

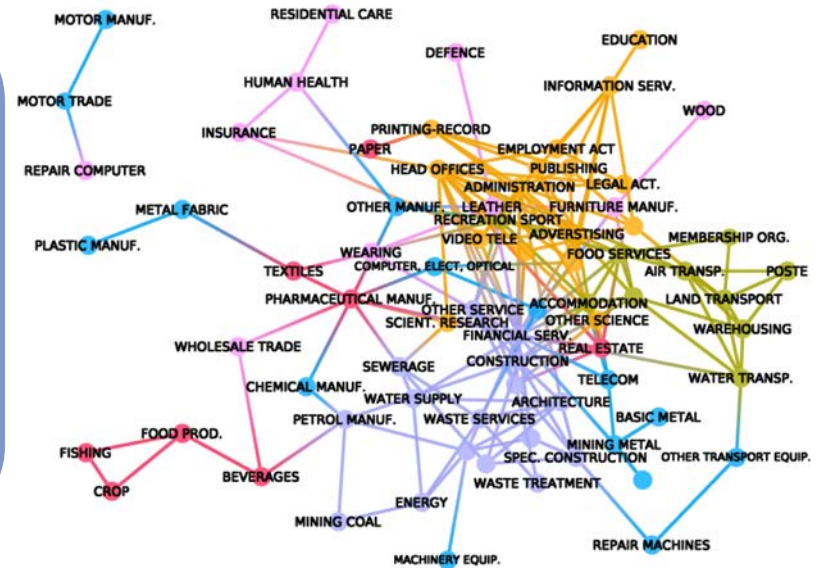


ersa



European Commission
DG REGIO

23rd April 2018 – Brussels



The role of EU cities for regional development: opportunities and challenges

Discussion

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Institute of Geography and Sustainability
University of Lausanne - Switzerland



The role of EU cities for regional development

1- Extension of results to the European cities

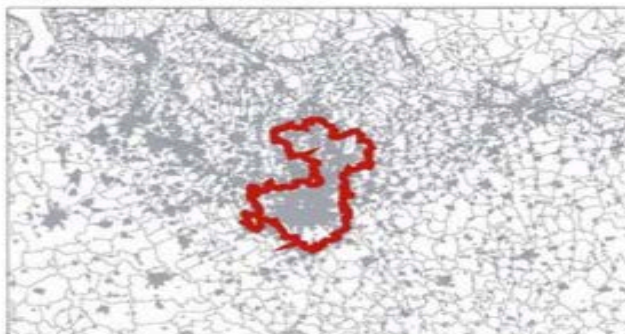
2- Specialization/diversification & cycles

3- European cohesion

1.1 Difficulty to build homogeneized data

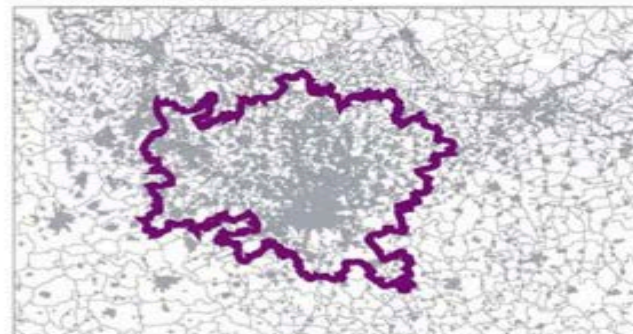
Milano

D'après la base NUREC



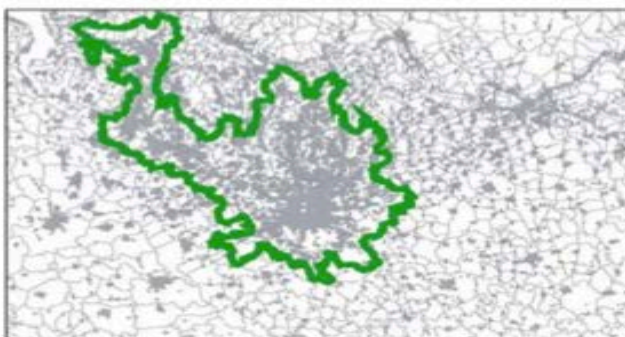
Population : 1 912 585 hab.
Superficie : 332 km²

D'après la base Geopolis



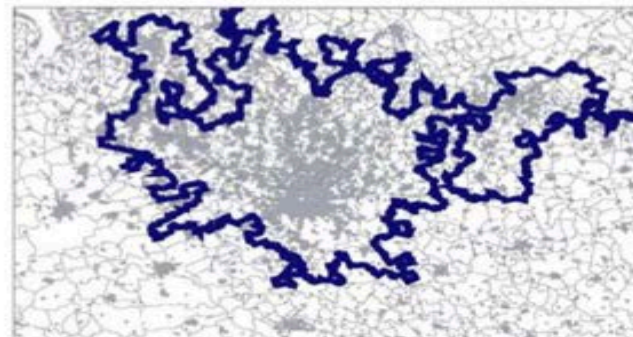
Population : 3 826 763 hab.
Superficie : 1605 km²

D'après la base de R. Madella et G. Rabino





Population : 3 752 152 hab.
Superficie : 1451 km²

D'après les densités de population



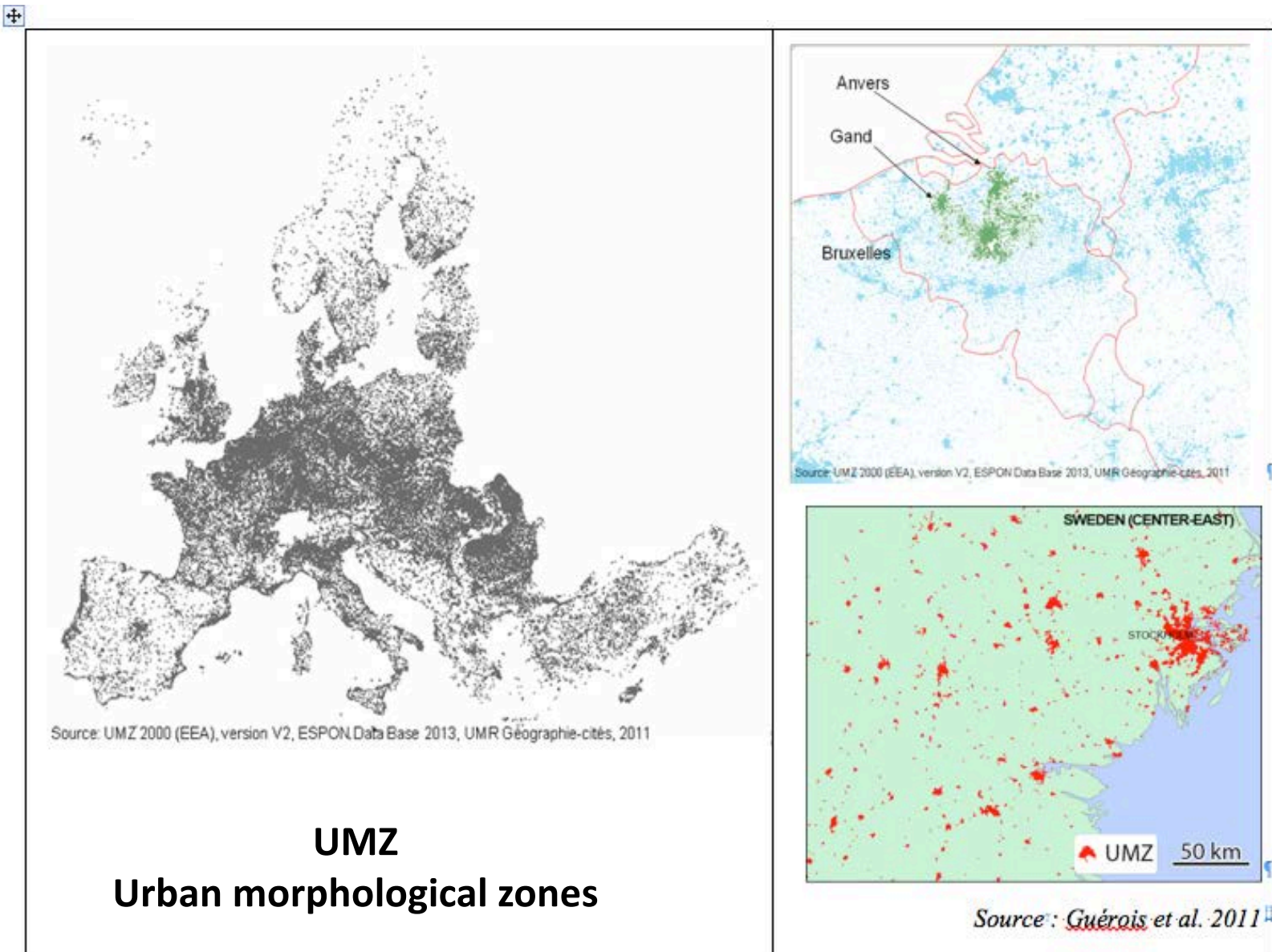
Population : 4 947 900 hab.
Superficie : 2482 km²

 Surfaces bâties, d'après CORINE Land cover (résolution : 250 m)
 Unités NUTS 5

Guerois, 2003



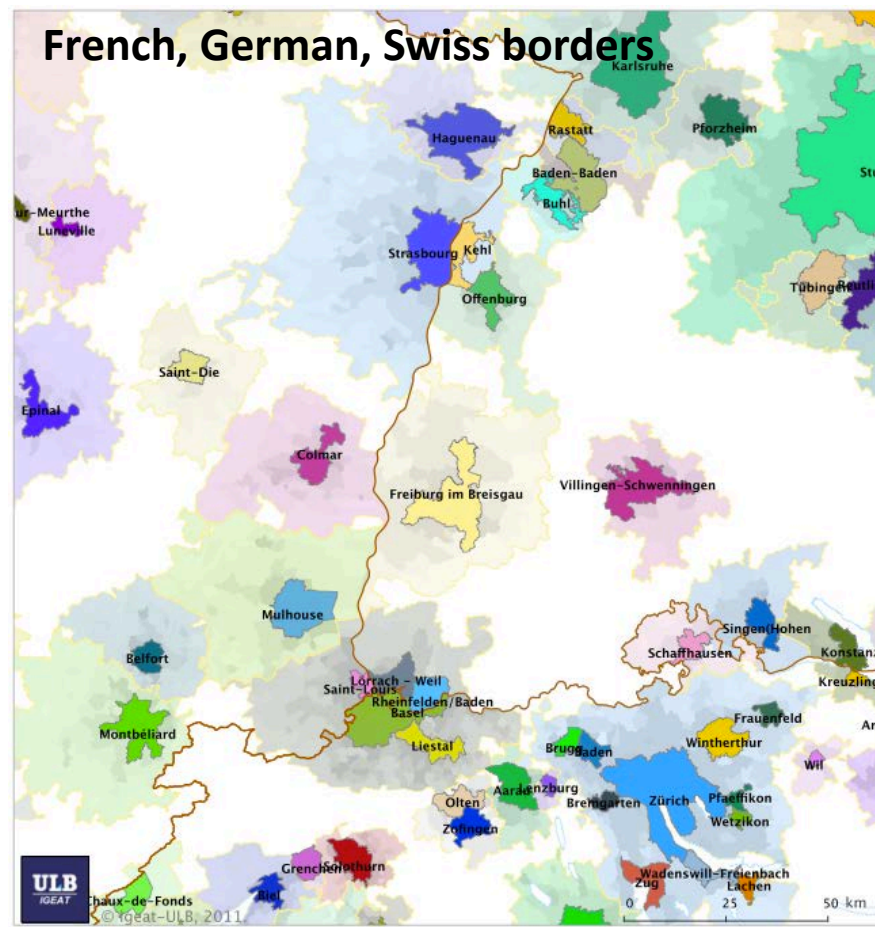
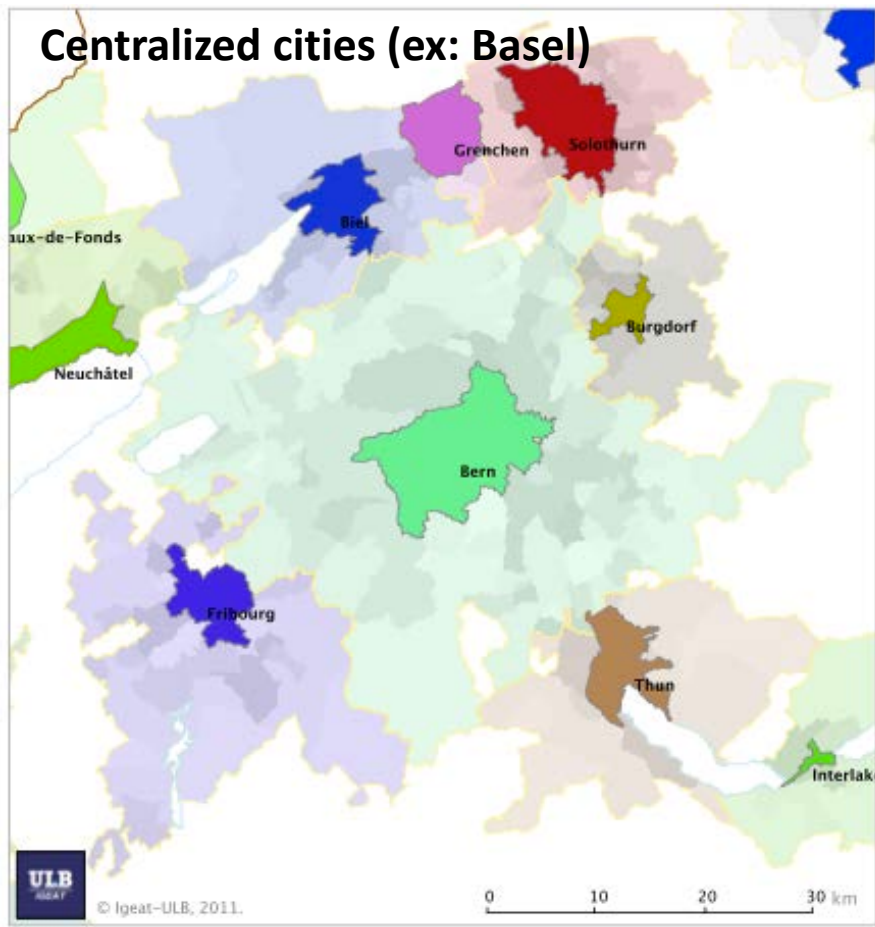
1.1 Difficulty to build homogeneized data



