

Employment Growth in the Luxembourg Cross-Border Metropolitan Area (1994-2008)

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I. Introduction

City-regions and the knowledge economy

II. Study area and data description

What makes Luxembourg interesting?

III. Employment growth in the metropolitan area

A tendency towards specialization

A strong geographical concentration

IV. Conclusion

Spatial evolution of employment in the Luxembourg metropolitan area

1. Did the employment growth led to a sectoral specialization, and if yes, which are the sectors that benefited most from this phenomenon?
2. Is Luxembourg concerned by a de-concentration of employment, and if yes, what are the infra-regional spaces that benefited from the strongest growth?
3. Can Luxembourg be compared with other European city-regions?

Focus

High-tech manufacturing activities and knowledge-intensive services

I. Introduction

City-regions and the knowledge economy

- City-regions are considered as the “motors” of economic development and the prime nodes of integration in the global economy (Taylor 2004)
- An increasing concentration of services activities and high-tech industries in city-regions (quality of infrastructure, research institutions, leading global firms, specific knowledge) (Lüthi, Thierstein, Goebel 2008)
- Knowledge-intensive economy: *“Industrial activity branches with a high share of research and development activities for the generation of new technological knowledge as well as (...) activities for which the generation and economic use of specific knowledge is a main focus”* (Krätke 2007)
 - Advanced Producer Services: services *“that are ordinarily consumed by firms and organizations in the course of their operations”* (Coffey 2000) such as accounting, insurance, banking, finance, management, law, IT...
 - High-Tech firms (pharmaceutical, chemical, botanical products, computers, medical instruments, aircrafts etc.)

II. Study area and data description

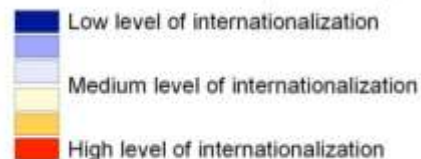
A major financial center

- A city with “*relatively strong evidence of world-city formation*” (Taylor *et al.* 2002).
- One of the favored locations for global firms and for many European institutions (Rozenblat & Cicille 2003)
- 2nd largest investment fund center in the world, 1st captive reinsurance market in the EU and 1st private banking center in the Eurozone

