOCIETY." American Economic Review 35(4): 519.
- Hegde, D. (2005). "Public and Private Universities: Unequal Sources of Regional Innovation?" Economic Development Quarterly19(4): 373-386.
- Hidalgo, L. A. (2000). El cambio estructural del sistema socioeconómico costarricense desde una perspectiva compleja y evolutiva (1980-1998). Facultad de Ciencias Empresariales, Universidad de Huelva. **PhD Tesis**.
- Hill, E., H. Wial and H. Wolman (2008) Exploring regional economic resilience. Working paper 2008-04. Prepared for presentation at the annual meeting of the Urban Affairs Association
- Hinkelammerth, F. (2003) El sujeto y la ley. El retorno del sujeto reprimido. 1ra edición. Editorial Universidad Nacional, Heredia, Costa Rica (526pp)
- Hinkelammerth, F. & H. Mora (2005) Hacia una economía para la vida. DEI San José
- Hirschman, A. (1958). The strategy of economic development. New Haven and London, Yale University Press.
- Hölttä, S. (1988) Recent changes in the Finish Higher Education System. European Journal of Education, Vol 23, Nos 1/2 1988
- Holttä, S. and P. Malkki (2000). "Response of Finnish higher education institutions to the national information society programme." Higher Education Policy 13(3): 231-243.
- Hudson, R. (1999) 'The learning economy, the learning firm and the learning region': A sympathetic critique of the limits to learning. European Urban and Regional Studies, 1999; 6; 59-72
- Hudson, R. (2000). Production, places and Environment. Changing perspectives in economic geography. University of Durham, Prentice Hall.

- Hudson, R. (2006). The new economic geography. *Economic Geography: past, present and future*. S. a. H. L. Bagchi-Sen. London, Routledge.
- Hudson, R. (2007) Regions and regional uneven development forever? Some reflective comments upon theory and practice. *Regional Studies*. Vol 41.9 pp 1149-1160
- Hudson, R. (2009) From Knowledge-based economy to ... Knowledge-based economy? *Regional Studies*. March 2009 pp 1-16
- Humphrey, J. & L. Navas-Aleman. (2010) Value chains, donor interventions and poverty reduction: a review of donor practice. Institute of Development Studies. Research Report Vol 2010 No. 63
- Ibarra-Colado, E. (2003) Introducción. In Cazés, D. Ibarra, E. Porter, L. Geografía política de las universidades públicas mexicanas: claroscuros de su diversidad. Tomo I
- James, D. (2002). "Symposium on Social Capital: An Introduction." *Antipode*34(4): 790-795.
- Jessop, B. (2004) Critical semiotic analysis and cultural political economy. *Cultural Political Economy*. Working Paper Series. Working Paper No. 1. Institute for Advance Studies in Social and Management Studies. University of Lancaster
- Jonston, R.J. Gregory, D. Pratt, G. Watts, M. (1994) *The Dictionary of Human Geography*. Blackwell Publishing Massachusetts, Oxford, Victoria
- Katz, C. (1994) Playing the field: Questions of Fieldwork in Geography. *The professional Geographer*, 46: 1, 67-72
- Katz, C. & J. Monk. (Editors) *Full circles. Geographies of women over the life course*. Routledge London and New York
- Katz, C. (2004) *Growing up global. Economic restructuring and children's everyday lives*. University of Minnesota Press. Minneapolis and London
- Ketelhöhn, N. & M. Porter (2009). *Building a cluster: electronics and information technology in Costa Rica*. Harvard Business School.
- Krugman, P. (1992) A dynamic spatial model. NBER Working Paper Series No. 4219 National Bureau of Economic Research 1050 Massachusetts Avenue. Cambridge, MA 02138 November 1992 Retrieved from <http://www.nber.org/papers/w4219.pdf> 12/12/10
- Legendijk, A. & J. Cornford. (2000) Regional institutions and knowledge-tracking new forms of regional development policy. *Geoforum* 31 (2000) 209-218 Pergamon [www.elsevier.com/locate/techsoc](http://www.elsevier.com/locate/techsoc)
- Leydesdorff, L. (2009) The Knowledge-based economy and the Triple Helix Model. University of Amsterdam. School of Communications research (ASCoR) Retrieved from <http://users.fmg.uva.nl/lleydesdorff/arist09/index.htm> 02-04-09 10:00 a.m.
- Lovering, J. (2001). "The Coming Regional Crisis (And How To Avoid It)." *Regional Studies* 35(4): 349-354.
- Lukács, G. (
- Lundvall, B-Å (1992) *National Systems of Innovation. Towards a theory of innovation and interactive learning*. Pinter. London and New York
- MacCallum, D. F. M., Jean Hillier and Serena Vicari (2009). *Social innovation and territorial development*. Surrey, Ashgate Publishing Company.



- MacKinnon, D., A. Cumbers, et al. (2002). "Learning, innovation and regional development: a critical appraisal of recent debates." Progress in Human Geography26(3): 293-311.
- K. MacKinnon, D. Cumbers, A. Pike, A. Birch, K. (2007) Evolution in economic geography: institutions, regional adaptation and political economy. Working paper No. 12 Centre for Public Policy for Regions, University of Glasgow
- Malliat, D. (1998). "Innovative milieux and new generations of regional policies" *Entrepreneurship and Regional Development*, 10. 1-16
- Malmberg, A. and P. Maskell (1997). "Towards an explanation of regional specialization and industry agglomeration." *European Planning Studies* 5(1): 25-41.
- Marcovich, J. (2002) *La universidad (im)posible*. New York, Madrid, Cape Town Cambridge University Press
- Marginson, S. (2006). "Putting 'Public' Back into the Public University." Thesis Eleven84(1): 44-59.
- Marginson, S. (2008a). The global position of Australian higher education to 2020. Centre for the study of Higher Education. University of Melbourne. August, 2008.
- Marginson, S. (2008b). Ideas of University for the Global era. Centre for the study of Higher Education. University of Melbourne. December, 2008.
- Markussen, A R. (1983) Regions and regionalism. In Moulaert, F. & Patricia Salinas. *Regional Analysis and the new international division of labour*.
- Martin, R. & P. Morrison. *Geographies of Labour Market Inequality*. Routledge. London & New York.
- Martin, R. and P. Sunley (2003). "Deconstructing clusters: chaotic concept or policy panacea?" J Econ Geogr3(1): 5-35.
- Martin, R. and P. Sunley (2006). "Path dependence and regional economic evolution." *J Econ Geogr* 6(4): 395-437.
- Martinelli, F. (1997) Producer services' location and regional development. Presentation
- Martinelli, F. (1991). A demand-oriented approach to understanding producer services. In: Daniels, P. & F. Moulaert. *The changing geography of advanced producer services*. Belhaven Press. London and New York
- Maskell, P. (1996). "The economic importance of geographical location. Some observations in relation to Arne Isaksen's thesis on the growth of new industrial spaces and specialized areas of production." *Norsk Geografisk Tidsskrift - Norwegian Journal of Geography* 50(2): 125 - 128.
- Maskell, P. and A. Malmberg (1999). "The Competitiveness of Firms and Regions: 'Ubiquitification' and the Importance of Localized Learning." *European Urban and Regional Studies* 6(1): 9-25.
- Maskell, P. & and Tornqvist, G. (1999) Building a cross-border learning region. Emergence of the North European Oresund Region. Copenhagen Business School press. Handelshojskolens Forlag
- Maskell, P. (1999) Social capital and regional development. North No. 5 Electronic article retrieved from <http://uk.cbs.dk/content/view/full/8997>
- Massey, D. (1984). *Spatial division of labour. Social structures at the geography of production*. London, MacMillan Press Ltd.