UMZ
Urban morphological zones

1.1 Difficulty to build homogeneized data

Functional Urban Areas – FUA - 20% of commuters

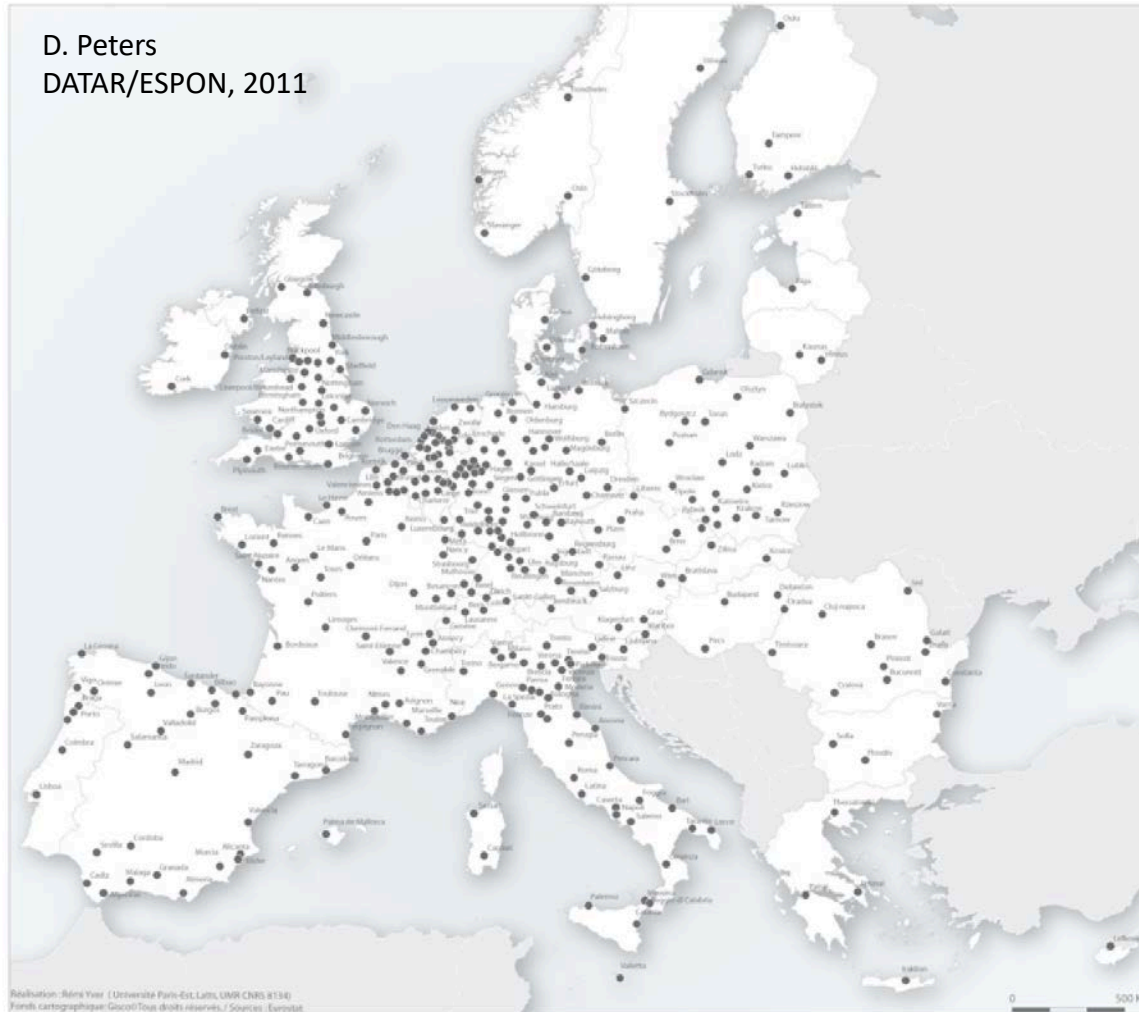


D. Peters, DATAR/ESPON, 2011



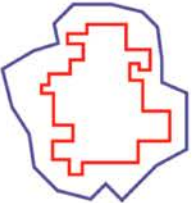
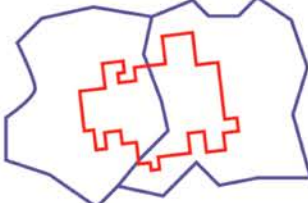
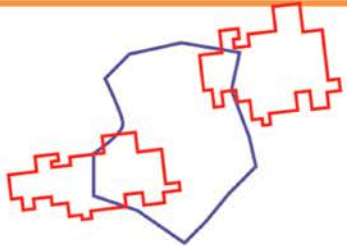


1.1 Difficulty to build homogeneized data

357 Functional Urban Areas with more than 200'000 inhab.



1.1 Difficulty to build homogeneized data

- All these delineation based on LAU2
- Even LAU2 address problems

	Situation 1	Situation 2	Situation 3
Theoretical example			
Description	"Isolated city" : One UMZ inside one LAU2	One UMZ crossing several LAU2 --> Com- puting the share of UMZ population inside each LAU2	One LAU2 crossing several UMZ --> Computing the share of LAU2 population inside each UMZ
	 UMZ	 LAU2	

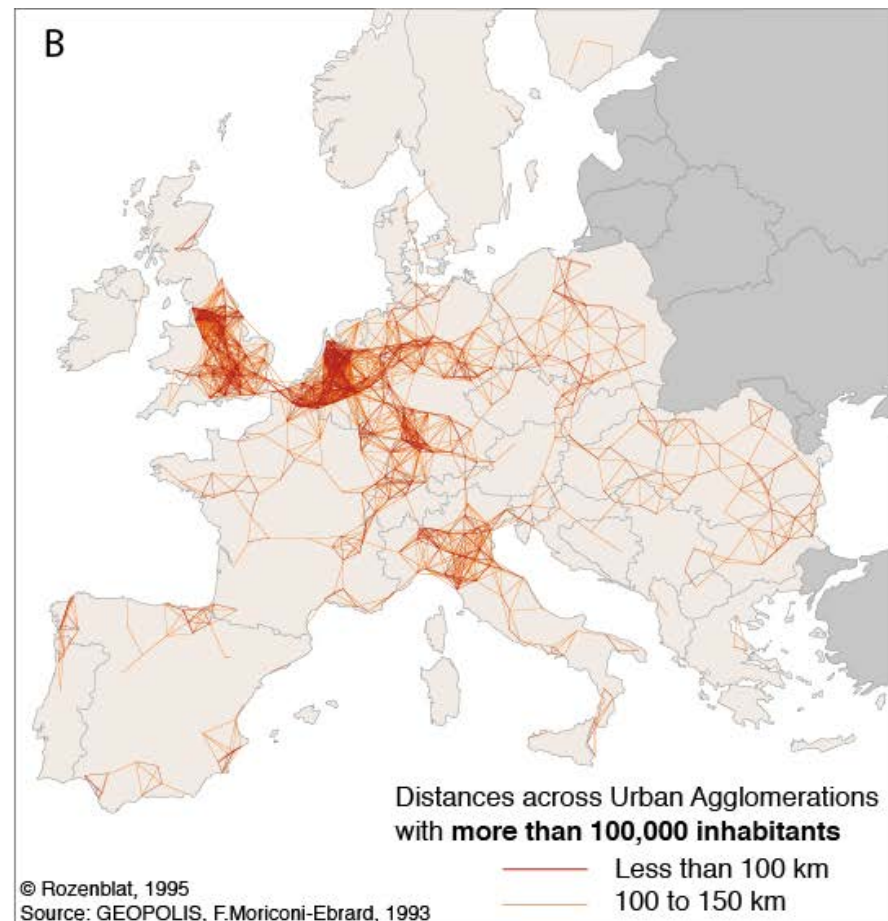
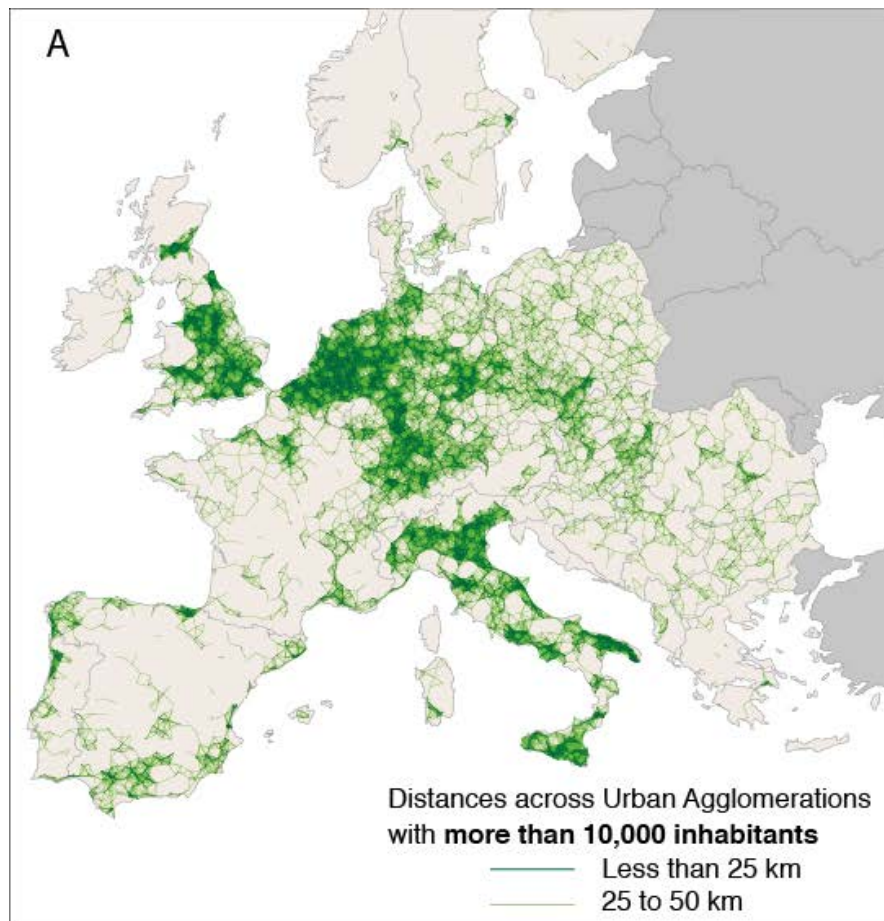
Bretagnolle et al., 2016

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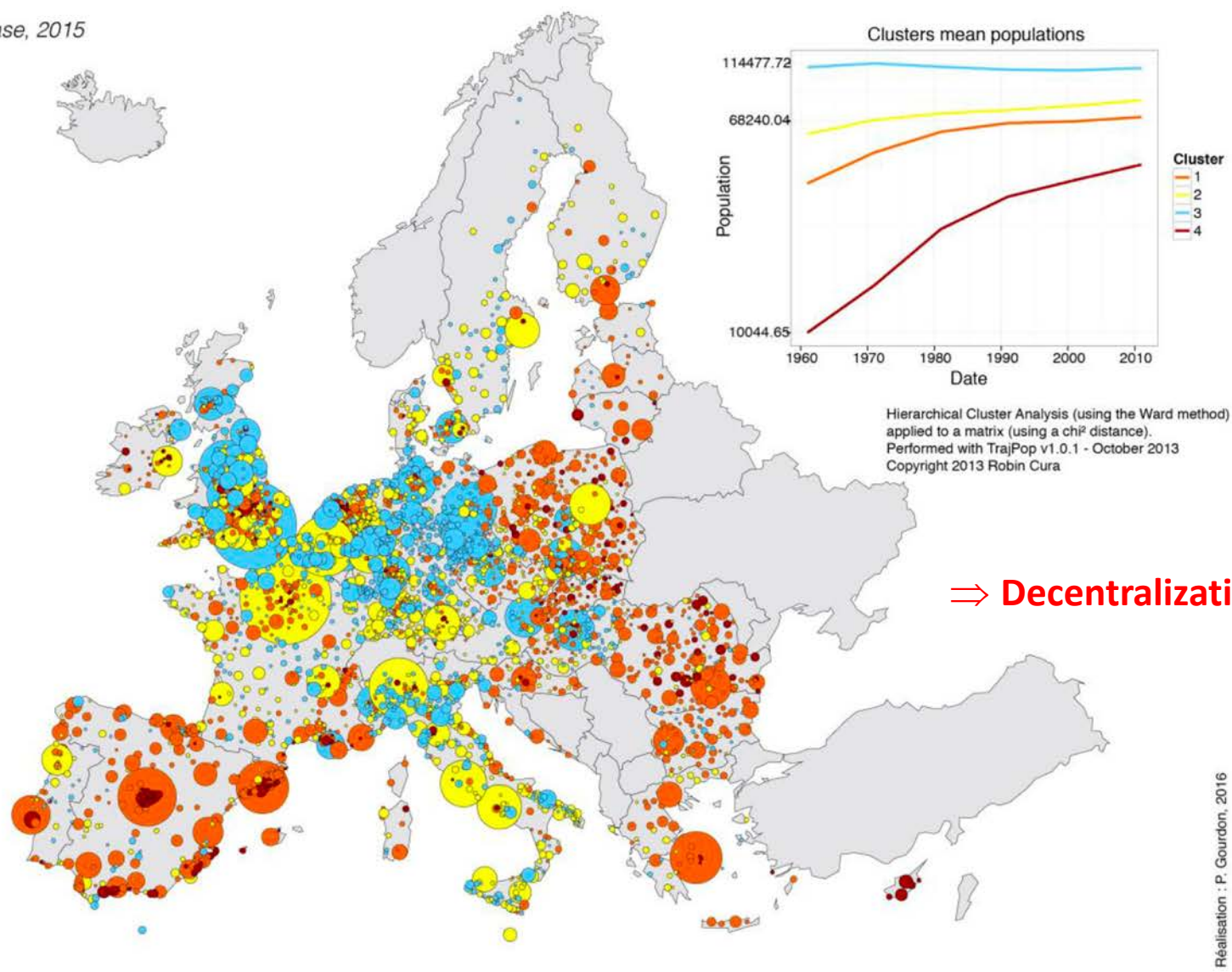
1.2 Diversity of the European inherited territory