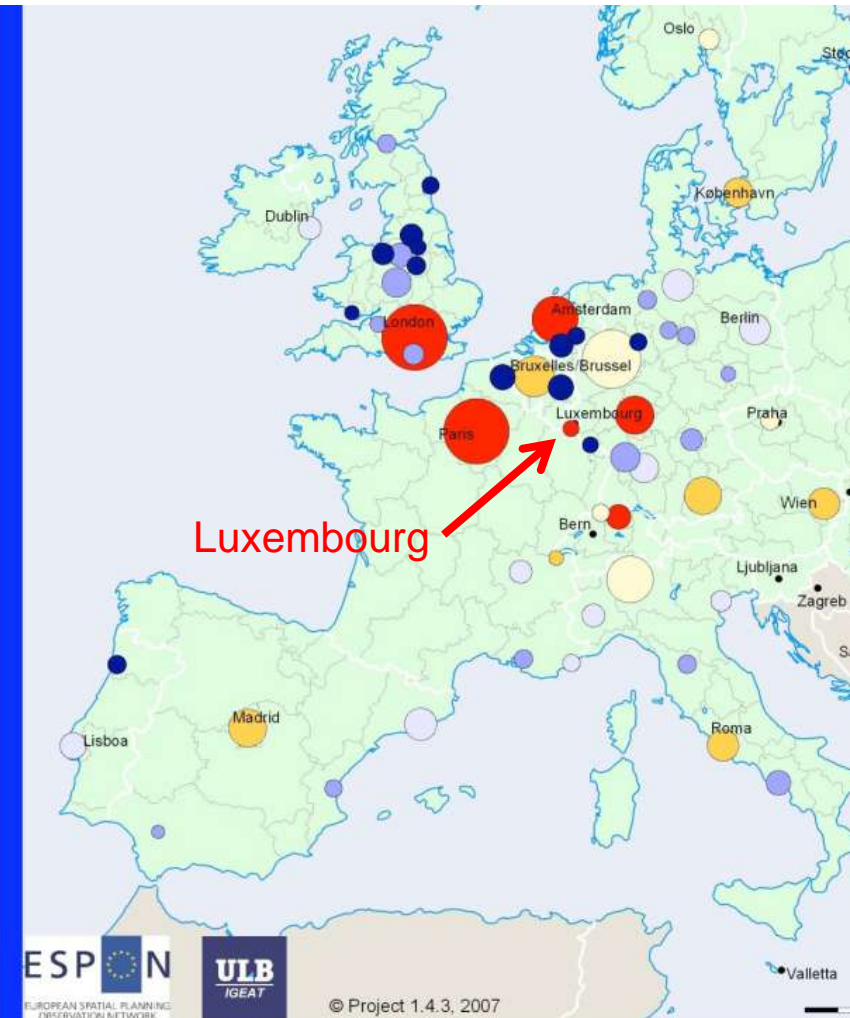
Luxembourg



Scores on the first component analysis



Total GDP (Compared with London's GDP (=100))



Urban hierarchy in Europe according to their level of internationalisation and economic structures

Source: ESPON 2007. Project 1.4.3. ULB-IGEAT

II. Study area and data description



Luxembourg metropolitan area

Municipalities where the proportion of commuters working in the Urban Area was above 16% of the working population in 2002/2004. Source: Sohn, Reitel and Walther 2009

A large metropolitan area

- A strong average annual growth of internal employment (+3.8% between 1994 and 2005)
- 1.6 jobs per inhabitant in the City in 2005 (Manhattan 1.70, Frankfurt 0.92)
- 140,000 daily cross-border commuters coming from France, Germany and Belgium
- A small urban area (125,000) but a large functional metropolitan area (900,000)

II. Study area and data description

Sectoral approach

→ *Advanced Producer Services* (Sassen 2001)

Sectoral *and* product approach

Classification of manufacturing industries according to technological intensity (R&D expend./value added) and R&D intensity by groups of products (R&D expend./total sales). Knowledge and less knowledge-intensive services are defined according to a similar logic.

→ *High Technology Manufacturing and Knowledge-Intensive Services Sectors* from OECD-Eurostat (2006), used by Krätke (2007)

II. Study area and data description

High-technology manufacturing and knowledge-intensive services sectors OECD-Eurostat

Economic sectors	NACE 1.1. Classification (similar to ISIC Rev. 3)
Manufacturing industry	
High-technology	24.4, 30, 32, 33, 35.3 24 (-24.4), 29, 31, 34,
Medium-high-technology	35 (-35.1, -35.3)
Medium-low-technology	23, 25-28, 35.1
Low-technology	15-22, 36, 37
Services	
High-technology Knowledge Intensive Services (KIS)	64, 72, 73
Market Knowledge Intensive Services (KIS)	61, 62, 70, 71, 74
Financial Knowledge Intensive Services (KIS)	65-67
Other Knowledge Intensive Services (KIS)	80, 85, 92
Market Less Knowledge-Intensive Services (LKIS)	75, 90, 91, 93, 95, 99
Other Less Knowledge-Intensive Services (LKIS)	50-52, 55, 60, 63