- McEwan, Ch. (2009) *Postcolonialism and Development*. Routledge Perspectives on Development. London and New York Routledge Taylor and Francis Group.
- MIDEPLAN (2009). *Costa Rica: estadísticas regionales 2001-2008*. A. d. A. d. Desarrollo. San José, Costa Rica, Ministerio de Planificación y Política Económica.
- Molina, I. (1987). *Historia de Costa Rica: breve, actualizada y con ilustraciones*. San Jose, Editorial Universidad de Costa Rica.
- Monge, R. & O. Céspedes. (2002) *Costa Rica: Towards the Knowledge-based Economy*. Imprenta y Litografía LIL. San José
- UNESCO (2002) Moore, M. & A. Tait (editors) *Open and distance learning. Trends, policy and strategy considerations*. UNESCO
- Morales, A. & S. Baranyi. (2005). State-building, national leadership and “relative success” in Costa Rica. *Making states work: State failure and the crisis of governance*. S. I. Chesterman, Michael. Thakur, Ramesh. Tokyo, New York, Paris, United Nations University Press.
- Morales, O. & K. Rivera (1994) *Ciencia y tecnología. Un Nuevo modelo para el desarrollo de Costa Rica. Una mirada hacia el futuro*. Ministerio de Ciencia y Tecnología. Costa Rica
- Morgan, K. (1997). "The Learning Region: Institutions, Innovation and Regional Renewal." *Regional Studies* 31(5): 491-503.
- Morgan, K. (1998). *Regional renewal. The development agency as animateur*. Regional development agencies in Europe. H. M. D. C. D. Halkier. London, Regional Studies Association: 229-252.
- Moulaert, F. & P. W. S. (1983). *Regional analysis and the new international division of labor. Applications of a political economy approach*. Boston, The Hague and London, Kluwer Nijhoff Publishing.
- Morgan, K. & Nauwelaers, C. (1999) *Regional innovation strategies: The challenge for less favoured regions*. London: Stationery office
- Moulaert, F. & A. Scott. (1997) *Cities, enterprises and society on the eve of the 21st Century*. Pinter. London and Washington
- Moulaert, F. (2000) *Globalization and integrated area development in European cities*. Oxford. Oxford New York
- Moulaert, F. & K. Cabaret. (2006) *Planning, network and power relations: is democratic planning under capitalism possible?* SAGE Publications
- a. Moulaert, Frank and Jacques Nussbaumer. (2005) *Beyond the learning region: the dialectics of innovation and culture in territorial development*. *European Urban and Regional Studies*
- b. Moulaert, F. and J. Nussbaumer. (2005) "The Social Region: Beyond the Territorial Dynamics of the Learning Economy." *European Urban and Regional Studies* 12(1): 45-64..
- Murakami, D. 2008. Notes: Lecturer: Case Study. In: HSS8004: *Qualitative Methodology in the Arts, Humanities and Social Sciences Module*. HASS Postgraduate Research Training Programme. Newcastle University.
- Muñoz, M. (2008) *Higher education challenges emerging from the interchange between science and ancestral knowledge in Central and Sotuh America*. In: *Higher*

- Education in the World: New Challenges and Emerging Roles for Human and Social Development. GUNI Series on the Social Commitment of Universities.
- Nayyar, D. (2008) Globalization: What does it mean for Higher Education? Interview during Global University Network for Innovation (GUNI) Conference 2008. Retrieved from <http://www.guni-rmies.net/interviews/detail.php?id=1228> 01-03-09
- Newman, K. R. W. L. (2006). "Democracy, Bureaucracy and difference in us community development politics since 1968." Progress in Human Geography**30**
- Nonaka, I. & Konno, N. (1998) The concept of "Ba": Building foundation for Knowledge Creation. California Management Review Vol. 40, No.3 Spring 1998.
- Martinelli, F. (1991). A demand-oriented approach to understanding producer services. The changing geography of advanced producer services. Theoretical and empirical perspective. P. a. F. M. Daniels. London and New York, Belhaven Press.
- Odin, F. & P. Manicas. (2004) Globalization and Higher Education. University of Hawai'i Press. Honolulu
- Oficina de Planificacion y Politica Economica (Noviembre, 1976). La Costa Rica del año 2000. Documentos y ponencias presentadas en el Simposio del mismo nombre. San Jose, Costa Rica, Ministerio de Cultura, Juventud y Deportes
- Ordoñez, J. (2009) (editor) Hacia dónde va Costa Rica? Sistema político y escenarios de gobernabilidad democrática para la próxima década. PNUD KAS ICG San José
- Organization for Economic Cooperation and Development (OECD) (1992).
- Organization for Economic Cooperation and Development (OECD) (1999).
- Organization for Economic Cooperation and Development (OECD) (2007). Higher Education and Regions. Globally competitive, locally engaged.
- Ostrom, E. (1990). Governing the commons. The evolution of institutions for collective action. New York, Cambridge University Press.
- Palmer, S. & I. Molina., Ed. (2004). The Costa Rica reader. History, Culture, Politics. The Latin American readers. Durham and London, Duke University Press.
- Parada Corrales, J. (2007) Sociedad y evaluación de programas sociales en el realismo crítico: una revisión crítica.
- Paus, E. (2005). Foreign Investment, development and globalization. Can Costa Rica become Ireland, Palgrave Macmillan.
- Pendall, R., K. A. Foster, et al. (2009). "Resilience and regions: building understanding of the metaphor." Cambridge J Regions Econ Soc: rsp028.
- Perez, C. (2004) Revoluciones Tecnológicas y capital financiero. La dinámica de las burbujas financieras y las épocas de bonanza. Siglo XXI Editores. Mexico D.F. and Buenos Aires
- Perez, J. P. (1999) Mejor cercanos que lejanos. FLACSO San José
- Pike, A. Rodriguez-Pose, A. Tomaney, J. 2006. Local and regional Development. Routledge 1rst Edition
- Porcile, D. & Cimoli, M. (2007) Tecnología, diversificación productiva y crecimiento: un modelo estructuralista. In *Economia e Sociedade*. Campinas. V. 16, n 3 (31) p. 289-310
- Portes, A. Castells, M. and Benton, L. (1989) Conclusion: the policy implications of informality. In: Portes, A. Castells, M. and Benton, L. *The informal economy:*

- Studies in advanced and less developed countries. London. Johns Hopkins University.
- Portes, A. (2000). "The Two Meanings of Social Capital." Sociological Forum**15**(1): 1-12.
- Portes, A. and P. Landolt (2000). "Social Capital: Promise and Pitfalls of Its Role in Development." Journal of Latin American Studies**32**(2): 529-547.
- Portes, A. and K. Hoffman (2003). "Latin American Class Structures: Their Composition and Change during the Neoliberal Era." Latin American Research Review**38**(1): 41-82.
- Proops, J. L. R. (1989). "Ecological economics: Rationale and problem areas." Ecological Economics**1**(1): 59-76.
- Putnam, R. (2002). *Democracies in flux. The evolution of social capital in contemporary society.* , Oxford University Press.
- Ramirez, C. (2006) *La tercera revolución educative costarricense. Memoria de la creación y puesta en marcha de la UNED.* San José
- Rist, G. (1997). The history of development. From western origins to global faith. London and New York, Zed Books.
- Robertson, S. (2008) 'Producing' Knowledge Economies: the World Bank, the KAM, Education and Development. Centre for Globalization, education and Societies. University of Bristol. Online papers. Retrieved from <http://www.bris.ac.uk/education/people/academicStaff/edslr/publications/19slr>
- Rodriguez-Clare, A. (2001). "Costa Rica's Development Strategy based on Human Capital and Technology: How it got there, the impact of Intel, and lessons for other countries." Journal of Human Development**2**(2): 311 - 324.
- Rodríguez-Pose, A. & R. Sandall. (2008) From identity to the economy: analysing the evolution of the decentralization discourse. *Environment and Planning C: Government and Policy* 2008, Volume 26, pp 54-72
- Rodríguez-Pose, A. & N. Gill. (2004) Is there a global link between regional disparities and devolution. *Environment and Planning A* 2004, Volume 36, pp 2097-2117
- Rojas, R. (2010) *La creación de empresas por graduados de la UNED Costa Rica.* Revista Nacional de Administración Vol. 1 Julio-Diciembre, 2010 ISSN 1659-4908
- Rovira, J. (1987) *Costa Rica en los Años '80.* San José, Costa Rica: Porvenir.
- Rovira, J. (1992) *Las universidades en los años ochenta.* In Villasuso, J.M. (1992) *El nuevo rostro de Costa Rica.* Centro de Estudios Democráticos de América Latina (CEDAL).
- Rovira, J. (2006) *Costa Rica.* Enciclopedia Contemporánea de América Latina. Sader, E. et a. Laboratorio de Políticas Publicas. Universidad de Rio de Janeiro - Bointempo Editores.
- Ruiz, A. (2001a) *La Educación Superior en Costa Rica. Tendencias y retos en un nuevo escenario histórico.* CONARE San José
- Ruiz, A. (2001b) *El siglo XXI y el papel de la Universidad. Una radiografía de nuestra época y las tendencias en la educación superior.* CONARE San José
- Ruiz, A. (2001c) *El destino de Costa Rica y la educación superior. El escenario histórico del país, la educación y el papel de la universidad.* CONARE San José