European Urban framework



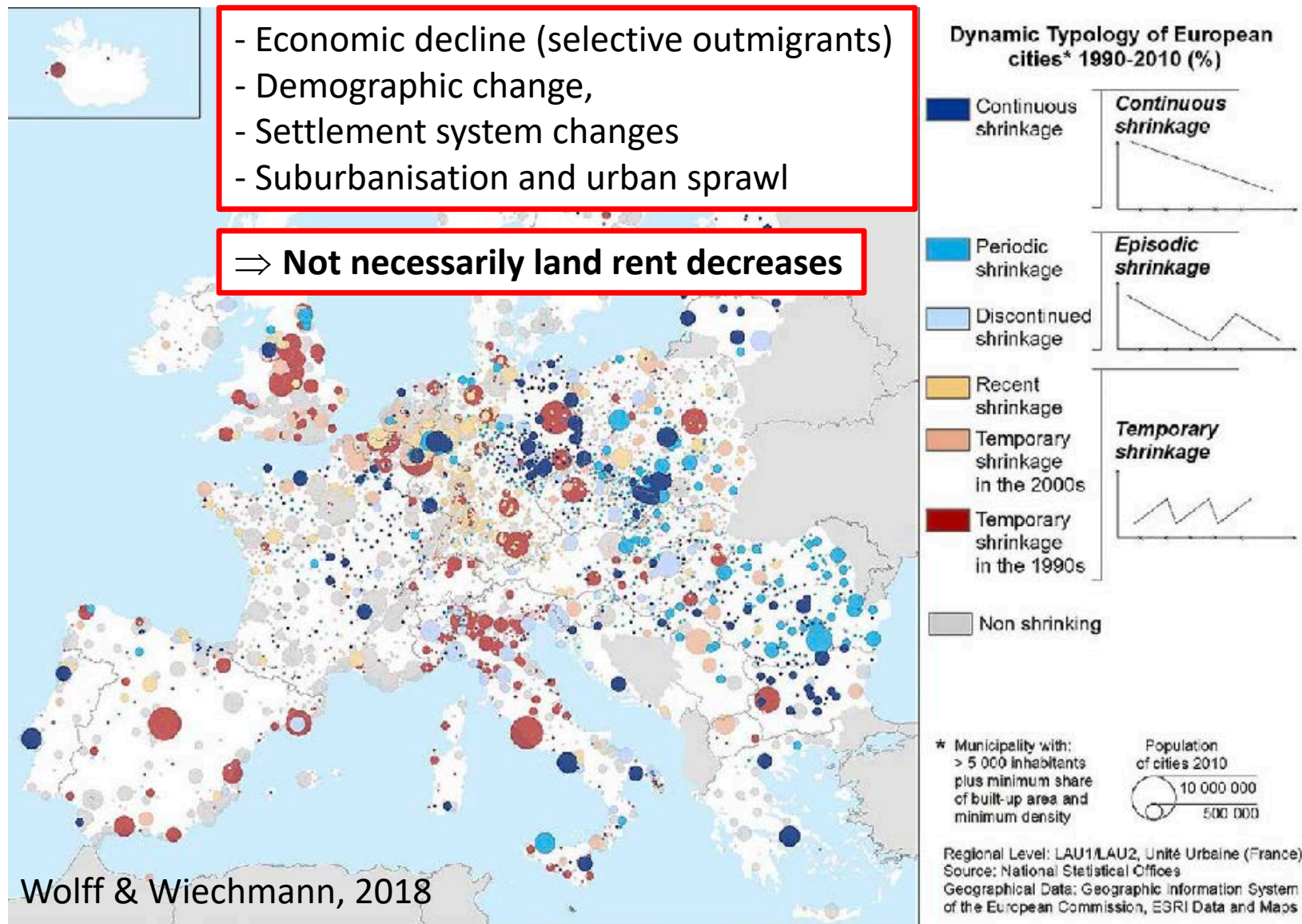
2.1 Diversity of cities' population evolution 1960-2010

Source : TRADEVE database, 2015



⇒ Decentralization?

2.1 European shrinking cities 1990-2010

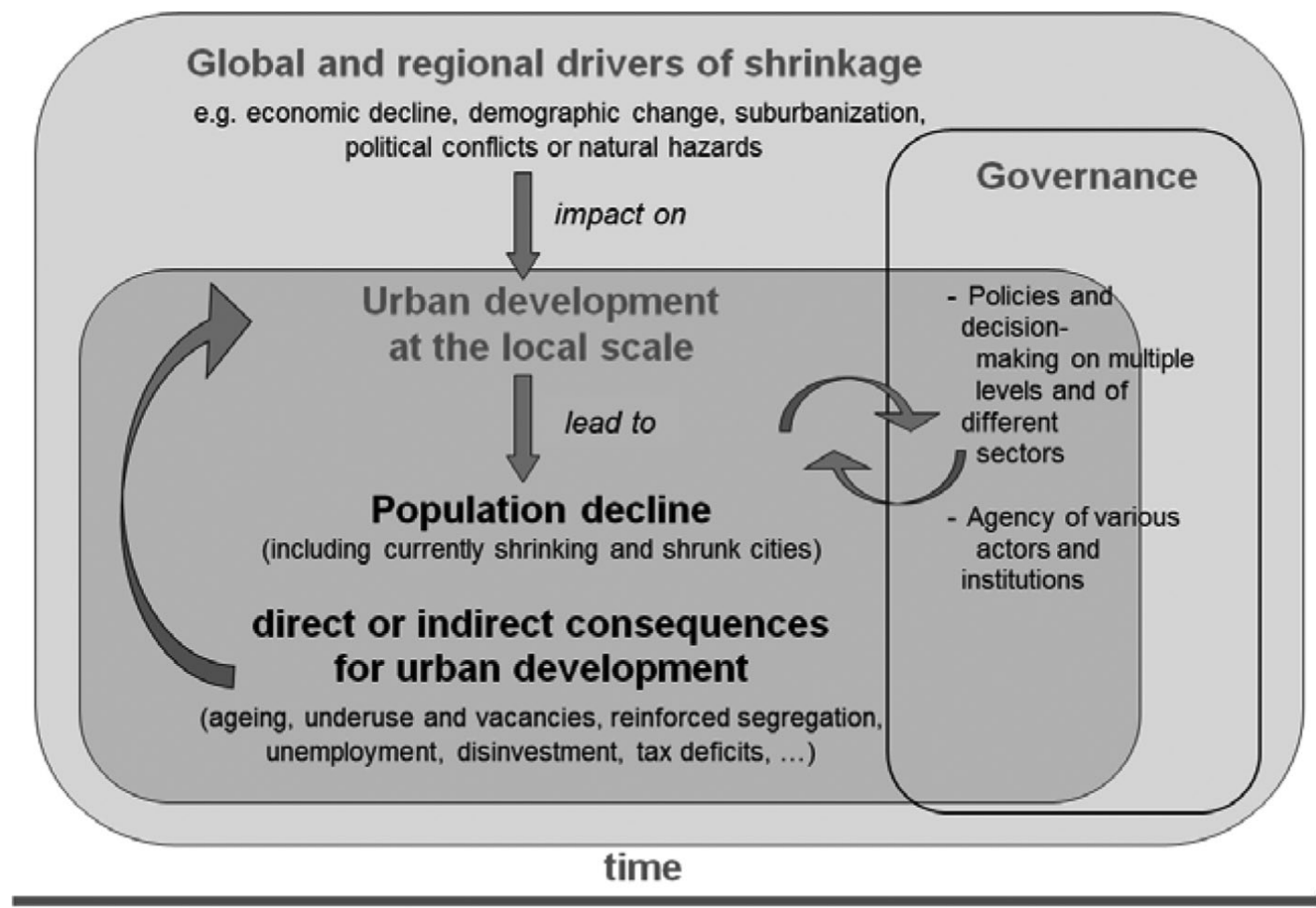


- Economic decline (selective outmigrants)
- Demographic change,
- Settlement system changes
- Suburbanisation and urban sprawl