Luxembourg General Inspection of Social Security

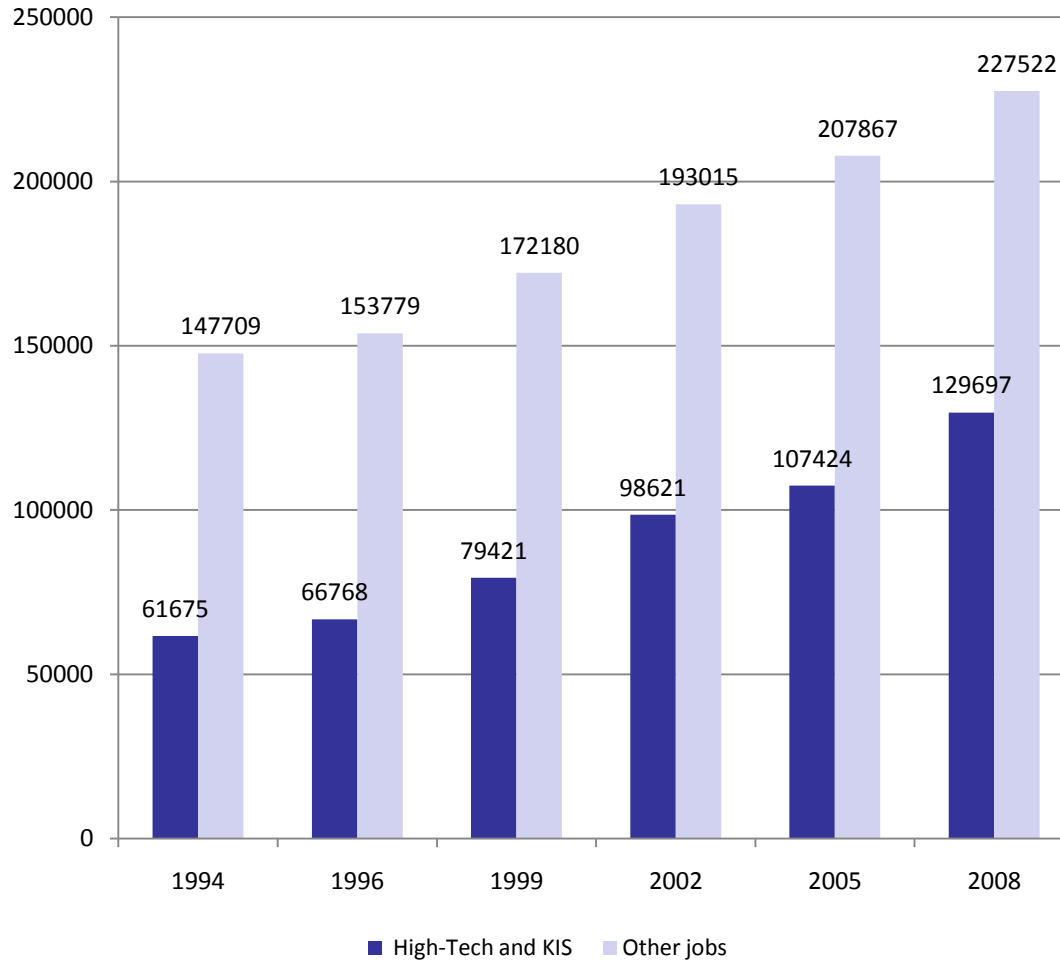
All active persons who have worked in Luxembourg in 1994, 1996, 1999, 2002, 2005 and 2008

→ National residents and cross-border commuters

III. Employment growth in the metropolitan area

Employment by categories, 1994-2008

Source: Sohn and Walther 2008



The richest country in the world went through a strong growth in the knowledge-intensive economy

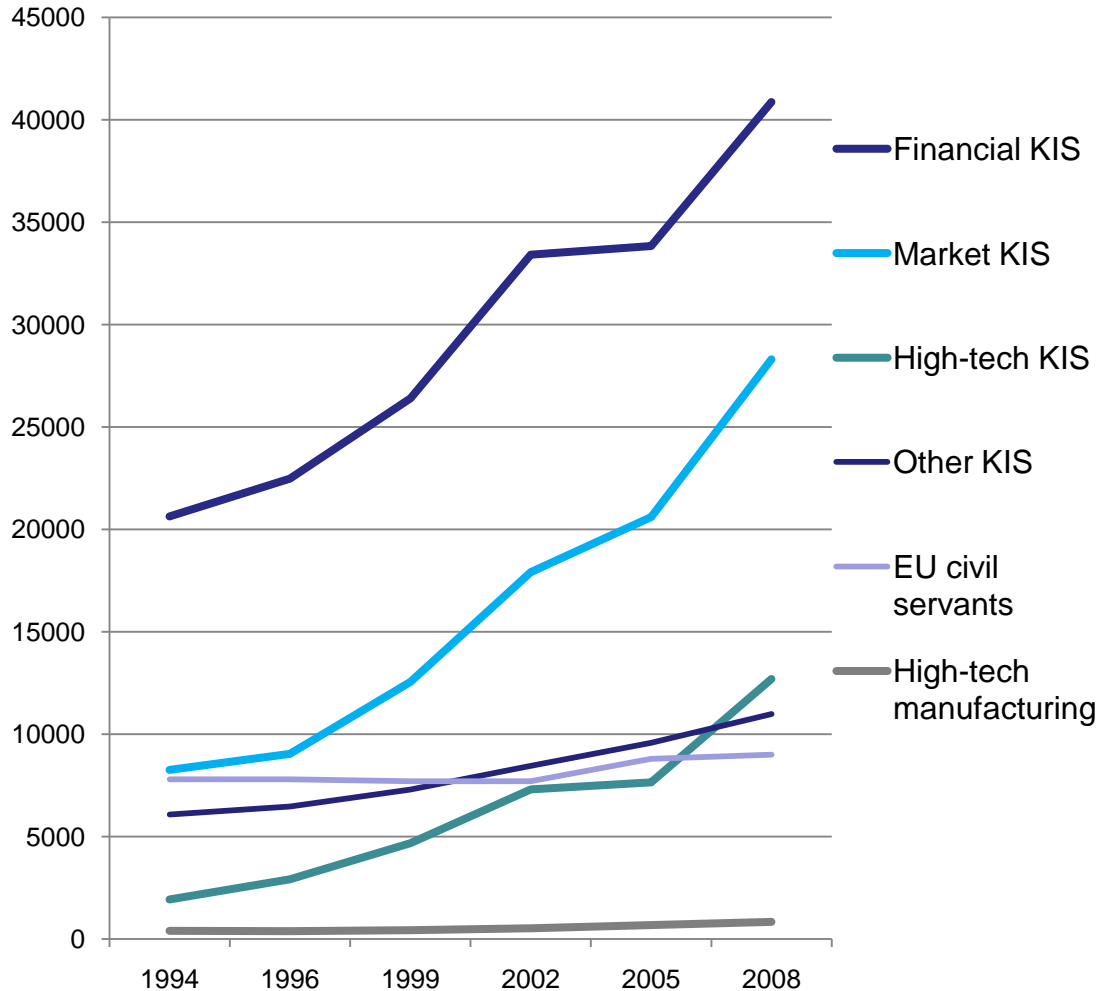
+110% between 1994 et 2008
(+54% for other jobs)