- Rumble, G. (1981). Costa Rica's Universidad Estatal a Distancia: A case study., Distance Education research Group. The Open University.
- Rutten, R. Boekema, F. and Kuijpers, E. (2003) Economic Geography of Higher Education. Routledge. London and New York
- Rutten, R. and F. Boekema (2007). "Regional social capital: Embeddedness, innovation networks and regional economic development." Technological Forecasting and Social Change74(9): 1834-1846.
- School of Civil Engineering and Geosciences. (2008) Intermediate GIS with spatial analysis. Courses in GIS. Professional Development Unit. Newcastle University
- Schwab, K., Porter, M. and Sachs, J. (2000) The Global Competitiveness Report. World Economic Forum. Geneva, Switzerland 2000 Retrieved from [http://www.cid.harvard.edu/archive/res/gcr\\_2000\\_overview.pdf](http://www.cid.harvard.edu/archive/res/gcr_2000_overview.pdf) 10/12/10
- Sachs, W. (1992) The development dictionary. A guide to knowledge as power. Zed Books Ltd. London & New Jersey.
- Sachs, W. (1993) Global Ecology. A new arena of political conflict. Zed Books Ltd. London & New Jersey.
- Sancho, M. & L.P. Vargas. (2009) Costa Rica. Dos visiones críticas. EUNED San José
- Santos, D. (2000). "Innovation and Territory: Which Strategies to Promote Regional Innovation Systems in Portugal?" European Urban and Regional Studies7(2): 147-157.
- Sanyal, B. and Lopez Segrera, F. (2008). An overview of regional perspectives on the role of higher education in social and human development. In: Higher Education in the World: New Challenges and Emerging Roles for Human and Social Development. GUNI Series on the Social Commitment of Universities.
- Sassen-Koob, S. (1989). New York City's informal economy. In: A. C. Portes, M. Castells, Bennton, L. The informal economy. Studies in Advanced and less developed countries. Baltimore and London, The Johns Hopkins University Press.
- Scott, A. & and G. Garofoli (2007) Development on the ground. Clusters, networks and regions in emerging economies. Routledge. London & New York
- Segura, O. (2003). A learning and innovation capability approach to social and ecological sustainability. The challenge of the third millennium. Globelic Conference.
- Shadlen, K. , 2004-03-17 "Patent Politics: The Political Economy of Intellectual Property Rights in Latin America" Paper presented at the annual meeting of the International Studies Association, Le Centre Sheraton Hotel, Montreal, Quebec, Canada 2009-02-06 from [http://www.allacademic.com/meta/p72999\\_index.html](http://www.allacademic.com/meta/p72999_index.html)
- Shimizu, H. "Ba-Principle: New Logic for the Real-time Emergence of Information," Holonics, 5/1 (1995):67-69
- Simmie, J. and R. Martin "The economic resilience of regions: towards an evolutionary approach." Cambridge J Regions Econ Soc: rsp029.
- Smilor, R., N. O'Donnell, et al. (2007). "The Research University and the Development of High-Technology Centers in the United States." Economic Development Quarterly21(3): 203-222.
- Sokol, Martin. (2004) City regional governance: on conceptual issues. In City Futures. International Conference. Chicago. 2004 Draft.

- Storper, Michael. Industrial policy for latecomers. (1998) In: Storper, M. Thomadakis, S. and Tsipouri, L. Latecomers in the Global Economy. Routledge. London and New York
- Strange, S. (1988) States and Markets. Continuum. London and New York
- Suarez-Barraza, M. & J.A. Miguel-Dávila (2008) Encontrando al Kaisen. Un análisis teórico de la mejora continua. *Pecvnia*, 7 (2008), pp. 285-311. Publicación electrónica disponible en [http://www3.unileon.es/pecvnia/pecvnia07/07\\_285\\_311.pdf](http://www3.unileon.es/pecvnia/pecvnia07/07_285_311.pdf)
- Suñol, J. (2002). Milagro en la cintura de América. UACA San José
- Sutz (1997)
- Tait, A. (2008) What are open universities for? *Open Learning: The Journal of open, distance and e-learning*. 23:2, 85-93. Retrieved from <http://dx.doi.org/10.1080/02680510802051871> 01/02 2011
- Taylor, J. (2004). "Toward a Strategy for Internationalisation: Lessons and Practice from Four Universities." *Journal of Studies in International Education* 8(2): 149-171.
- Tellis. W. (1997, September). Application of a case study methodology [81 paragraphs]. *The Qualitative Report* [On-line serial], 3(3). Available: <http://www.nova.edu/ssss/QR/QR3-3/tellis2.html>
- Tesch, R. (1990). *Qualitative research. Analysis types and software tools*. Routledge Falmer. London
- Thrift, Nigel. (1996) *Spatial formations*. SAGE publications Ltd. London
- Thrift, Nigel and Kris Olds. (2004) Refiguring the economic in economic geography. In Barnes et al. *Reading economic geography*. Blackwell Publishing. Oxford
- Tödting, Franz. & Michaela Tripl. (2005) One size fits all? Towards a differentiated regional innovation policy approach. *Research Policy* 34 (2005) 1203-1219 Elsevier. [www.elsevier.com/locate/techsoc](http://www.elsevier.com/locate/techsoc)
- Tunermann, C. *Transformación de la educación superior*. EUNA Heredia
- Tunermann, C. & M. Souza. (2003) Challenges of the university in knowledge society, five years after the World Conference on Higher Education. UNESCO 2003
- Tunermann, C. (2008) Quality and relevance of higher education at Central America Interview during Global University Network for Innovation (GUNI) Conference 2008. Retrieved from <http://www.guni-rmies.net/interviews/detail.php?id=1115> 01-03-09
- UNIRE Costa Rica (1999). *Acta Constitutiva de la Asociación Unidad de Rectores de Universidades Privadas de Costa Rica*. <http://www.unire.or.cr/>
- Universidad y Desarrollo, a contrapelo de los tiempos (1995) *Revista Reflexiones*. Facultad de Ciencias Sociales. Servicio Universitario Mundial
- Vargas, L.P. (1996) UNED de Costa Rica. Realidad y esperanza. EUNED San José
- Vargas, L.P. (2007) Soñar con los pies en la tierra. Pensando y creyendo que otra Costa Rica distinta y mejor: si sea posible. PROCAL San José
- Vargas, L.P. (2010) El candado y la llave. EUNED San José
- Veltz, Pierre. (1997) The dynamics of production systems, territories and cities. In: Mouleart, F. & Allen Scott. *Cities, enterprises and society on the eve of the 21st Century*. Pinter. London and Washington

- Villasuso, J. M. (1992) La reforma democrática del Estado costarricense. In Villasuso, J.M. (1992) El nuevo rostro de Costa Rica. Centro de Estudios Democráticos de América Latina
- Waters, R. and H. Lawton Smith (2008). "Social Networks in High-Technology Local Economies: The Cases of Oxfordshire and Cambridgeshire." European Urban and Regional Studies**15**(1): 21-37.
- Weaver, F. S. (1994). Inside the volcano. The history and political economy of Central America. Boulder, San Francisco, Oxford, Westview Press.
- Widen-Wulff, G. and M. Ginman (2004). "Explaining knowledge sharing in organizations through the dimensions of social capital." *Journal of Information Science* 30(5): 448-458.
- Widen-Wulff, G., S. Ek, et al. (2008). "Information behaviour meets social capital: a conceptual model." *Journal of Information Science* 34(3): 346-355.
- Winter, A., J. Wiseman, et al. (2006). "University-community engagement in Australia: practice, policy and public good." Education, Citizenship and Social Justice**1**(3): 211-230.
- Wolfe, D. A. "The strategic management of core cities: Path dependence and economic adjustment in resilient regions." Cambridge J Regions Econ Soc: rsp032.
- Wunder, S. (2005) Payments for environmental services: Some nuts and bolts. CIFOR Occasional Paper No. 42. Center for International Forestry Research. ISSN 0854-9818
- Yin, R. (1993) Applications of case study research. Sage Publishing. Newbury Park
- Yeung, H. W.-c. (2000). "Organizing 'the firm' in industrial geography I: networks, institutions and regional development." *Progress in Human Geography* 24(2): 301-315.
- Zheng, X. P. (2007). "Economies of Network, Urban Agglomeration, and Regional Development: A Theoretical Model and Empirical Evidence." Regional Studies**41**(5): 559-569.