⇒ **Not necessarily land rent decreases**

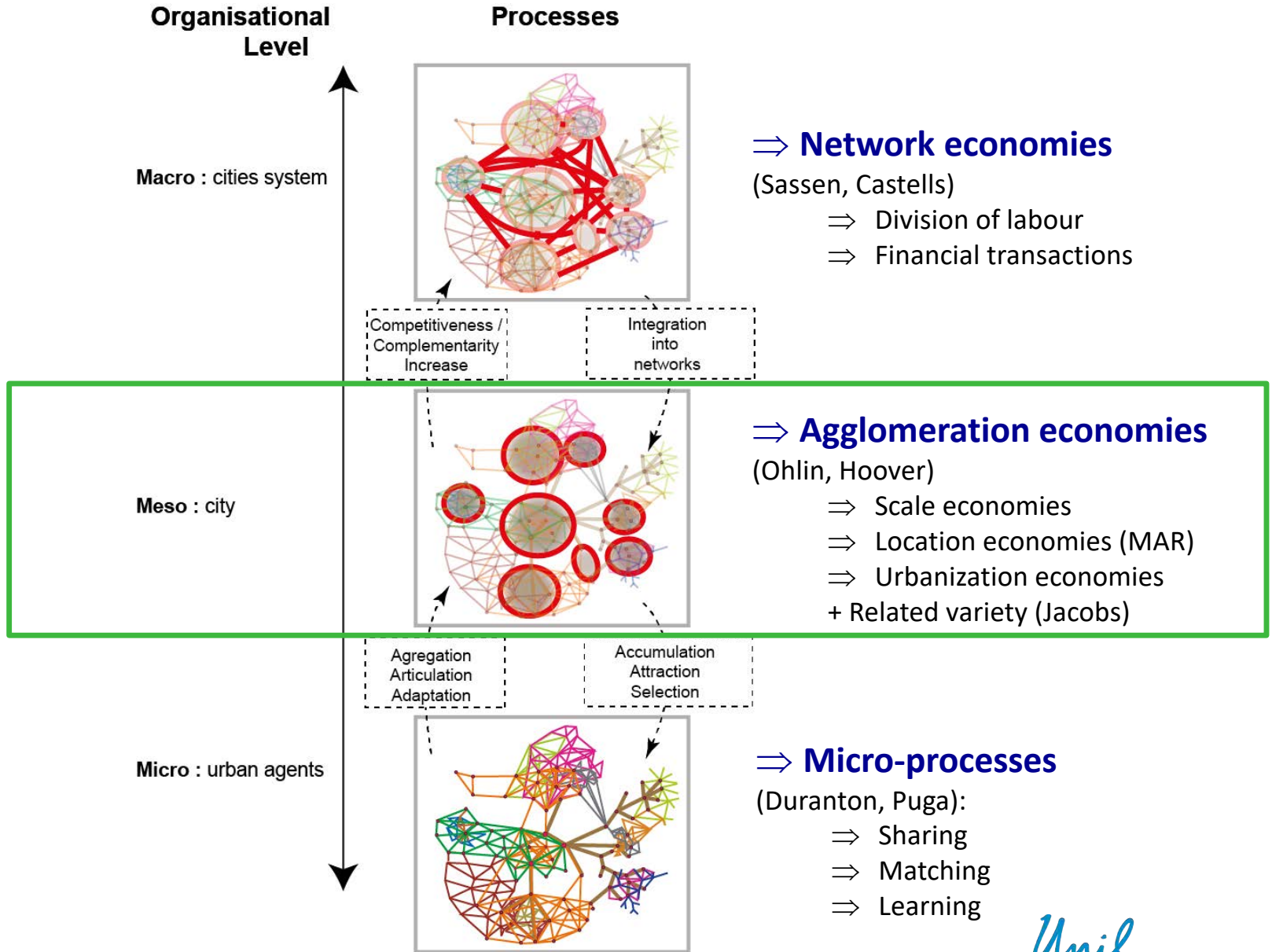
Wolff & Wiechmann, 2018

2.1 European shrinking cities 1990-2010



Haase et al., 2014

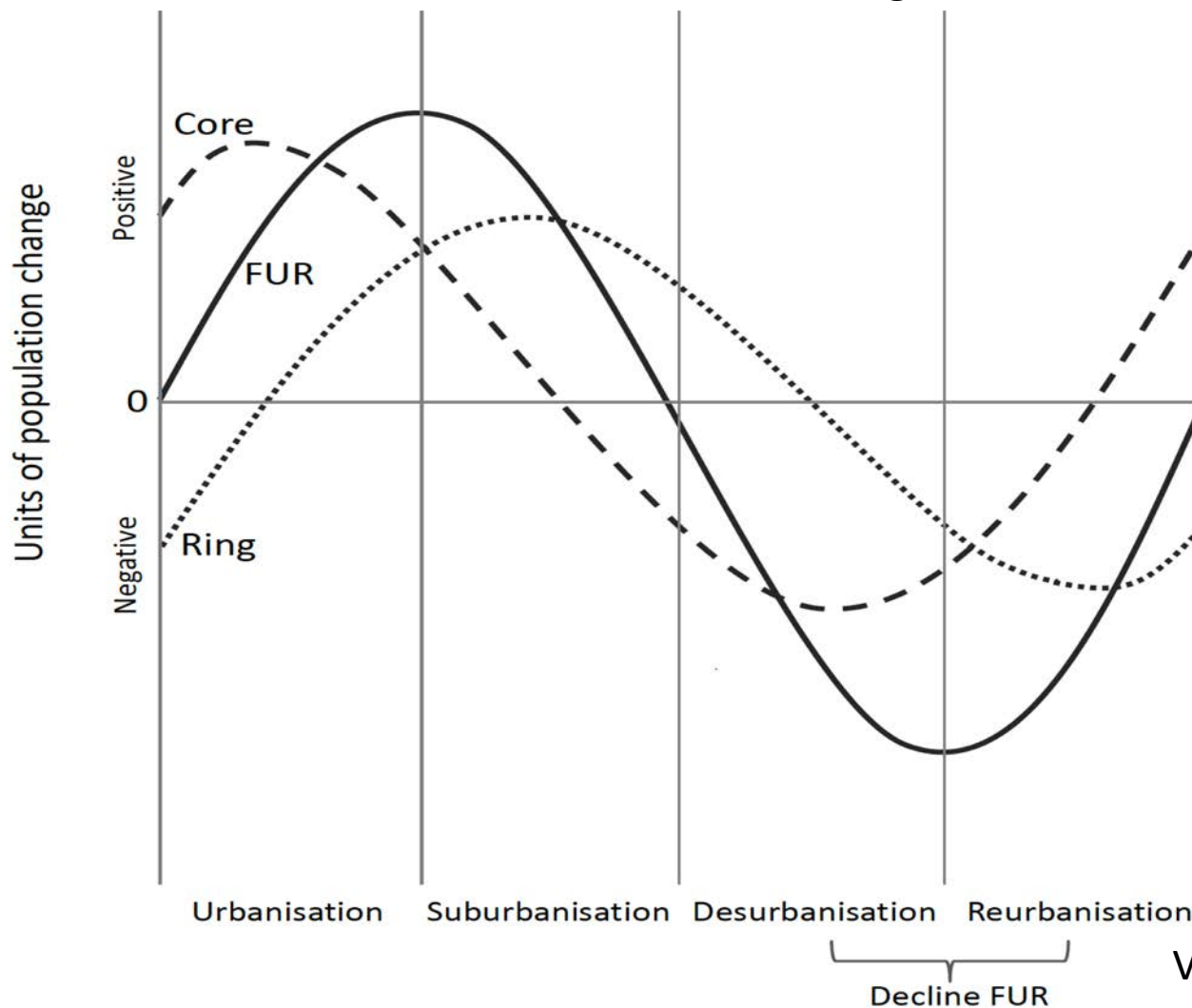
MULTI-LEVEL CITIES' NETWORKS



© Rozenblat 2010, from Pumain, 2006

2.1 Intra-urban growth cycles

FUR: Functional Urban Region

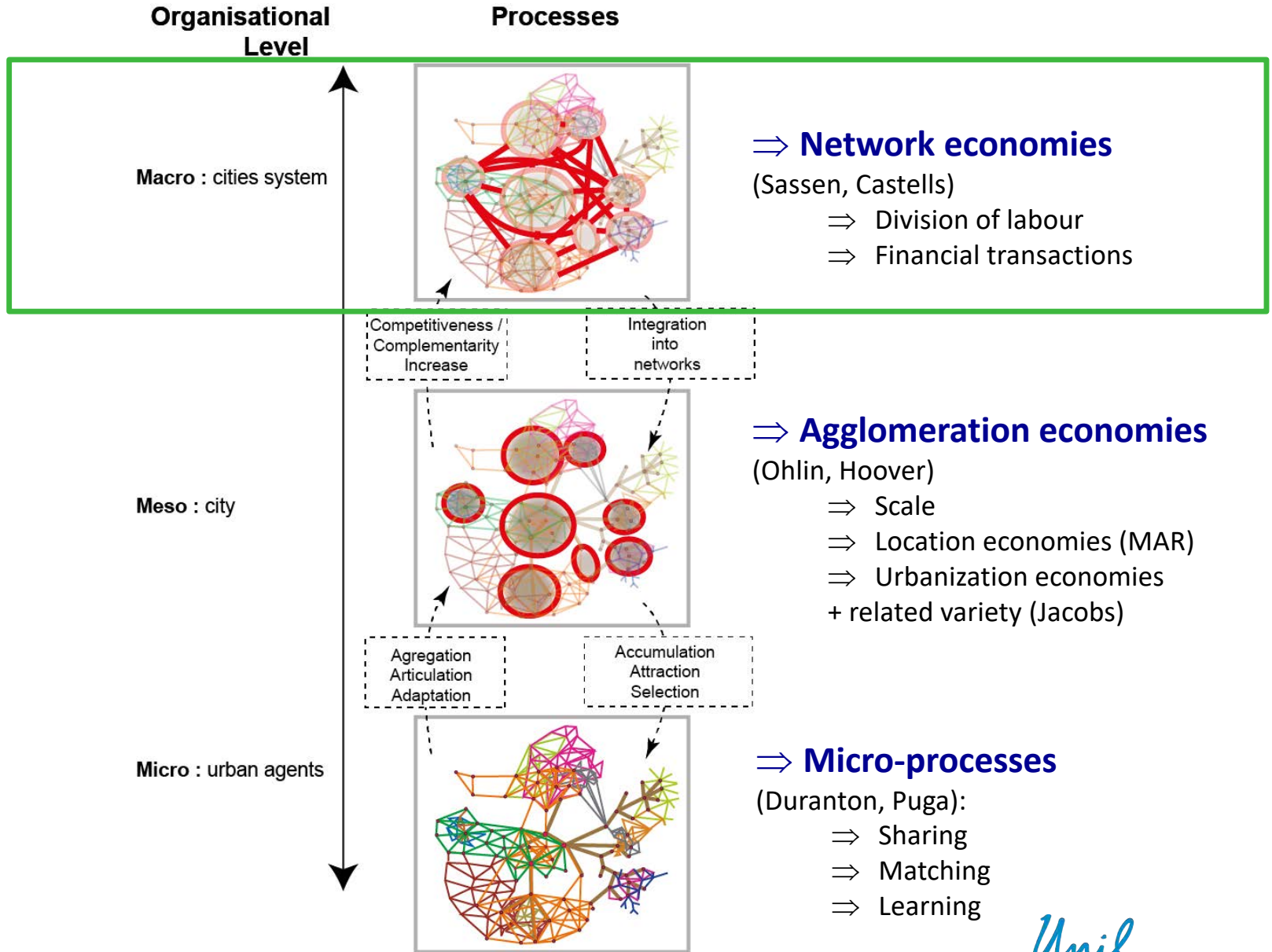


Van den Berg, 1982

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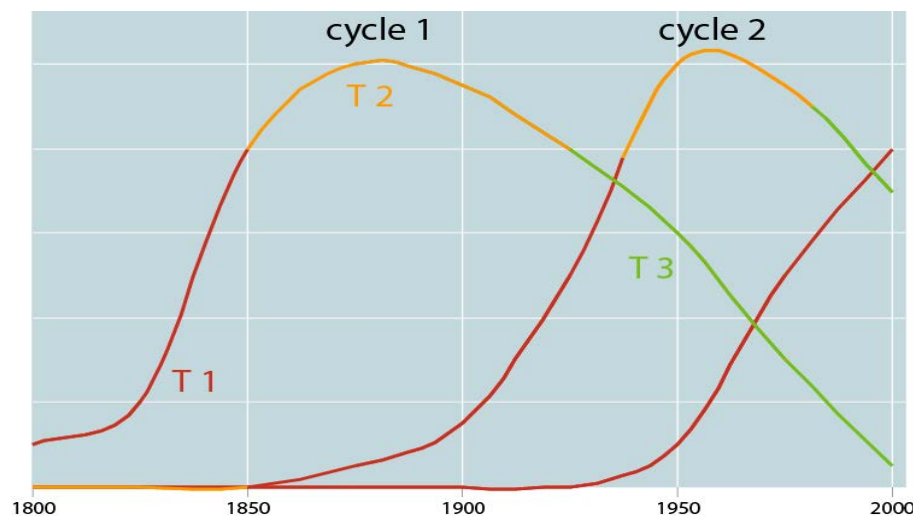
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MULTI-LEVEL CITIES' NETWORKS

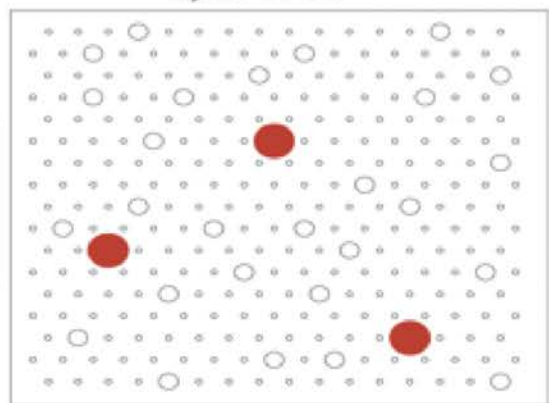


© Rozenblat 2010, from Pumain, 2006

2.1 Economic growth cycles in the system of cities

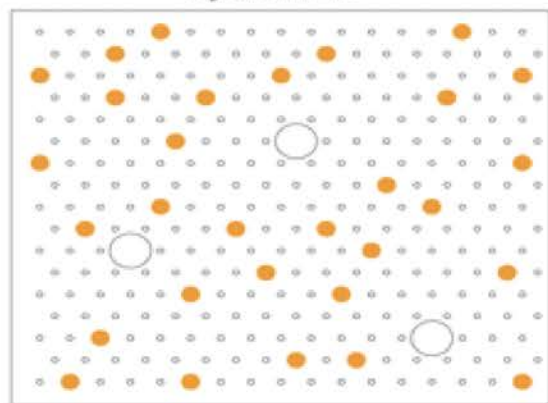


Cycle 1 / T1



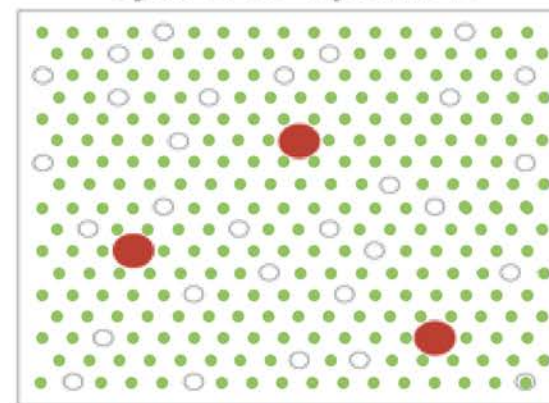
Innovative

Cycle 1 / T2



Common place

Cycle 1 / T3 - Cycle 2 / T1



Mature

Size of towns
(coloured where
growth is higher)

Pumain, 2009

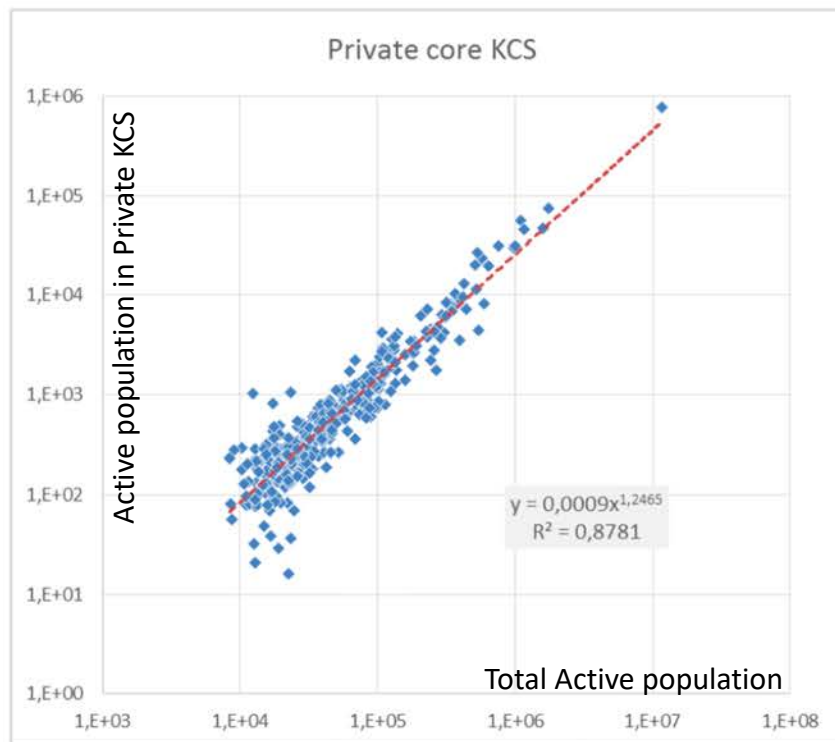


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2.1 Growth cycles and urban hierarchies

France

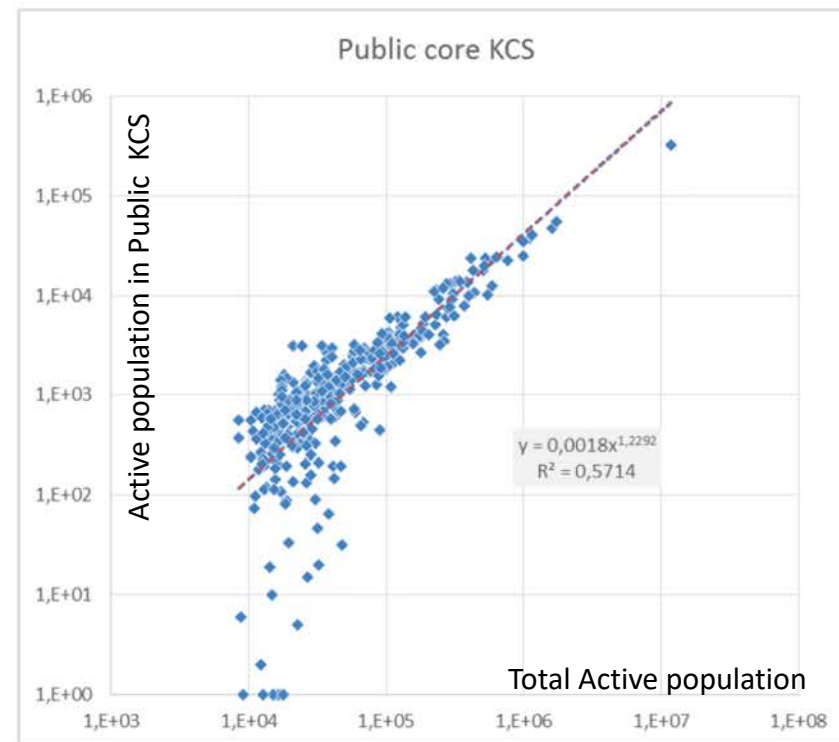
KCS: Knowledge Creative Services



$\beta=1,24$

95% CL : 1,20-1,29

$R^2=0,88$



$\beta=1,23$

95% CL : 1,11-1,32

$R^2=0,57$

Paulus, Vacchiani-Marcuzzo, 2016



2.1 Growth cycles and urban hierarchies

Cities in France and USA

Stages in technological development	Economic sector (NAICS / NES)	Power-law exponent (β)	
		France	US
Innovation cycle			
Innovation	- Professional; scientific; and technical services / Consultancy and assistance activities	1.21	1.21
	- Finance and insurance / Financial activities	1.15	1.14
	- Wholesale trade / Wholesale trade	1.11	1.09
	- Administrative and support and waste management services / Renting and other business activities	1.07	1.11
Common place (adapting)	- Accommodation and food services / Hotels and restaurants	1.04	0.98
	- Construction / Construction	0.99	1.01
Mature	- Retail trade / Retail trade	0.97	0.98
	- Health care and social assistance / Health, social work	0.96	0.96
	- Manufacturing / Manufacturing	0.92	1.00