36 % of total employment in 2008

III. Employment growth in the metropolitan area

Employment by sectors, 1994-2005

Source: Sohn and Walther 2008



Financial and market knowledge-intensive services: a similar evolution

In 2006, Luxembourg accounted for more jobs directly linked to finance (37,000) than Geneva (34,500) and more banks (156 against 140)

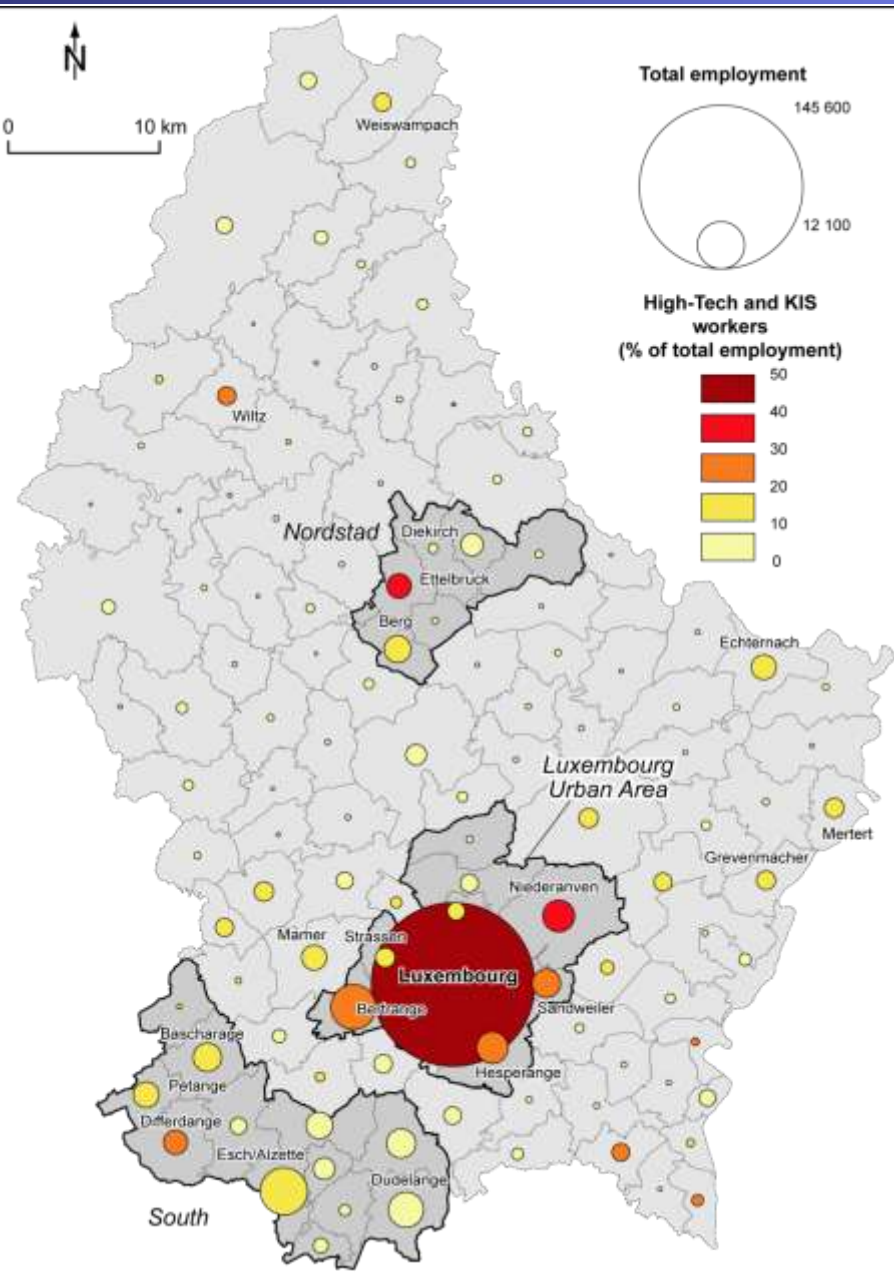
III. Employment growth in the metropolitan area