## Annex 1

### Interview guide: UNED Centres

The building belongs to UNED? Yes/No
The land was bought or donated?
How many metres (m2) measured the ground?
Does someone else own the building? Who is the owner? Is there an agreement? Are they charged for the rent?
Which infrastructure owns the centre?: Computers, laboratory, video conferences, library
Does it have an institutional -local committee? Yes/no
Who make it up? (Write down name, who she/he represents, date of entry or exit of each member of the committee)
Cuenta el centro con un extensionista? Si/No
Is it developing any research project? Which one?
Did it develop any research project? Which one?
Is it taking part of some project with another university? (Details)
Did it take part of some project with another university? (Details)
Is it taking part of some project with another organization or institution? (Details)
Did it take part of some project with another organization or institution? (Details)



## **Annex 2**

### **Interview guide: KBE network participants**

#### **I Part**

How would you explain the economic process in the country for the past 30 years?

Are there any inflection points?

Which are the most relevant?

#### **II Part**

Regarding KBE:

According to the international organizations such as the World Bank, the KBE is an option for development in developing countries. In the case of Costa Rica,

Is the country promoting a more knowledge intensive economy?

Which is the core of innovation?

Who could be relevant social actors of this? What kind of relations these participants have?

Which cultural elements are parts of the KBE context?

How is this KBE presented by region?

Regarding specifically higher education institutions: What do you think about public universities role played in the national development strategy? Are they participating in the KBE?

#### **III Part**

To finish off, very briefly, what do you think of Central America as a context for KBE?

### Annex 3

#### Description of UNED centres in 2008

UNED Centre and code	Infrastructure	Staff and social network	Social Action Projects
<b>Central Region</b>			
San José (1)	UNED bought a building. It has 2 computer rooms with 36 computers, science laboratories and it has got 26 classrooms. This centre is located in central canton of San Jose province which is the capital of the country. That means that this centre is one of the only two public universities centres, located in the capital.	The head is MBA graduated	Contact with local committee which is interested in work about urban culture and community safety.
Cartago (3)	The building is not UNED property. The terrain has an area of 9366 m <sup>2</sup> ( 3500 m <sup>2</sup> of construction) The owner is ' Inversiones Calinda S.A' ( Calinda investors) The centre has a library.	The head of its centre is a master graduated	Coordination with recycle and reforestation project; Social help in jail: Since a few years back activities like Troubadours night, Cultural week, Sport festivals with the collaboration of the students of this centre; Gerontology group: English studies; Football Referees Group; With Ministry of Public Education: English teachers training. In the past, they also had other activities like in 2003-2004, Research together with CNE (National Commission of Emergencies) concerning the vulnerable spots in the city. Drills were conducted and supported research to the folklore group Aquitaba.

Alajuela (4)	The building is owned by UNED, it was donated by the Municipality of Alajuela. The terrain is 2900 m <sup>2</sup> (with 1900 m <sup>2</sup> of construction) It has video-conference rooms, 2 computer rooms (with 44 computers), physics and science labs, 11 classrooms and a well-equipped library. Since 2007, it is a inter-public universities centre as well, which means that CONARE started a new program, with four institutions working together. The academic program includes specific carriers, conducted by the four public universities in Alajuela and in others universities centres around it.	The head of its centre is a MBA graduated. Alajuela does not have community based committee and representation from social-action direction.	Extension programme which has courses for Gerontology group and LESCO, English, manufacture of wood pieces, and imitation' jewels. They have not any projects with other institutions in the past. Now it is an inter- public universities program in Alajuela, which is one of the four main cities in the metropolitan area in Costa Rica and the only one which had not public university in there yet.
Palmares (6)	The building was bought by UNED. It has laboratories, video-conference rooms and a library.	This centre has local committee but they don't get together. A UNED tutor, an Agronomy Engineer, representative of the MAG, who is the representing of the community, a Student Association representative, constitutes it. The head of the CU who is Masters graduate. It was one of the more successful centres in terms of community actions. However, the head of the centre considerers that her work in this area "is almost invisible in the community". This Centre has also a member of Extension Direction staff who is a Master graduate.	Projects with the local government. Local network is also in action by courses for example Training on prevents domestic violence to women, joining with the Naranjo Municipality. Other activities like: English classes, professional management training, LESCO, guitar lessons, singing lessons, mural design. With the Gerontology group, they have English classes, computer skills and care for the elderly. They have also various cultural activities for the community. About research, they are reviewing a research project with participation of wife's prisoners in the local jail. In 2007 they conducted a Prevention of domestic violence workshops -gender approach; drawing lessons and quilting lessons for women in poor areas in the community and painting and carpentry lessons in primary schools. This centre is part as well of the inter- public universities centre. (See above in Centre of Alajuela). That means that Palmares' centre participates with University of Costa Rica in a CONARE project. At the moment they are exploring a possibility to install a butterfly crop. They are at the moment presenting their proposal to "INBio Park". There is also: a recycling programme in process with Extension Department of UNED in order to have training in Environment and waste management. This training will be conducted by workshop with people from local shops, local government staff and primary schools. In 2007, this centre signed an agreement with local committee named "Acción Civica Palmareña" to build a computer lab.

Puriscal (20)	The centre has not get its own building. It has 350 m2 (two stories, each one 170 m2 approximately), it is rented. It has a videoconference room and a library.	They have a local committee constituted formally but it is not in operation. The members are a regional lecture, a student representative, a member of MEP staff, an UNED graduate, a representative of the local government, a representative of the local development committee “Asociaciones de Desarrollo” and also graduate student from UNED and the head of the centre who is Masters Graduate.	Currently it is conducting a research about the employment problem in the “region”, which is coordinated by the head of the centre. Also, they have guitar classes, chess and painting for children workshops, recycle projects, Psychology workshops and lectures such as Prevention of domestic violence workshops -gender approach, prevention of drugs addiction and Management of boundaries with children, Law, drugs addiction prevention, women and family and single mothers, for instance. This programme is open for all the community or schools and High schools directly. Each institution asks for the specific subject and the Centre coordinate to present it). Since 2006, because the video-conference system, they have a Training programme on banking and finance. It is a project together with national banks (Banco Popular and Banco Nacional). With Public Agency for Water Administration (A y A) they had a Training course on management on aquifers. With MEP, they had a Training programme for English teachers.
San Marcos (25)	The centre does not have it's own building yet, but it is under construction. This new terrain was donated by the Municipality and has a total area of 3000 m <sup>2</sup> . At this moment, the rent is payment goes to the Municipality. It has a library and 5 classrooms. The donation of the land for building the CU of UNED in San Marcos was arranged together with the Tarrazú Municipality.	It has local committee but the committee is not active. The members were community members who collaborated to UNED in many activities, a Professional in education graduate of UNED, the president of student's union of the centre; a member appointed by the council of Dota and the head of the centre who is a Master in Public Management.	Make approach in some areas for example with children whose school are too far away, free drawing sessions for senior residents, and for next year we will try to include young people with drugs addiction.
Turrialba (27)	The building is UNED owned. It has a computer room with 13 computers, a videoconference room and a library.	This centre has local committee as well, renewed in March 2008 constituted by a student representative from the local high school, a UNED student's representative, a high school lecture, and the head of the centre who is a Licentiate graduate.	Its works in terms of community activities include bingos or fairs but “we are lacking autonomy support and engagement to be more productive. Now we are finishing with the elaboration of an electronic bulletin for the community.” (Interview with Head of the centre) They have also a member from Extension Direction staff who is working in Training in Indigenous Communities through a committee with CONARE and the tutorial support for the indigenous,