Paulus, Vacchiani-Marcuzzo, 2016

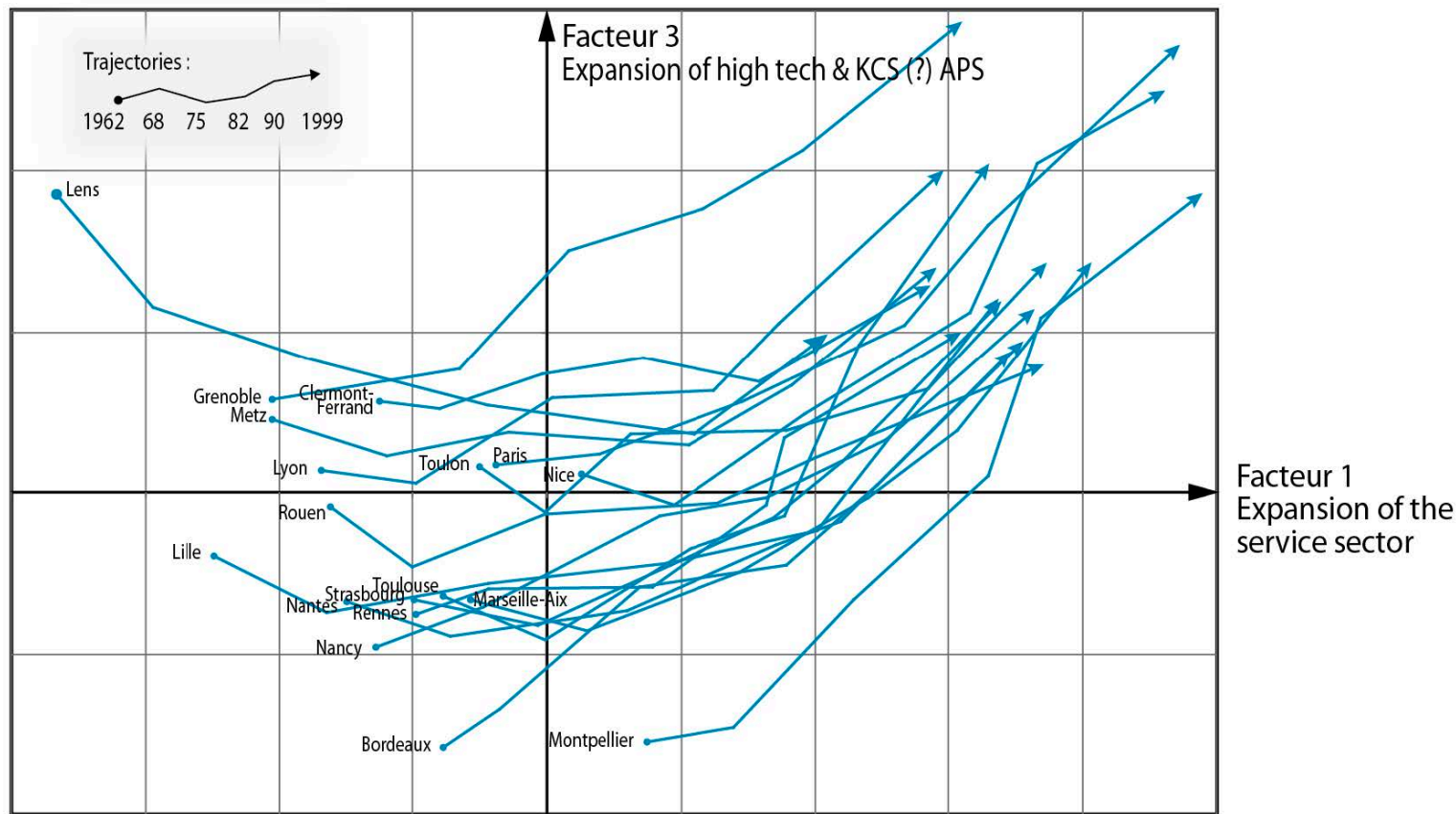


2.1 Growth cycles and urban hierarchies

Cities' interdependencies

(Pred, 1977; Pumain, 2009, 2018)

FRANCE



Paulus, Vacchiani-Marcuzzo, 2016

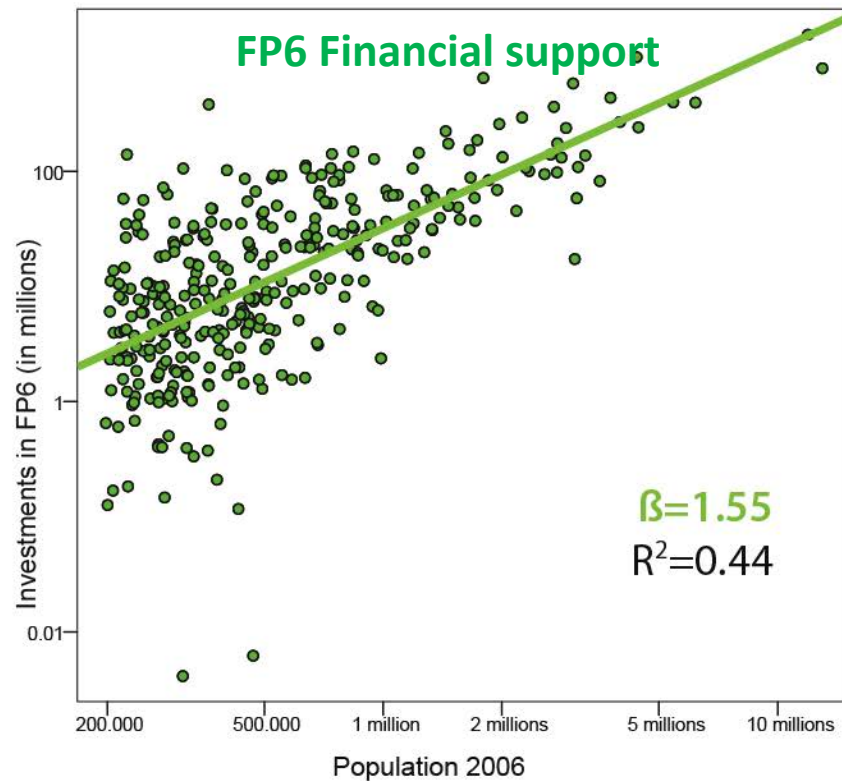
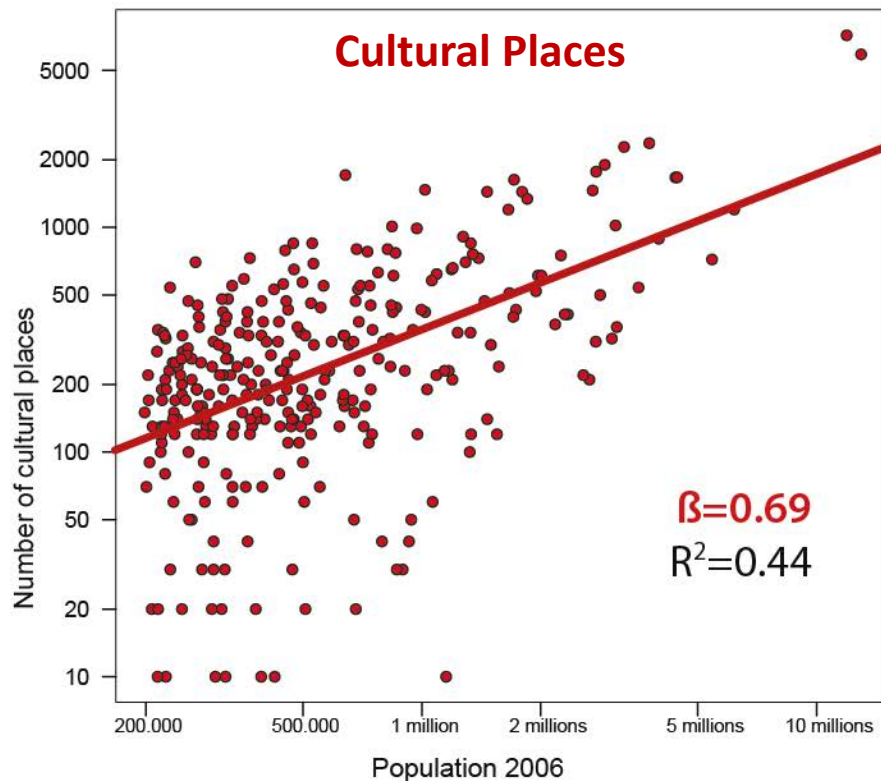


European Cities - THEME	Variable	β	R ²	Obs. Number
Regional economic context	GDP (in PPPs) 2006	1.12	0.85	356
	Added value in primary sector	0.50	0.23	356
	Added value in equipment industry and construction	1.06	0.61	356
	Added value in consumption industry	1.04	0.66	356
	Added value in trade	1.19	0.76	356
	Added value in advanced services	1.27	0.63	356
	Added value in collective services	1.12	0.61	356
Accessibility and attractiveness	Number of possible destinations In 1-day trip (accessibility)	0.56	0.23	197
	Air passengers 2008	1.86	0.48	211
	Port traffic of goods in 2009 (in tons)	0.61	0.07	156
Economic centrality	Multinational headquarters 2010	0.93	0.50	130
	Index of financial place 2008	1.30	0.52	254
	Foreign subsidiaries in 2010	1.33	0.66	315
	Index of control of subsidiaries (controlled subsidiaries divided by located subsidiaries controlled by external firms of the FUA)	0.08	0.01	315
	Fairs and exhibitions	0.67	0.28	90
Cultural attractiveness	International congresses (1999 to 2008)	0.58	0.29	111
	Number of tourist attractions	0.69	0.26	309
	International brands of fashion and luxury	1.08	0.51	277
	Number of hotel nights	1.02	0.47	347
Situation in research space	Evaluation of FP6 financial support	1.55	0.43	350
	Participation in NBIC FP6 projects	1.22	0.46	258
	Number of students	0.99	0.47	352
Access to European Institutions	European and international institutions	0.33	0.09	67
	Information and documentation centres of EU	0.36	0.32	258
	Number of EU lobbyists	0.92	0.46	1248

2.1 Growth cycles and urban hierarchies

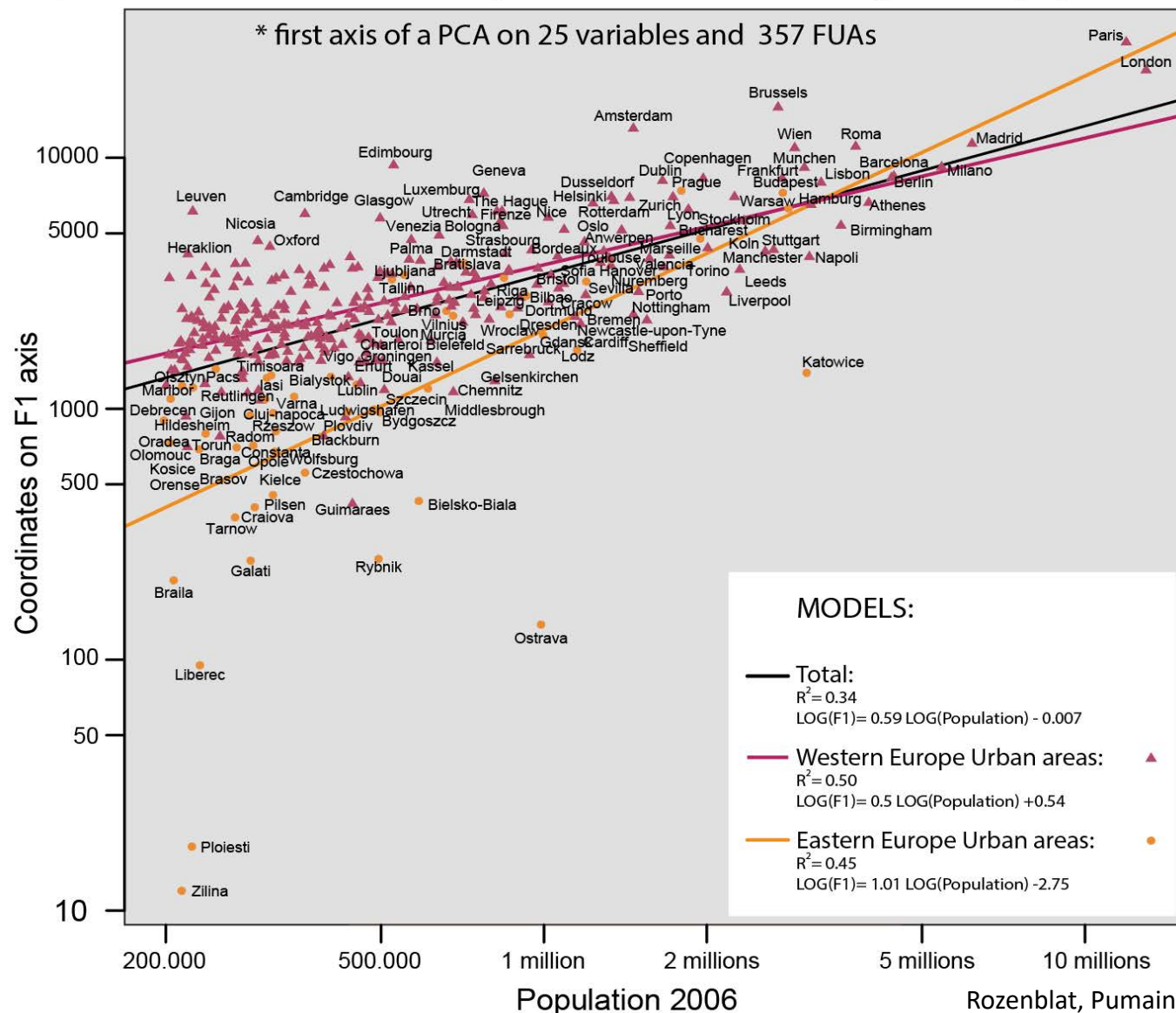
Figure 1:

Scaling laws of European cities for metropolitan functions



2.1 Growth cycles and urban hierarchies

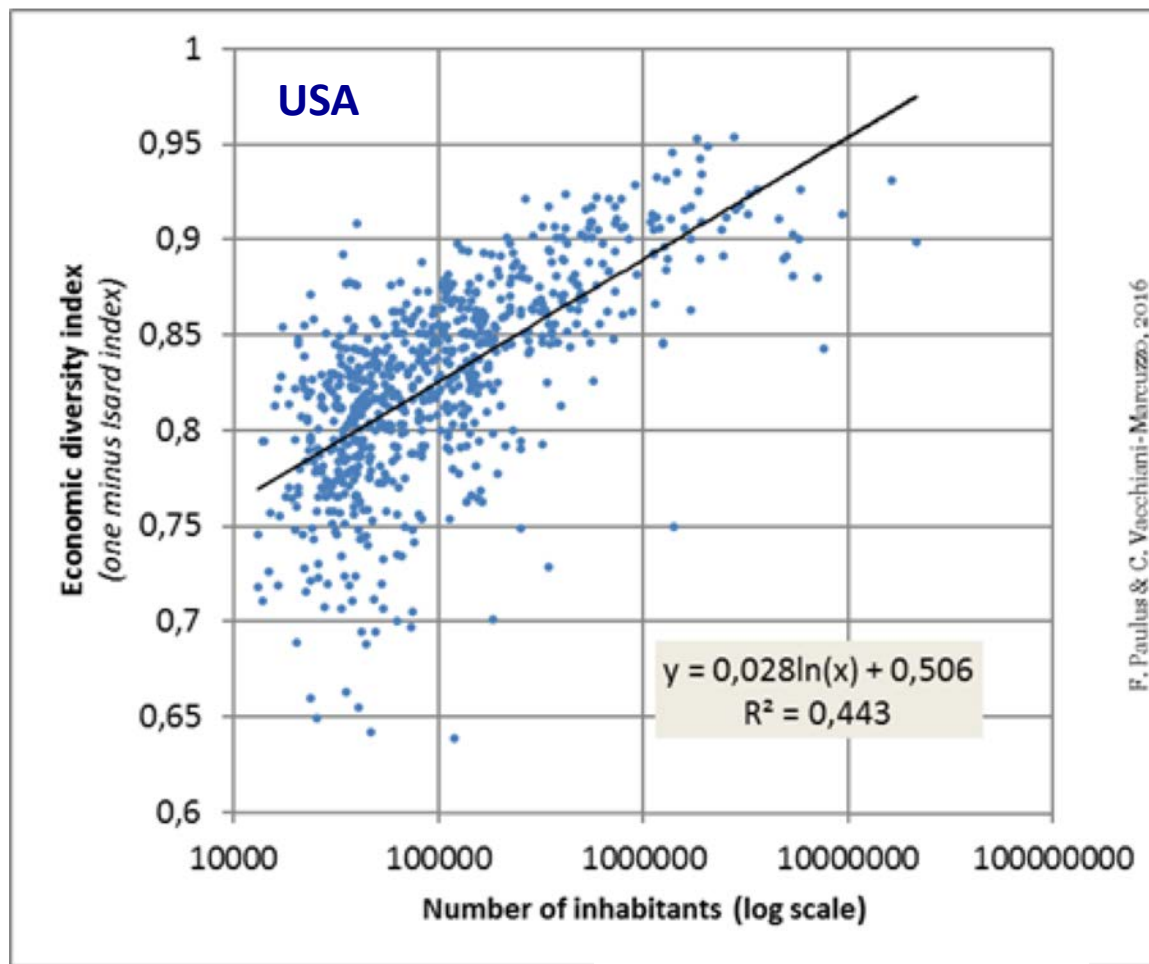
Coordinates of European Urban Areas on a metropolization factor according to their population (LOG-LOG)



2.1 Growth cycles and urban hierarchies

Economic Diversification/ Cities' Size

(Pumain, St.-Julien, 1978; Henderson, 1986; Duranton & Puga, 2000; Pumain et al. 2015)

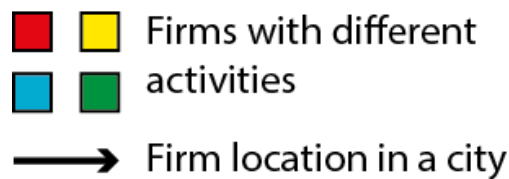
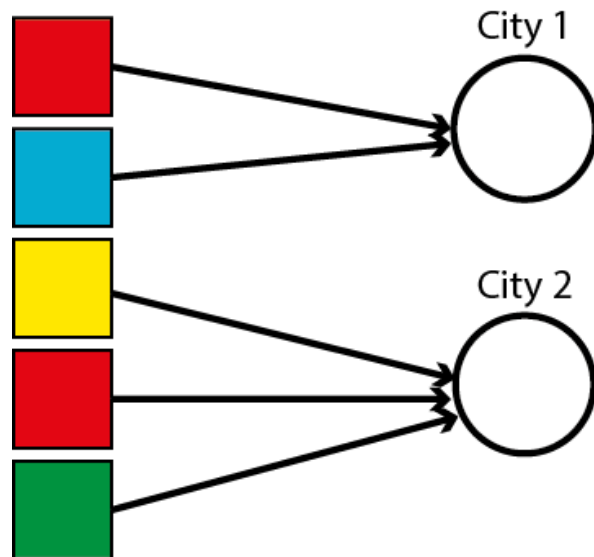


Bretagnolle et al., 2018

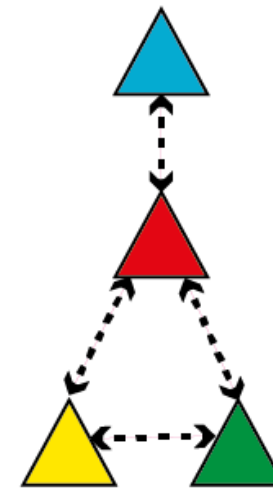
PROXIMITY BY CO-LOCATION IN CITIES

Activities are closer when they are more often located in the same cities

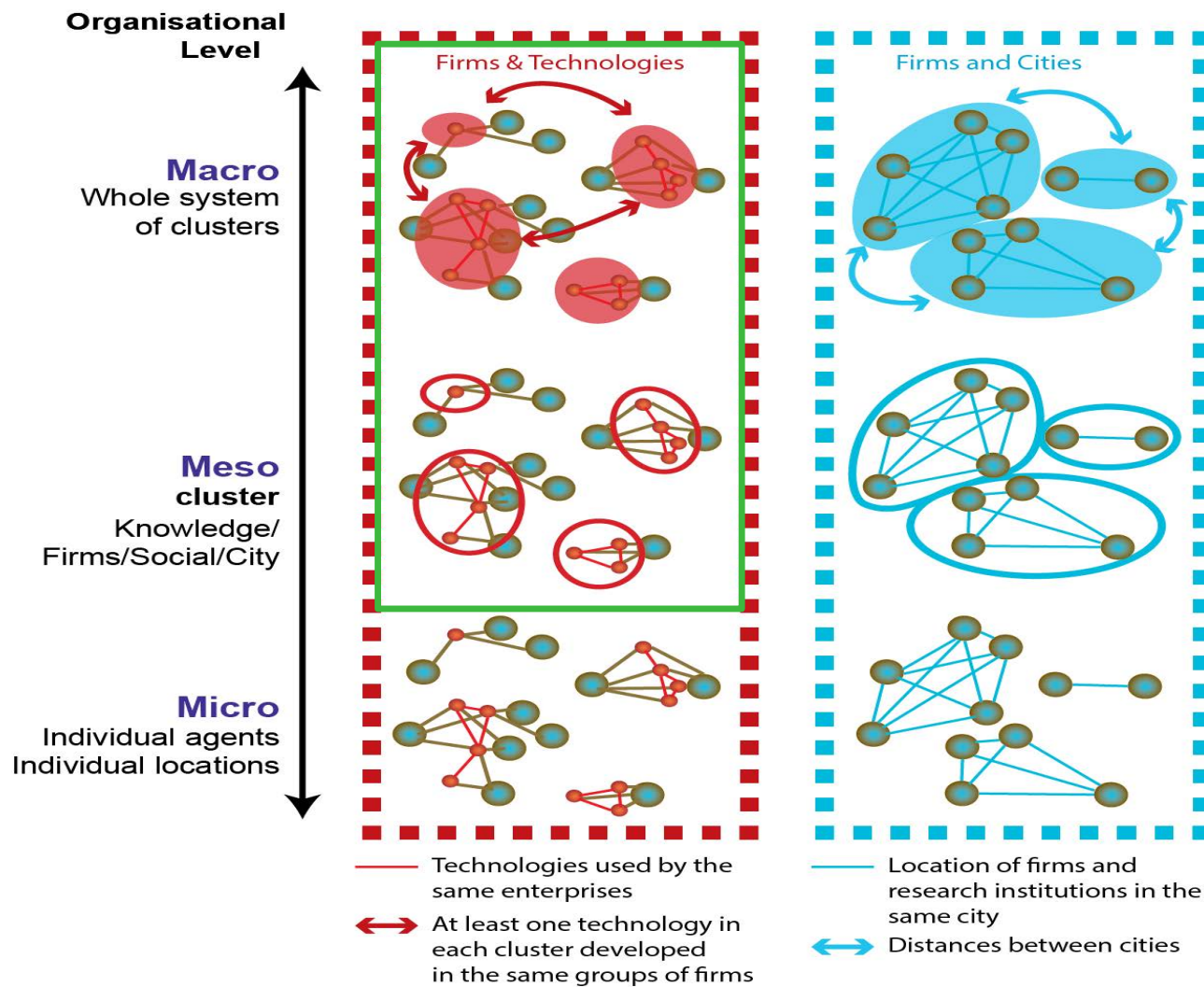
A- Firms' location in cities



B- Network of activities



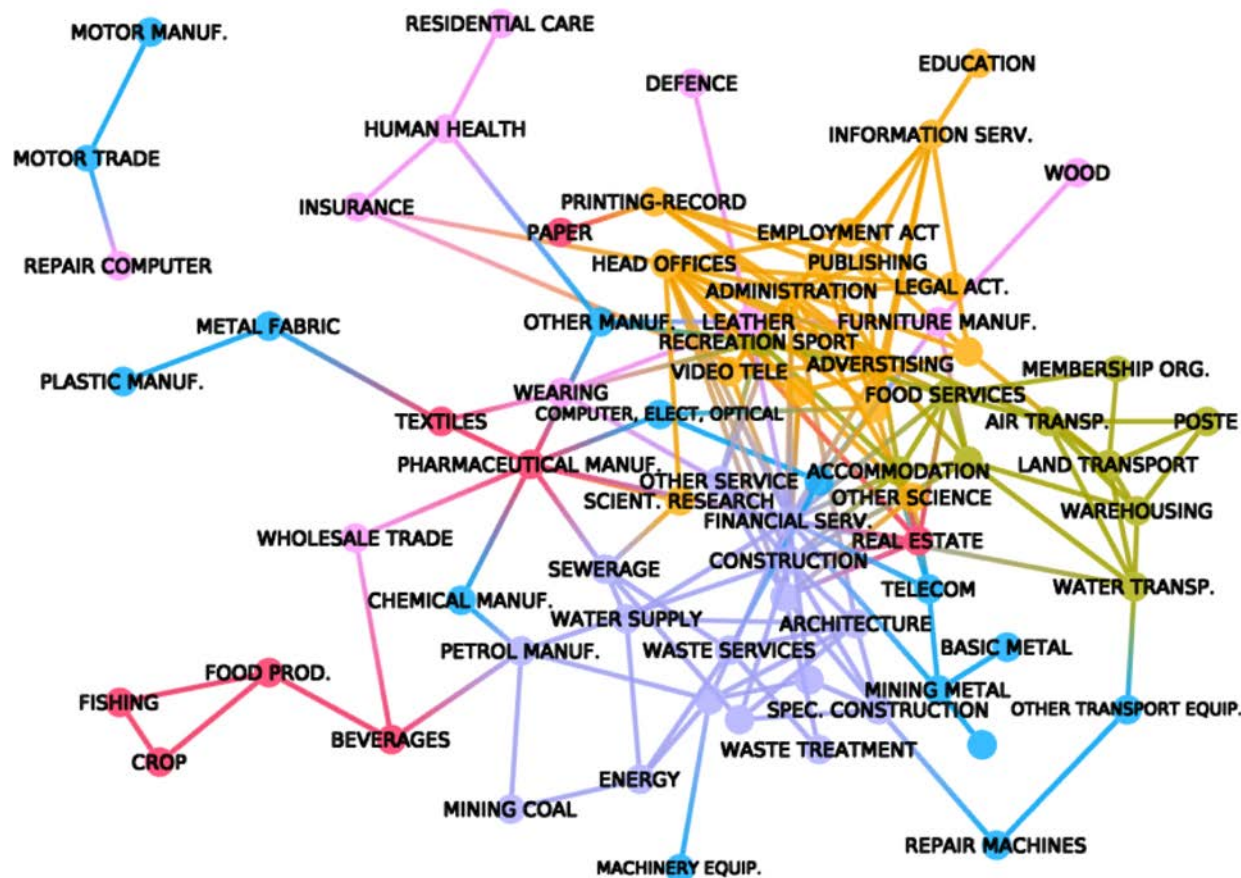
MULTI-LEVEL / MULTI-DIMENSIONAL CITIES' NETWORKS



=> proximities in 5 dimensions (Boschma, 2008)