Workplace and place of residence

High-tech and KIS workers are very unevenly distributed throughout the national territory

→ Concentration in the City and the Urban Area (resp. 68% and 75% of the total High-Tech and KIS employment)

→ High proportion in the City (up to 50% of the total workforce)



Employment in the workplace and proportion of High-Tech and KIS workers in total employment, 2005

Source: Sohn and Walther 2008

III. Employment growth in the metropolitan area

Sectoral specialisation

- Diversification has increased over time
- Specialization only limited to the City

Geographical units	Herfindahl 1994	Herfindahl 2005
Luxembourg-City	0.14	0.16
Luxembourg Urban Area	0.21	0.15
Suburban Area	0.17	0.14
South	0.19	0.16
Commuter Area	0.22	0.15
All units	0.14	0.12

The Herfindahl index is a measure of how specialized a spatial unit is: perfectly diversified if $HI = 0$ and perfectly specialized if $HI = 1$

III. Employment growth in the metropolitan area

Geographical concentration

- Financial and market KIS are highly concentrated
- Redistribution of KIS in the Urban Area

Economic sectors	Gini 1994	Gini 2005
High- and medium-high-tech industries	0.36	0.35
High-tech KIS	0.48	0.41
Market KIS	0.62	0.53
Financial KIS	0.81	0.79
Other KIS (culture, health, media)	0.57	0.47

The Gini index is a measure of how concentrated an industry is: perfectly concentrated among spatial units if Gini = 1 and perfectly dispersed if Gini = 0

III. Employment growth in the metropolitan area

Employment relocations by sectors, 1994 -2005

	City		Urban Area		Suburban Area		South		Commuter Area	
	In	Out	In	Out	In	Out	In	Out	In	Out
Economic sectors										
High- and medium-high-tech industries	0	58	161	0	19	0	0	0	0	122
High-tech KIS	428	747	748	362	200	250	81	43	52	107
Market KIS	3772	2127	2639	2427	1294	2060	869	722	254	1492
Financial KIS	518	1051	935	501	90	23	20	6	35	17
Other KIS (culture, health, media)	86	134	69	51	90	51	22	18	23	36

- **Important centripetal movements**

High-tech industries and services moved from the periphery to the urban area
 Market KIS moved from the periphery to the City