			so they can start the courses in Ministry of Public Education in open education in order to hold up their level in formal education system. As an initiative from three public universities, UNED, UCR and UNA together, they have a course for the indigenous graduates from the Ministry of Public Education programme.
La Reforma (33)	This centre operates into the main jail in the country, which is located close to Alajuela. It works by agreement with Ministry of Justice and Grace. It has a classroom and a library. This centre is the main point in Programme for people reclude in jails nationally (Programa Privados de Libertad) of UNED		
Heredia (34)	The centre has it own building (has 6 classrooms and has a videoconference room). It rent 14 classrooms at the San Francisco Primary School as well.	It has local committee, with representative from the Municipality (local council), one from the local public transportation company from Mercedes Norte, Heredia; (district were the CU is located), a student representation, a graduate and the head of the centre is Master graduated.	It have been conducted a research on Prospects of the University Centre' Development. This was to improve the academic and administrative services. There was also a proposal to work on Heredia as well as Sarapiquí on the jobs available for the UNED graduates. They are presenting a proposal to advice students and the communities about MIPYMES. In2004-2005 UNA lent some classrooms for the tutorials and exams of UNED.
Atenas (35)	The centre does not have its own building. It rents space to the Board of Education.	The Head of the centre is Licentiate graduate.	No more information available.
Desamparados (42)	The centre does not have it's own building. There is an agreement with local Technological High School. It has a videoconference room.	Thehead of the centre is Licentiate graduate.	No more information available.
<b>Chorotega Region</b>			
Nicoya (7)	The centre has its own building that was donated by Liceo de Nicoya. It has a computer room, a building for the science lab (not equipped), a videoconference room and a library.	The head of the centre is Masters Graduate. They have a staff member from extension, Licentiate graduate.	Free courses, Gerontology group: Care for the elderly, IT and English. Also, with CONARE: programme for tour guides. With UNA ans CONARE, there is a water project being developed. UNED trains the Municipalities of the Chorotega

			Region. There is a project in the Ecomuseo San Vicente (San Vicente Ecomuseum) about Chorotega pottery, they work together with the Catedra de Ciencias Sociales y Cultura (Professorship of Social Sciences and Culture), Museo Nacional (National Museum) and UNED Nicoya.
Cañas (8)	The centre has its own building, which was donated by the company Don Chane. It has a computer room (11 computers), a videoconference room and a library.	The head of the centre is a Licentiate graduate	It has been considered the systematization of the teaching of tourism. In the "extension" section they are giving a LESCO course, gerontology and English. There is a community group and one that gets lessons via "video conference", also there are three groups with scholarships from CONARE. The promotion of local tourism by CONARE. Computer courses were given. With the Adopta un Arbol (Sponsor a Tree) Foundation, supporting the poster printing and training for students and professors. With the Llano Verde Foundation, they have an agreement for 5 years (until 2012) with the Videoconferences system, if it is given a good use, UNED could keep the equipment.
La Cruz (23)	The centre has its own building. It has approximately 350m <sup>2</sup> . The rent is paid to the corporation Linda Berona. It has 4 classrooms and a computer.	The head of the centre is a Licentiate	With the Regional Founding of CONARE, there is a project about the Strengthen of the Administration and microbusiness management, also English, Rural and Communal Tourism. Disclosure of the Acciones Ambientales (Environmental Actions) Contest for the protection of the "Corredor Biológico" La Cruz, with the "Reserva de vida silvestre" Chenailles. Collaboration with CIENTEC in 2005, Ministry of Culture, Youth and Sports calendar.

Upala (24)	The centre has its own building, which was donated by the Colegio Técnico. It has 3000m <sup>2</sup> ( 100 m <sup>2</sup> of construction) It has a small library.	The head of the centre is a Master	There is a proposal to develop in 2009, the historical systematization of the place, this project needs to be developed together with the Municipality and the Regional Management. LESCO II and I. Workshops for Professional Improvement of the education, "Lectoescritura" and Math improvement. Every 3 months there are meetings to "consejos de gestión" with people from Upala, Los Chiles and Guatuso. This is together with CONARE. UNED provides refreshments for each meeting with resources from " la caja chica". In May 2009, this centre as a meeting with regional partners in Sarapiquí (VV Km from UNED centre, in UNA centre) objective is to make a plan for work together in the region.
Liberia (26)	The centre has its own building. It uses 500m <sup>2</sup> (approximately) of offices in a partnership with Instituto de Guanacaste. 15 classrooms are used, the computer room has 18 computers and it has a library. The videoconference room is rented from the 'Instituto'.	The head of the centre is a Master	They were working on a project with CONARE in Rural and Communal Tourism with the four state universities. Also a formal Education project, which is "CONED" together with MEP.
Santa Cruz (32)	The centre has its own building donated by the Municipality. It has 1 hectare approximately. It has a small library, and 3 classrooms.	It has local committee but is inactive. Members in 2006 to 2007 were: Thelma Gutiérrez ("Regidora") Pedro Sánchez (Municipality) Marta Pizarro (MEP), Lynette Camacho (Administrator UNED-Liberia) who is Licentiate graduate.	When was active: agriculture, cultural and "vivero" Projects No extension staff, however Reforestation/ "Vivero" La Esperanza (10 years old) Awarded with "Mejoramiento de la Calidad de vida" (Way of life Improvement) Project to complete with ORQUIDEAS the "vivero". Still they need to give the training in orchid management. There is a proposal to start a "Botanic Garden". Proposal to start a cultural and sportive agenda. This project is in

		<p>process of selection and planning. Is pretended to be in English and Spanish so the tourists can enjoy it. It could be included in the tourism courses.</p> <p>2006-2007: UNA-UNED Biologist Association, to develop research in “nacientes” that have to do with reforestation, flora and fauna, and in June 2008: Together with UCR, research and elaboration of the “ Paso de Congos”.</p> <p>Join with the “Comision Corredor Biologico Diriá”: Beautifying of roads and it’s surroundings.</p> <p>Comission fomrmed by two or three people on each organisations: Santa Cruz Municipality, Sugar Beach Tamarindo Preserve,</p> <p>CoopeGuanacaste (for electrification),MINAE, AyA, MEP: Development in Wild Areas: Diriá National Park, Marino Baulas Park, Wild Life Reserve Tapanti, Conchal Reserve and Ostional National Park.</p> <p>About 50-80 primary and high school students take part.</p> <p>Proposal to coordinate with INA a workshop on Elaboration of “ Marimbas” and “Carretas”.</p> <p>Agreement with MINAE for the creation of the first UNED’ s Biological Station in the Diriá National Park, together with CONARE, to elaborate a management plan.</p> <p>In July 2008 there was the electrification (by COOPEGUANACASTE) of the Diriá National Park together with the “Corredor Biologico” Comission. It was 38 million colones.</p>
--	--	--



Tilarán (36)	The centre hasn't got its own building, it rents to the Board of School Jose Maria Mayorga Calderon. It has 5 classrooms.	No administrator, the CU depends on the Cañas CU.	
<b>Brunca Region</b>			
Ciudad Nelly (10)	The centre has its own building which was donated by Ricardo Neilly Job. It has half a hectare approx. It has computer room with 10 computers, a videoconference room and a library.	Head is graduated as Masters	Courses financed by CONARE. Proposal of a project in which the four Universities integrate to work tourism, PYMES and "Extension". Proposal for the "Plan de Desarrollo" (Development Project), with projects from 2010 until 2020, with the four main universities. Training for the Municipality, the community, and managers. Is given according to the communities petition.
Palmar Norte	It hasn't got its own building. They rent it from the board of the local technician high school (Colegio Técnico Profesional de Osa). It has a library.	No more information available.	
Pérez Zeledón (13)	It has its own building which was donated.	The head is a Master Graduate	Agreement on mutual help with the Ecologist High school Isaias Retana, in aspects like "mariposario", crops. Also logistic support is given. On the 9th of August 2008 teenage mother graduated after completing the Administration Management course.
San Vito (21)	The centre has its own building with 400m2. The terrain is rented. It has 1 classroom, 3 computers and a library.	The Head is Licentiate.	In "Extension" LESCO and English courses. Advice regarding "management" for small businesses. With CONARE course about General Guides for local tourism, English for Rural and Communal tourism and Local management. CONARE-UCR-UNA-UNED: Tortilla making and bakery courses. Together with the Agricultural Producers Union of Coto Brus: Advice to women who integrate the Producers Associations.
Pto Jiménez (40)	CU Ciudad Neily.		