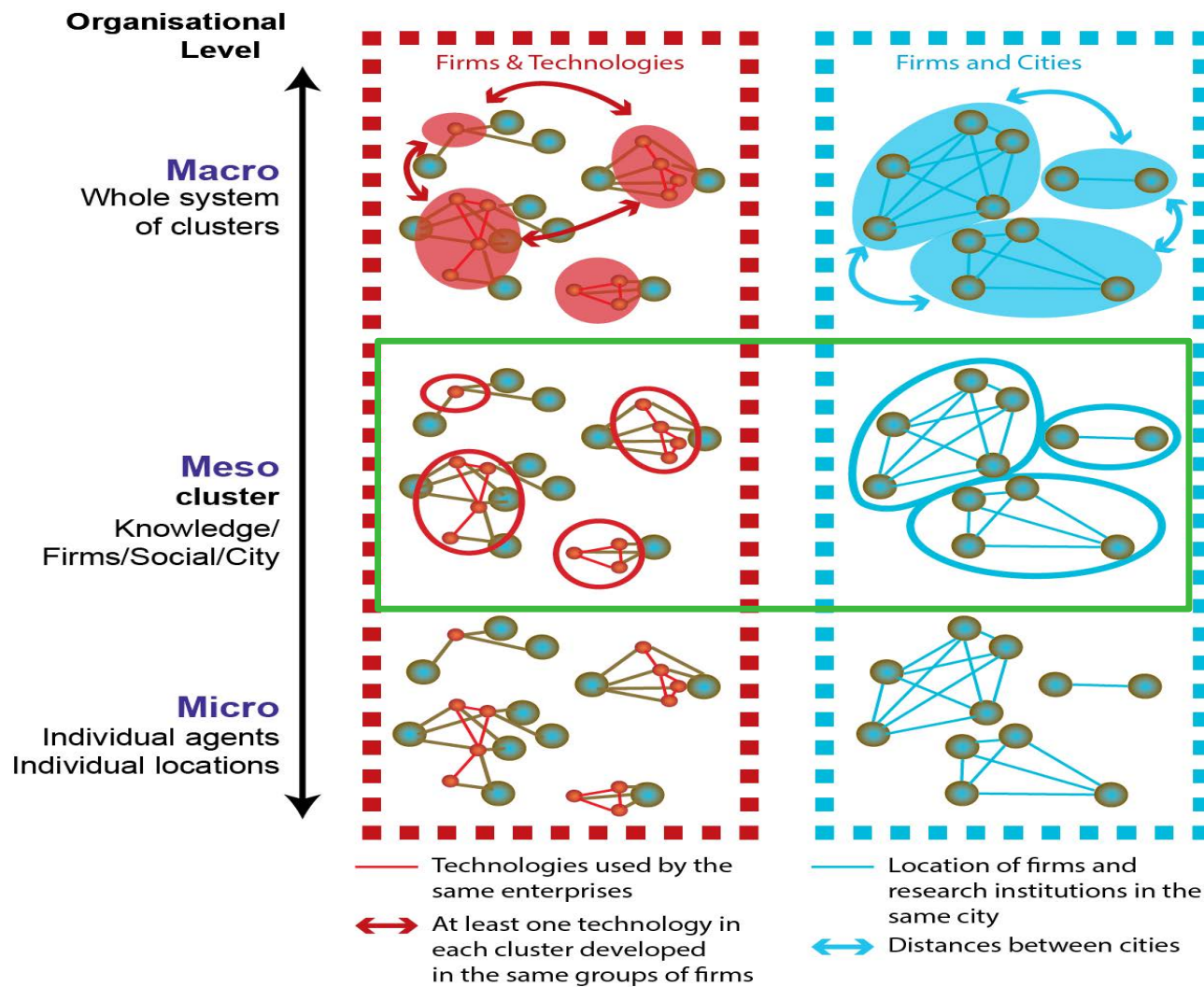
CHINESE ACTIVITY SPACE : CLUSTER OF RELATED ACTIVITES

中国活动空间：活动关联群



- Administration, education and entertainment
- Transports
- Manufacturing
- Energy, construction, quaring
- Helth & Insurance, metal & wood manufacturing
- Food, textile, pharmaceutical, real estate

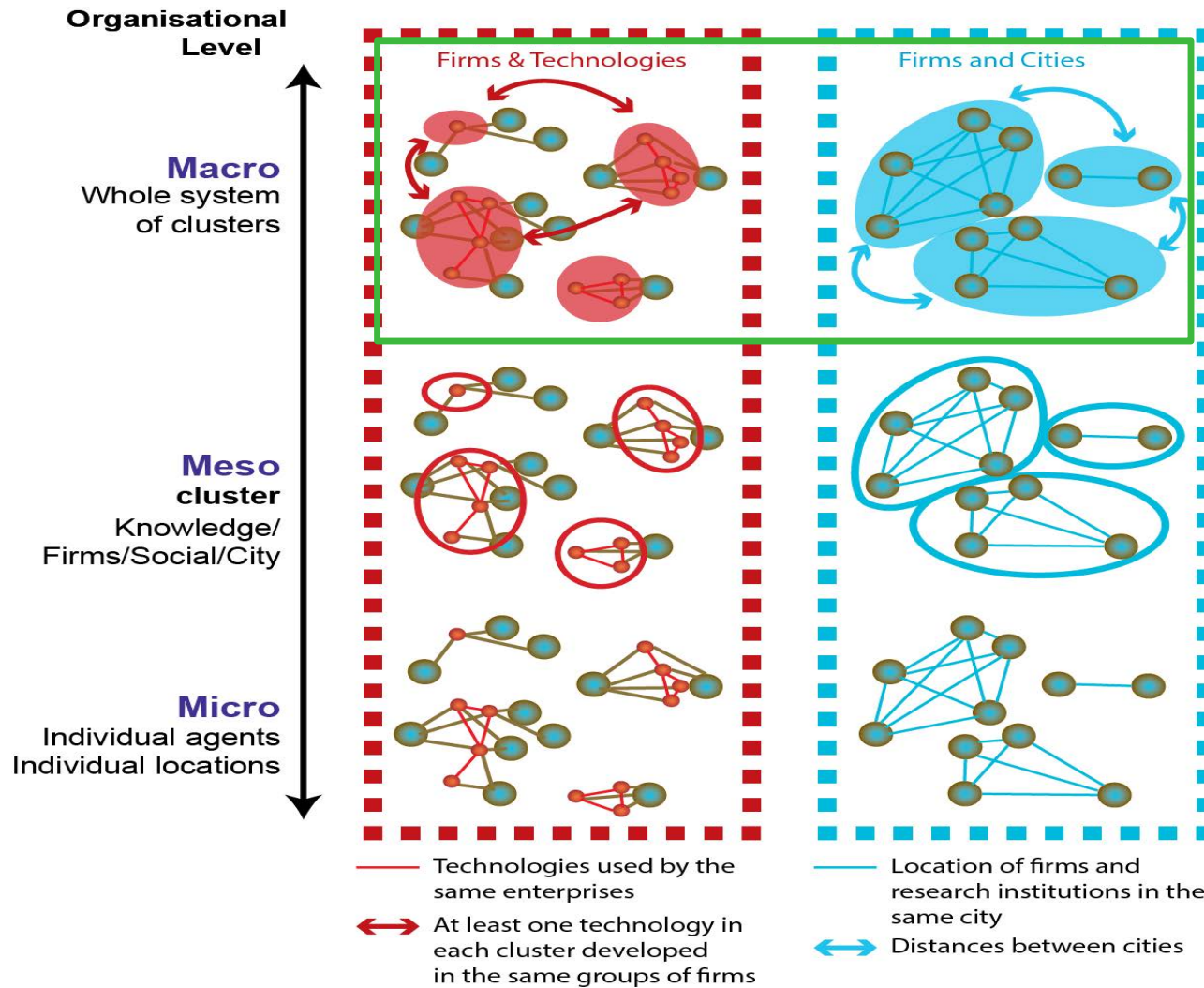
MULTI-LEVEL / MULTI-DIMENSIONAL CITIES' NETWORKS



© Rozenblat, 2018

=> proximities in 5 dimensions (Boschma, 2008)

MULTI-LEVEL / MULTI-DIMENSIONAL CITIES' NETWORKS



© Rozenblat, 2018

=> proximities in 5 dimensions (Boschma, 2008)

2- DATA

MICRO NETWORKS OF ENTERPRISES

3.000 worldwide Firms' networks

2006-2010-2013-2016

3 000 Top world groups (Turnover)

Source: Bureau Van Dijk (Brussels)

1.4 million subsidiaries (nodes)

Information:

2 million ownership links (links)

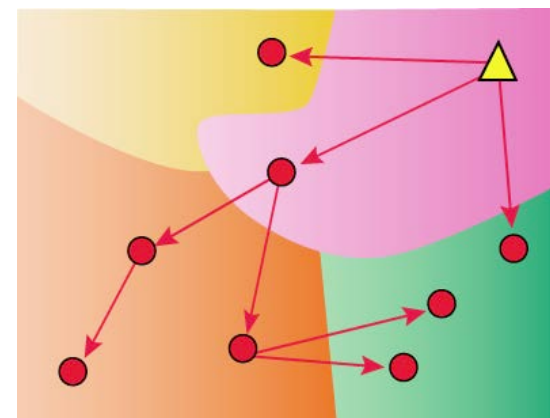
Functions

Locations (Large Urban Regions)

Activities

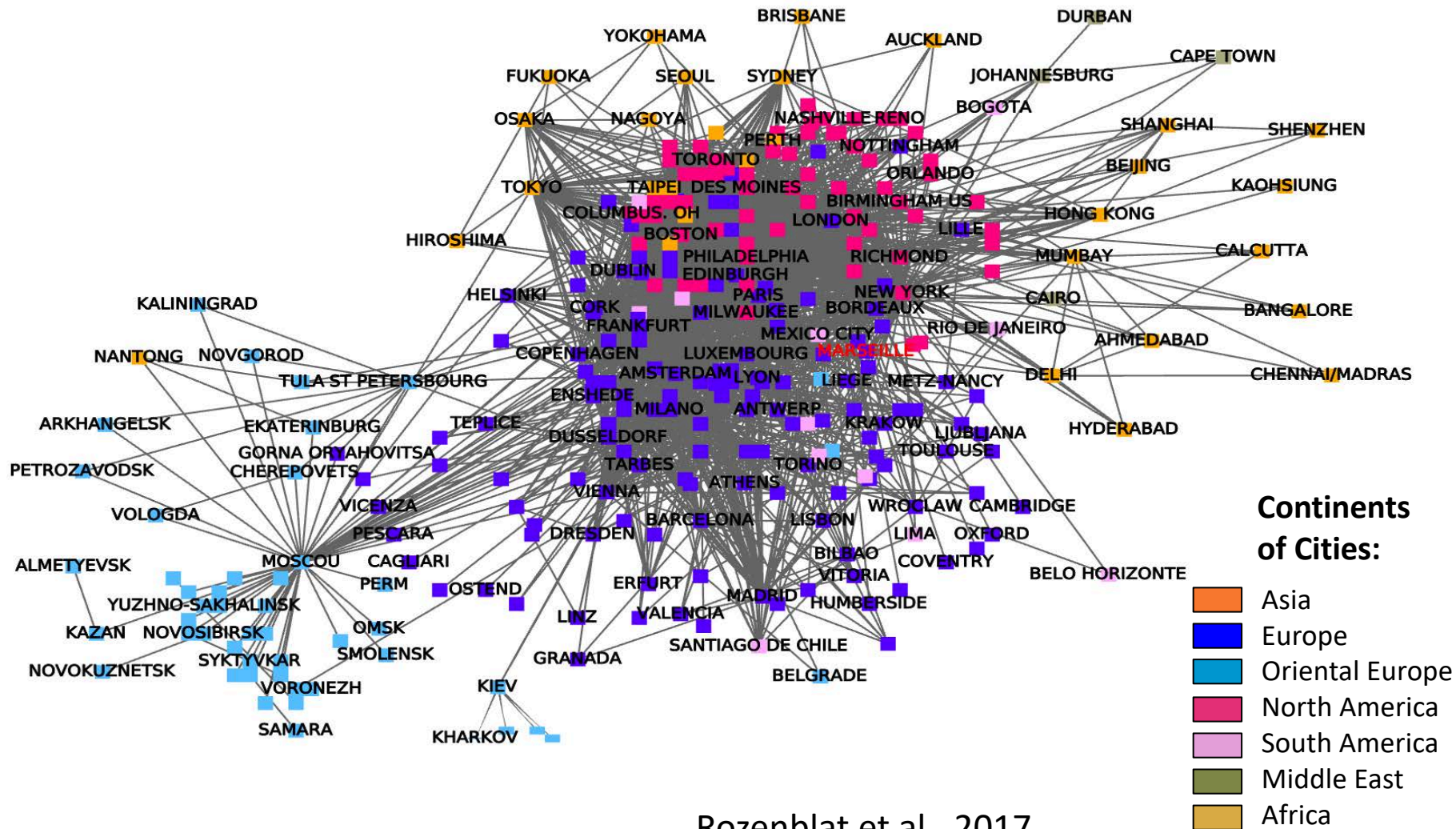
Turnover – employees

⇒ FUA – LUR (Large Urban Regions)



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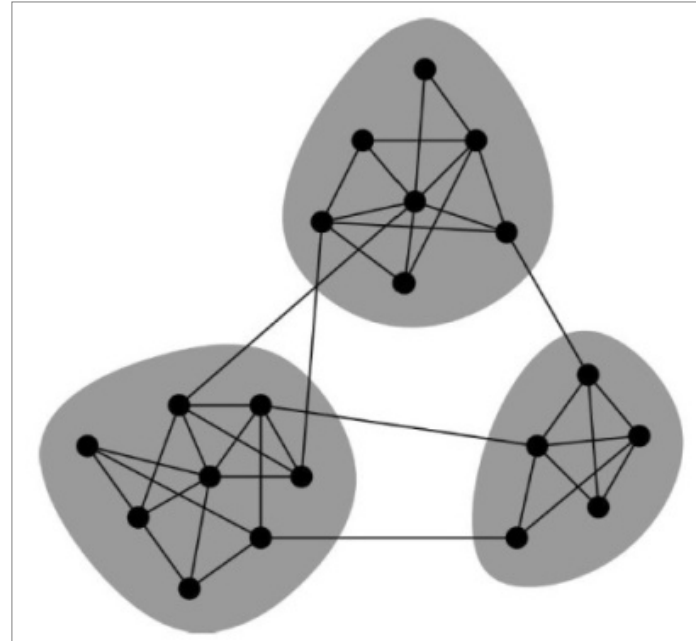
WORLD NETWORK OF CITIES 2013 BY MULTINATIONAL FIRMS OWNERSHIP LINKAGES