- **Limited centrifugal relocations**

Financial KIS moved from the City to the urban area

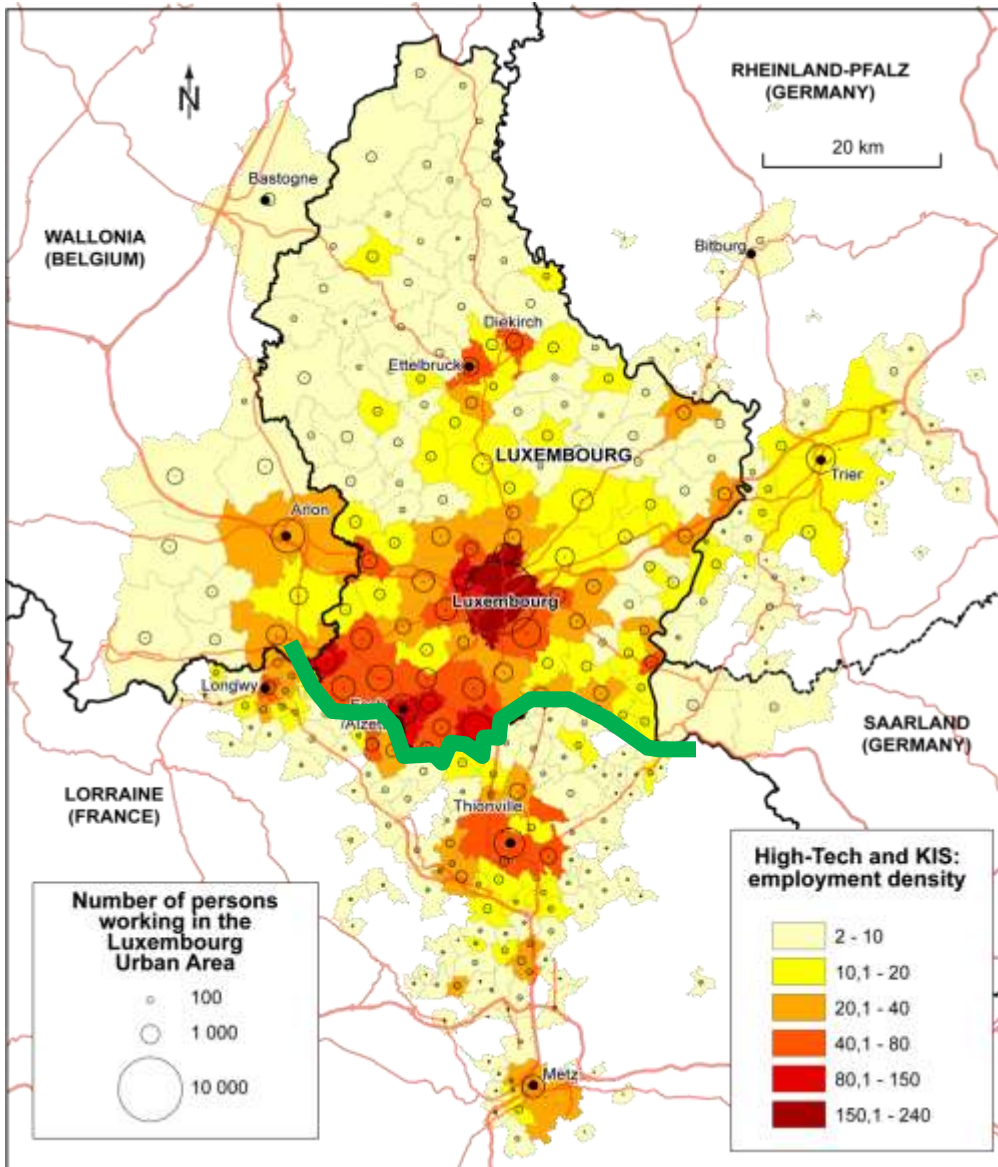
→ **Concentration of High-Tech and KIS in the urban agglomeration**

III. Employment growth in the metropolitan area

Workplace and place of residence

High-Tech and KIS workers are spread on the whole cross-border area

- The density is particularly high around the City and the South Area in Luxembourg
- Cross-border High-Tech and KIS workers live in small and medium size cities
- Border effects (in green)



Place of residence of High-Tech and KIS workers employed in Luxembourg, 2005

Source: Sohn and Walther 2008

IV. Conclusion

1. The city center benefited from a sectoral specialization in high-tech, market and other business-intensive services, as in London (Sassen 2001, Taylor et al. 2003), Paris (Halbert 2004) or Montreal (Coffey, Shearmur 2002)
2. Luxembourg is concerned by a process of employment deconcentration *but* the City remains by far the main employment pole in the country
3. Luxembourg can be considered as a city-region in which knowledge-intensive services are determining the development path (cf. Frankfurt, Copenhagen, Milan) (Krätke 2007)

Building a cross-border institutional framework...

→ Unlike other European metropolitan centers (Geneva, Basel, Lille), there is still no cross-border metropolitan governance in Luxembourg

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More information are available here: <http://metrolux.ceps.lu/>

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