Osa (11)		There was a “junta” nominated, this during the previous administration. Osa Municipality, the representatives of the Integral Development Association in Ciudad Cortes. The Head is a Masters	“Extension”: English for commercial services, English for tourism and Technician in Local Management. There was a research project about Life Project with students from a local high school. There was also conference to community about different topics. Tourism net UCR-UNA-UNED-ITCR. They support the work done by the CRI of the South-South region in Osa and Buenos Aires.
Pavón (43)	It hasn't got its own building. There is a partnership with the local high school of Pavon. They were given books for the library. Three from the High School classrooms are used.		
<b>Huetar Atlantic Region</b>			
Limón (12)	The centre has its own building, which was bought. It has 9 computers, a laboratory, and one videoconference room. There has books, but does not have a library.	The representative of the Local Development Association, a owner of the company, the representative of RECOPE, the representative of JAPDEVA but this representation was interrupted long time ago, and the head of the university centre.), The head of this centre was a Licentiate graduate.	Not a lot, “No help from San Jose”. Selection of the awarded student with the “ Dr. Rafael Angel Calderon Guardia” Scholarship. A English course for two rural communities. A campaign on the prevention of “Dengue” with UCR and CONARE. UNED gives ₡5.000.000. 2001-2002: with JAPDEVA findings. There was a Technician in local management course organised.
Siquirres (14)	The centre has its own building which was donated by the local high school. It has a computer room with 10 computers, a videoconference room and a library.	The local committee was not active. The representative of the community, an UNED tutor, a student representative, a municipality representative and the head of the centre constituted it. The head of the centre has a licentiate graduate.	There is a proposal on “Water Culture” project. Finance still needs to be sorted. There was also a English for communal and local tourism course. In 1999, by solicitude of the Municipality there were some studies made on the feasibility and environmental impact on the creation of a pit to extract stone, owned by the Municipality a. The land was tested however the project was never concluded.2008: Workshops on managing children's behaviour.

			This was given to the community in the centre of Siquirres. It was an initiative promoted by a student.
Guápiles (16)	The centre has its own building that was donated. It has a semi library.		
Talamanca	Managed from Limon.		
<b>North Huetar Region</b>			
San Carlos (5)	It has its own building that was donated by MOPT and it has 2147 m <sup>2</sup> (with 800m <sup>2</sup> of construction) it has biology lab, videoconference room, library and 8 classrooms.	The head of the centre is a Master	LESCO Training Programme, A CRI North Huetar Region project: English, Managerial English, For 2009: tourism guides, rural aqueduct, English for rural tourism, and IT centre. Business management student are working on researching with banks. In 2008: there were forums about the “Special Economic Zone”, this with the effort of the public universities and the private businesses cooperation. The MAG pays for one full time salary and ITCR for a part-time one.
Sarapiquí (18)	The centre doesn't have its own building. It is rented. They were renting 4 classrooms.	It depends on it's management on the Heredia CU	A visit to institutions and local companies to invite people to enrolment in the high school distance programme of UNED, CONED.
<b>Central Pacific Region</b>			
Puntarenas (9)	It doesn't have its own building, they pay rent. It has 7 classrooms and a library	The head of the centre is a PhD graduate. The local committee was inactive. The administrator did not give details; however pointed that occasionally they get together to make decisions, but it is difficult, as they have no funding.	A project was the Centre for the attention of the indigents.
Orotina (17)	It doesn't have its own building. It has approximately 800m <sup>2</sup> and they rent it from the Board of Education that is in charge of the local primary school (Primo Vargas Valverde). It has a library.	The head of the centre was a Master Graduate	A Technician on Agroindustry with UNED-CNP agreement (21 students in the course)
Jicaral (22)	The centre has its own building. The centre was working already in it, but they are in progress of inscription.	The head of the centre was a Bachelor graduate.	

	It was donated by the local high school. They had 6 computers, 1 classroom and a library.		
Monteverde (37)	The centre doesn't have its own building. There is a partnership with the Board of administrators of the local high school. They have a small library.	The head of the centre was a Licentiate graduate.	Courses for high school local students in order to preparer those to present the admission test of the public universities. Workshop with psychologist about managing limits with children between zero and six years. Also an Urban Development Workshop, for the community, the national and international institutions and UNED students located in the area. There was also a legal assistance to the local government.
Shiroles	It is a tutorial centre, depending of Puntarenas Centre		

## Annex 4

### List of Interviews conducted during this research. Non-personal names have been included.

Interview Number	Representative of	Date
1	Representative of State of Nation Project	04/06/09
2	Support for Local Governments Institute IFAM (by acronym in Spanish)	11/06/09
3	Representative of Ministry of Economy, Industry and Trade	11/06/09
4	Programme of Information and Knowledge Society of the UCR (PROSIC by acronym in Spanish)	11/06/09
5	Representative of Archive of Roman Catholic Church	12/06/09
6	Representative of XXI Century Strategy (Founder)	15/06/09
7	Chamber of Information and Communication Technologies Costa Rica (CAMTIC by acronym in Spanish)	16/06/09
8	Representative of Ministry of Planning	16/06/09
9	Representative of National Centre of High Technology (CENAT by acronym in Spanish)	17/06/09
10	Expert in Historical Geography - Out of record	19/06/09
11	Representative of Ministry of Science and Technology	22/06/09
12	National System of Innovation- Costa Rica	22/06/09
13	LINK Angels Investment	22/06/09
14	Representative of High Technology Advisory Committee (CAATEC by acronym in Spanish)	25/06/09
15	Foreign Trade Corporation of Costa Rica (PROCOMER by acronym in Spanish)	25/06/09
16	Representative of Industrial Chamber of Costa Rica	29/06/09
17	Group interview: Representatives of INBio Park	29/06/09
18	Central American Population Research Centre of UCR	30/06/09
19	Central American Institute of Teaching and Culture (ICECU by acronym in Spanish)	01/07/09
20	International Relations Office (PRE by acronym in Spanish) of UNED	02/07/09
21	Representative of Ministry of Work and Social Security	02/07/09
22	Group Interview: National System of the Conservation Areas (SINAC by acronym in Spanish)	02/07/09
23	Representative of Sugar Cane League (LAICA by acronym in Spanish)	06/07/09
24	Peace with Nature (Paz con la Naturaleza) which was an environment program of the President of the Republic initiatives	08/07/09

25	Representative of Ministry of Competitiveness	10/07/09
26	Representative of Ministry of Agriculture and Livestock (MAG by acronym in Spanish)	10/07/09
27	Representative of Connection Commission of UNED-CONARE	13/07/09
28	Executive Secretary of Agro Sectorial Planning (SEPSA by acronym in Spanish) of the MAG	15/07/09
29	Research Transference of Technology and Education for Development Centre of UNED (CITTED by acronym in Spanish)	16/07/09
30	Micro, Small and Medium Enterprises Development Observatory of UNED (O-MIPYMES by acronym in Spanish), designated university-private sector group of UNED	17/07/09
31	Program of link university- productive sector PROINNOVA-UCR	21/07/09
32	Regional and Urban Program for the Metropolitan Area (PRUGAM by acronym in Spanish)	21/07/09
33	Group Interview: Representatives of Agronomical School for Tropical Hummed Region (EARTH by acronym in Spanish)	15/07/09
34	Representative of Local Management Programme (PGL by acronym in Spanish) of Social Action UNED Direction	27/07/09
35	Event: Re-opening of the Research Transference of Technology and Education for Development Centre of UNED (CITTED by acronym in Spanish)	29/07/09
36	Group Interview: Inter-universities Regionalization Programme of CONARE - North Huetar Region Committee	30/07/09
37	Vice-rectory of Research-UCR	03/08/09
38	Vice-rectory of Research-UNED	04/08/09
39	Rectory of the National University (UNA)	04/08/09
40	Representative of the academic team of UNED's	05/08/09
41	Member of the PROTO-Red- UNED	05/08/09
42	Representative of FLACSO. Academic	05/08/09
43	Rectory elected team- UNED	06/08/09
44	Member of the PGL-UNED team (Researcher)	06/08/09
45	Representative of Industrial Chamber in Innovation Processes	06/08/09
46	Inter-universities regionalization project evaluator of UNED	07/08/09
47	Agronomy School of ITCR University Centre of Santa Clara, San Carlos, North Huetar Region	11/08/09
48	Rectory of UNED	13/05/09
49	Inter-universities Regionalization Programme of CONARE - Atlantic Region Committee Group Interview	14/08/09
50	Inter-universities Regionalization Programme of CONARE - North Huetar Region Committee (second part) UNED	14/08/09