Rozenblat et al., 2017



COMMUNITY DETECTION



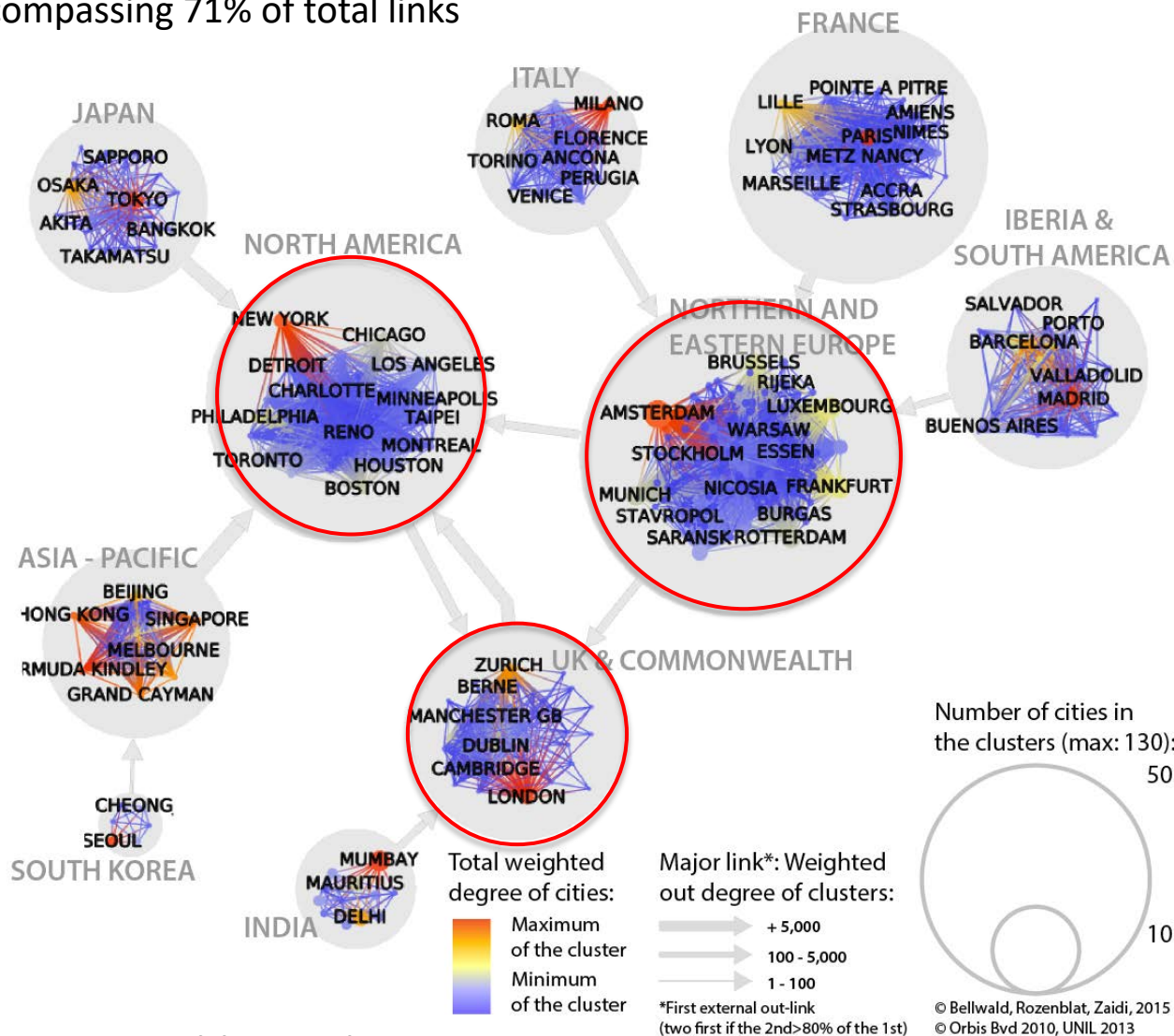
the detection of communities or clusters is

“the identification of groups of nodes densely connected to each other and sparsely connected to nodes from other clusters”

(Schaeffer, 2007)

CLUSTERING OF CITIES' NETWORKS 2013

10 classes encompassing 71% of total links

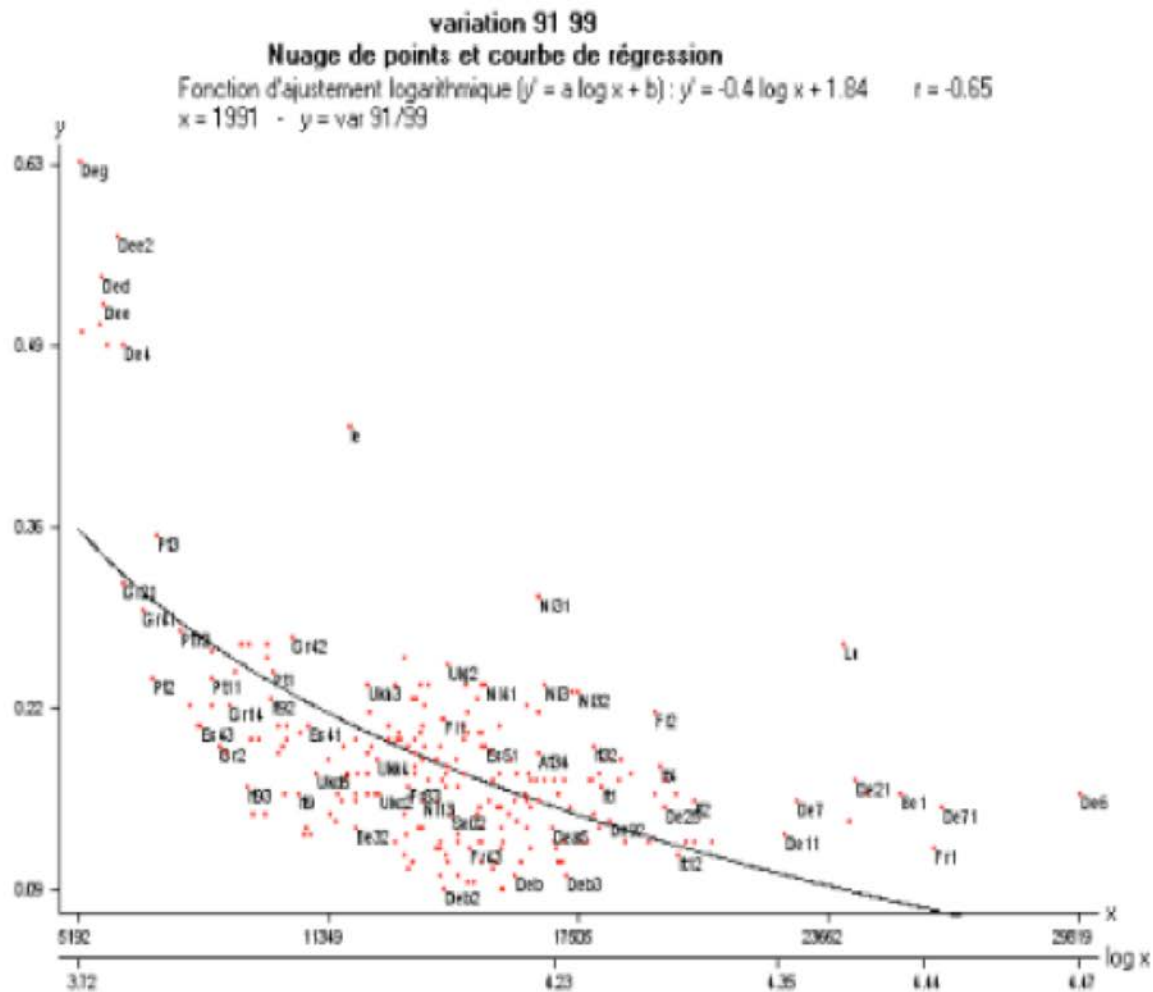


Rozenblat et al., 2017



REGIONAL CONVERGENCE IN EUROPE

⇒ Simultaneous with intra-national divergence



The role of EU cities for regional development

Conclusion - Perspectives

1- Extension of results to the European cities

- Urban areas to catch urban processes (agglomeration economies)
- Diversity of Urban systems in Europe

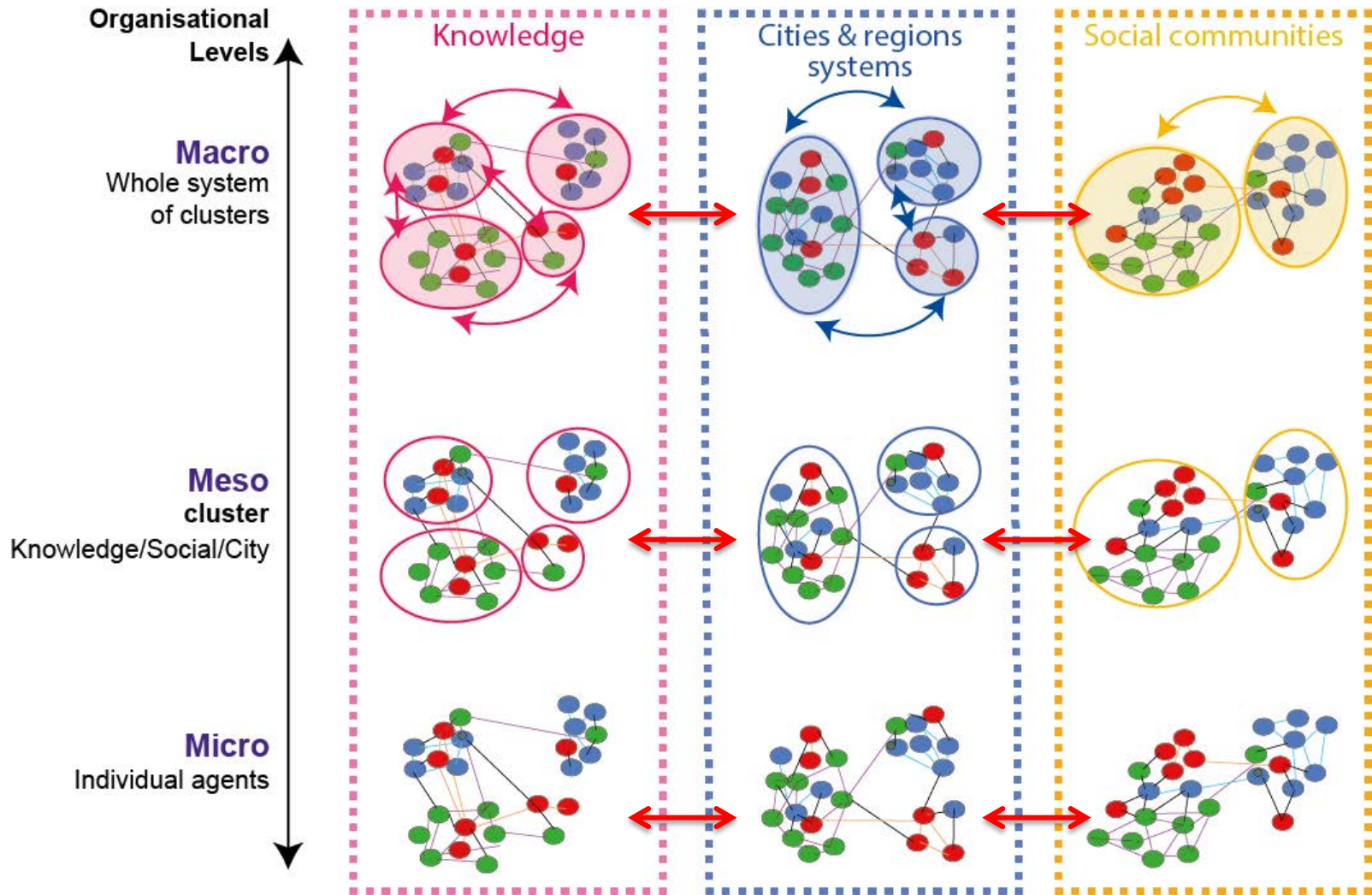
2- Specialization /Diversification & cycles

- Shrinking
- Specialization of small/medium size cities ⇒ **related variety**
- Diversification of large cities ⇒ **Smart specialization**

3- European cohesion

- High interdependencies
- European convergence / intra-national divergence
- Relative low dependency to London (Brexit)

MULTI-LEVEL & MULTI-DIMENSIONAL NETWORKS



=> proximities in 5 dimensions (Boschma, 2008)

Citadyne, 2014

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MULTI-LEVEL & MULTI-DIMENSIONAL POLICIES

POLICY TOOLS (Concrete actions are indicated as examples)			ACTION LEVELS IN ONE OF THE DIMENSIONS (SPACE, SOCIAL, KNOWLEDGE)					
			Nodes	Links	Clusters	Links between clusters	Structure of the network	
Supply side measures Targeting a wide range of actors producing different forms of innovation	Finance	Equity support	Public VC	Crowd funding			Anti-trust law	
		Fiscal measures	Fiscal incentives to R&D		Social incentives			
		Support for public sector research	Patenting, to TTOs	Intermediary organizations	Cluster based brokers	Inter-cluster relationships		
		Support for training and mobility	Support for training	Recruitment of engineers or PhD	Entrepreneur HIP programs			
	Grant for industrial R&D	Grants (ir)			KA	Coll. program		
	Services	Information & Brokerage support	Co					
Networking measures			Support for	"Clubs"	Cross-	ation		
Systemic policies Making a real public/private systemic							Migration policies	
Demand side measures Public and private demand	Regulation							
	Public procurement							
	Support of private demand		Demand subsidies		Subsidies or fiscal policies			

Remarks are welcome
celine.rozenblat@unil.ch

Thanks for your attention...
 Merci de votre attention...
 Dank u voor uw aandacht...

LEFT part from Edler & Georghiou (2007).

Rozenblat, 2018