	representative	
51	Technician on Agro-industrial Management degree and the Management Training Programme UNED_CNP Conference	07/08/09
52	Representative of Technological Transference and External Link office (OTTVE by acronym in Spanish) of UNA	11/02/11
53	Representative of Venado Island Project-UNA	11/02/11
54	Representative of Inter-Universities Regionalization Programme of UNA	11/02/11
55	Group Interview: Representatives of Centre of link University Enterprises of ITCR	21/02/11
56	Representative of Technician on Agro-industrial Management degree and the Management Training Programme	24/02/11

## Annex 5

### List of Free Economic Zones. Costa Rica (2006)

PARQUES INDUSTRIALES DE ZONA FRANCA EN COSTA RICA (A noviembre de 2006)						
EMPRESA	DIRECCIÓN	TELEFONO	FAX	PROVINCIA	TIPO DE	ACTIVIDAD
ADMINISTRADORA DE PARQUES ZONA FRANCA GENESIS, S.A.	P.I.Z.F. FORUM	204-7148	204-7149	SAN JOSE	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
ALMACENES ATALANTA, S.A.	P.I.Z.F. ATALANTA	258-0997	258-0997	SAN JOSE	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
BATCCA PARK INVERSIONES INMOBILIARIAS, S.A.	DISTRITO LLORENTE, CANTÓN FLORES, HEREDIA	208-3838	208-3880	HEREDIA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL DE SERVICIOS
CENTRO DE CIENCIA Y TECNOLOGÍA ULTRAPARK, S.A.	HEREDIA, CANTON DE HEREDIA, DISTRITO LILLOA	293-3333	293-4715	HEREDIA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
CONAIR COSTA RICA, S.A.	CARTAGO, CANTON DE TURRIALBA, DISTRITO PAVONES	590-0000	590-0123	CARTAGO	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
CORPORACIÓN DE INVERSION Y DESARROLLO BES, S.A.	EL COYOL, ALAJUELA	438-1111	438-2222	ALAJUELA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
DIURSA INMOBILIARIA DE COSTA RICA, S.A.	ELBROPLAZA DIURSA, FRENTE A CENADA, BARRIAL DE HEREDIA	293-9990	293-7778	HEREDIA	ADMINISTRADORA	PARQUE DE SERVICIOS Y/O COMERCIALIZADORAS
FTZ COCA COLA PARK ADMINISTRATOR LTDA	LA URUCA, SAN JOSE	299-3478	299-3262	SAN JOSE	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
INMOBILIARIA OSLO S.A.	SAN JOSE, GUADALUPE, CALLE BLANCOS	248-0506	248-2038	SAN JOSE	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
INTEL FREE TRADE ZONE PARK, S.A.	CALLE 129, LA RIBERA DE BELEN, HEREDIA	298-6000	298-6334	HEREDIA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
INVERSIONES ZETA, S.A. (CARTAGO)	CARTAGO	573-7601	573-7610	CARTAGO	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
INVERSIONES ZETA, S.A. (LA VALENCIA)	HEREDIA, LA VALENCIA	261-1723	573-7610	HEREDIA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
INVERSIONES ZETA, S.A. (MONTECILLOS)	ALAJUELA, MONTECILLOS	443-26-91	441-3078	ALAJUELA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
LOS ARALLANES, S.A.	HEREDIA, CANTON CENTRAL, DISTRITO SAN FRANCISCO	239-4450	239-4445	HEREDIA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
PARQUE BIOTECNOLOGICO, S.A.	COTO 49, GOLFITO	7899142	781-1412	PUNTARENAS	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
PARQUE GLOBAL, S.A.	HEREDIA, CANTON CENTRAL, DISTRITO LA ALBOBA	209-5959	209-5960	HEREDIA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
PARQUE INDUSTRIAL Y DE SERVICIOS COYOL, S.A.	PROVINCIA DE ALAJUELA, CANTON ALAJUELA, DISTRITO SAN JOSE, COSTADO NORTE DE COOPERATIVA DE PRODUCTORES DE LECHE DOS PINOS S.R.L.	288-4701	288-4710	ALAJUELA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
PARQUE INDUSTRIAL ZONA FRANCA ALAJUELA, S.A. (SARET)	ALAJUELA	440-1009	443-0202	ALAJUELA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
SAPHILL, S.A.	P.I.Z.F. SAPHILL, S.A.	442-2815	443-1858	GUANACASTE	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
ULTRAPARK L.A.G., S.A.	DEL CEMENTERIO DE JARDINES DEL RECUERDO 130 METROS OESTE, FRENTE URBANIZACIÓN	293-3333	293-4443	HEREDIA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
ZONA FRANCA METROPOLITANA, S.A.	HEREDIA, EL BARRIAL	239-5000	293-1415	HEREDIA	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL
ZONA FRANCA PUNTARENAS, S.A.	PUNTARENAS	663-2412	663-2650 663-27-97	PUNTARENAS	ADMINISTRADORA	ADMINISTRADORA PARQUE INDUSTRIAL



## Annex 6

**Percentage of participation in each economic sector by canton**

Canton	Primary sector		Secondary Sector		Tertiary sector	
	perc73-84	perc84-00	perc73-84	perc84-00	perc73-84	perc84-00
SAN JOSE	-7.12	13.08	0.06	47.31	-2.32	73.21
ESCAZU	-13.21	-7.56	37.52	60.37	41.57	138.76
DESAMPARADOS	2.86	-6.09	46.76	86.95	49.33	148.14
PURISCAL	-2.12	-41.00	46.82	114.74	33.78	175.03
TARRAZU	38.47	28.87	92.19	47.15	39.54	136.74
ASERRI	4.22	-16.64	80.95	96.00	85.24	166.76
MORA	-6.63	-22.69	61.23	218.74	81.67	215.72
GOICOECHEA	-9.22	7.37	14.83	52.96	11.50	128.14
SANTA ANA	-7.97	-25.98	79.62	119.55	63.63	175.06
ALAJUELITA	-5.98	-30.02	36.70	118.10	38.98	205.24
VASQUEZ DE CORONADO	-15.93	-14.57	80.35	105.50	69.39	269.19
ACOSTA	8.48	-22.13	81.68	192.02	23.28	286.71
TIBAS	-24.03	37.21	43.70	30.02	52.17	81.69
MORAVIA	4.55	6.25	61.17	60.70	65.36	121.95
MONTES DE OCA	-10.88	0.87	-6.18	20.54	19.93	77.47
TURRUBARES	-2.37	-21.76	41.03	163.64	0.64	193.04
DOTA	37.58	2.13	-31.67	71.95	81.46	89.52
CURRIDABAT	12.72	20.80	68.92	94.10	123.15	189.08
PEREZ ZELEDON	20.20	2.04	61.38	122.95	52.24	144.38
LEON CORTES	32.18	13.63	17.07	54.58	51.87	198.94
ALAJUELA	14.63	-4.78	49.97	130.05	32.97	153.54
SAN RAMON	31.03	-2.76	75.08	141.61	51.04	168.47
GRECIA	16.14	-9.16	35.51	236.73	42.29	147.29
SAN MATEO	31.93	-0.93	30.86	144.34	47.62	136.36
						109.52
ATENAS	13.64	-19.65	114.47	213.49	100.86	
Canton	Primary sector		Secondary Sector		Tertiary sector	
	Perc 73-84	Perc 84-00	Perc 73-84	Perc 84-00	Perc 73-84	Perc 84-00
	28.40	-13.54	92.35	219.67	27.91	176.99
PALMARES	14.00	-17.83	105.38	186.99	49.73	160.87
POAS	29.33	28.19	87.58	177.28	67.32	191.02
OROTINA	28.21	-36.77	91.63	129.91	27.07	151.21
SAN CARLOS	38.36	-2.44	70.10	139.88	46.03	194.15

						117.65
ALFARO RUIZ	27.74	24.95	24.64	259.30	40.13	
VALVERDE						
VEGA	10.12	-0.70	72.08	137.86	45.00	149.17
UPALA	57.98	-9.74	182.86	152.86	83.60	266.87
LOS CHILES	80.88	26.37	67.50	317.91	62.64	370.27
GUATUSO	26.42	67.58	108.11	220.78	100.91	404.07
CARTAGO	20.88	5.00	47.41	112.32	31.06	103.46
PARAISO	19.96	22.21	53.96	219.54	35.56	185.13
LA UNION	12.14	-10.66	83.79	97.29	98.55	186.45
JIMENEZ	12.21	-23.38	6.29	241.43	3.31	155.52
TURRIALBA	19.45	-8.41	17.20	92.85	36.18	94.33
ALVARADO	25.17	12.52	16.78	307.78	39.48	196.06
OREAMUNO	29.19	14.31	68.62	168.11	47.76	144.78
EL GUARCO	30.70	13.11	111.52	144.99	66.82	134.71
HEREDIA	7.07	-9.47	47.54	135.89	46.95	146.14
BARVA	-4.61	-13.90	59.18	90.04	80.30	153.05
SANTO						
DOMINGO	-6.70	-35.45	39.21	52.56	39.04	126.48
SANTA						
BARBARA	3.81	-40.61	115.93	161.82	86.56	191.16
SAN RAFAEL	-9.86	-26.98	35.98	83.38	79.51	155.90
SAN ISIDRO	-2.99	-31.60	88.47	131.80	90.48	226.12
BELEN	1.08	-47.79	44.02	95.10	30.90	229.56
FLORES	-18.24	-40.85	62.52	89.84	51.14	139.87
SAN PABLO	-0.32	-36.66	75.37	78.72	96.18	188.51
SARAPIQUI	38.05	88.56	86.78	337.61	6.50	456.10
LIBERIA	3.68	-12.35	3.38	80.15	21.95	152.86
NICOYA	-12.67	-27.26	-10.29	119.30	16.37	109.20
SANTA CRUZ	-7.91	-51.80	8.44	137.48	14.03	208.13
BAGACES	7.05	-8.37	25.70	113.38	6.70	271.74
CARRILLO	-3.27	-29.04	61.49	65.45	29.46	176.02
CAÑAS	14.55	-27.77	38.31	123.56	42.71	110.92
ABANGARES	-1.93	-21.01	106.40	77.71	21.88	116.53
TILARAN	26.45	-38.92	56.31	31.89	32.46	109.08
NANDAYURE	-20.20	-47.05	10.20	101.85	-3.04	125.26
LA CRUZ	22.01	-5.74	-29.71	386.60	10.74	209.49
HOJANCHA	-19.89	-34.93	-32.09	90.11	13.70	103.31
PUNTARENAS	0.89	-9.46	0.82	103.89	-1.44	109.86
ESPARZA	2.07	-40.56	46.33	102.79	28.92	152.93
BUENOS AIRES	44.58	31.72	-28.22	143.69	47.64	147.36
MONTES DE ORO	-3.44	-26.78	21.25	193.10	28.54	150.75

OSA	3.52	-27.44	-27.33	117.24	-15.92	112.60
AGUIRRE	-16.22	-30.43	14.94	283.75	12.11	238.34
GOLFITO	-34.60	-35.32	-31.82	120.74	-39.55	183.38
COTO BRUS	47.30	-0.48	127.10	67.70	86.38	176.34
PARRITA	-23.91	-33.84	32.00	151.85	1.15	169.19
CORREDORES	n.a.	-20.79	n.a.	238.54	n.a.	123.82
GARABITO	n.a.	-0.95	n.a.	691.26	n.a.	750.71
LIMON	4.08	83.14	-15.80	111.60	4.19	128.34
POCOCI	32.02	51.25	103.70	374.28	55.15	317.53
SIQUIRRES	57.82	47.16	20.61	238.82	26.13	164.24
TALAMANCA	67.33	156.54	177.27	184.43	52.76	597.37
MATINA	29.69	118.86	27.55	92.00	56.49	258.99
GUACIMO	44.90	35.21	127.46	358.51	16.58	363.94

## Annex 7

### Correlations

```
. corr tert84 tert00 sec84 sec00 prim84 prim00 no_84ave_84 no_00ave_00 niv84 niv00
(obs=81)
```

	tert84	tert00	sec84	sec00	prim84	prim00	no_84~84	no_00~00	niv84	niv00
tert84	1.0000									
tert00	0.5804	1.0000								
sec84	0.8926	0.6690	1.0000							
sec00	0.6207	0.8807	0.8091	1.0000						
prim84	0.1891	0.0234	0.1193	0.1034	1.0000					
prim00	-0.0411	0.0106	-0.0724	-0.0156	0.3638	1.0000				
no_84ave_84	0.3181	0.7914	0.4071	0.7071	0.3275	0.0627	1.0000			
no_00ave_00	0.3947	0.8109	0.4950	0.7714	0.4040	0.2189	0.9596	1.0000		
niv84	0.5557	0.7946	0.5528	0.6831	0.5042	0.2572	0.7640	0.7940	1.0000	
niv00	0.4387	0.5768	0.5309	0.6565	0.4445	0.5102	0.5336	0.7500	0.5906	1.0000

Rather weak correlation with the changes in tertiary and secondary sectors between 73 and 84, followed by high correlation between 84 and 00.

## Annex 8 Competitiveness Index by Canton 2006

Position	Canton name	Score
1	San José	1,000
2	Belén	0,547
3	Alajuela	0,520
4	Montes de Oca	0,458
5	Heredia	0,436
6	Cartago	0,356
7	Curridabat	0,333
8	Puntarenas	0,282
9	Goicoechea	0,282
10	Desamparados	0,281
11	Escazú	0,273
12	Tibás	0,270
13	Garabito	0,254
14	San Carlos	0,249
15	Santa Ana	0,219
16	Limón	0,201
17	Santa Cruz	0,201
18	Pérez Zeledón	0,196
19	Liberia	0,195
20	Pococí	0,192
21	Moravia	0,184
22	La Unión	0,183
23	Aguirre	0,179
24	Santo Domingo	0,177
25	Coronado	0,171
26	Carrillo	0,168
27	Turrialba	0,165
28	Flores	0,162
29	Alajuelita	0,154
30	San Ramón	0,148
31	Grecia	0,145
32	San Pablo	0,137
33	Osa	0,132
34	Esparza	0,128
35	Sarapiquí	0,127
36	Siquirres	0,126
37	Golfito	0,125
38	El Guarco	0,123
39	Nicoya	0,122
40	Bagaces	0,122
41	Talamanca	0,118

Position	Canton name	Score
42	San Rafael	0,117
43	Matina	0,102
44	Barva	0,102
45	Tarrazú	0,102
46	Paraíso	0,099
47	Parrita	0,099
48	Naranjo	0,096
49	San Isidro	0,095
50	Cañas	0,095
51	Santa Bárbara	0,091
52	Oreamuno	0,090
53	Corredores	0,090
54	Mora	0,089
55	Guácimo	0,087
56	Aserrí	0,086
57	Puriscal	0,086
58	Orotina	0,083
59	Tilarán	0,083
60	Dota	0,081
61	Montes de Oro	0,081
62	La Cruz	0,080
63	Palmares	0,080
64	León Cortés	0,077
65	Abangares	0,076
66	Hojancha	0,064
67	Coto Brus	0,062
68	Poás	0,061
69	Alfaro Ruiz	0,060
70	Upala	0,059
71	Buenos Aires	0,058
72	Guatuso	0,054
73	San Mateo	0,052
74	Atenas	0,052
75	Nandayure	0,050
76	Jiménez	0,049
77	Turrubares	0,044
78	Los Chiles	0,032
79	Acosta	0,024
80	Valverde Vega	0,017
81	Alvarado	0,000

