

**XXQ FACTORS FOR SUSTAINABLE
URBAN DEVELOPMENT:
A SYSTEMS ECONOMICS VIEW**

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CITIES: LANDS OF HOPE AND GLORY?

□ STANDARD WISDOM:

“LARGE CITIES HAVE BEEN AND WILL CONTINUE TO BE AN IMPORTANT SOURCE OF ECONOMIC GROWTH”

□ WHY URBAN DYNAMICS?

□ CSQN: XXL FOR URBAN QUALITY

□ CONTRASTING VIEWS:

“CITIES HAVE ALWAYS BEEN THE FIREPLACE OF CIVILISATION, WHERE LIGHT AND HEAT RADIATED OUT INTO THE DARK”
[THEODORE PARKER]

“I’D RATHER WAKE UP IN THE MIDDLE OF NOWHERE THAN IN ANY CITY ON EARTH”

[STEVE MCQUEEN]

CITIES: THE HOME OF MAN

- WORLD-WIDE URBANISATION**
- ARE CITIES DYING? (GLAESER)**
- URBAN WAY OF LIFE**
- PROXIMITY AND ICT**
- MULTIDIMENSIONAL PERSPECTIVE**
- NEED FOR SYSTEMS ECONOMICS VIEW**
 - MULTI-ACTOR & MULTI-DISCIPLINARY**
 - MICRO & MACRO**
 - EVOLUTIONARY COMPLEXITY**
 - ANALYTICAL-QUANTITATIVE**

AN ECONOMIC SYSTEMS PERSPECTIVE ON CITIES

- ☐ MARKET-ORIENTED DRIVING FORCES**
- ☐ ECOLOGICAL & SOCIO-CULTURAL CONTEXT**
- ☐ NETWORK DYNAMICS OF URBAN ACTORS**
- ☐ SCALE AND SCOPE OF PROXIMITY**
- ☐ CREATIVITY / INNOVATION AS FIREPLACE
FOR GROWTH**
- ☐ E-POTENTIAL OF CITIES**
- ☐ POLITICO-ECONOMIC POWER STRUCTURES**

STRATEGIC POSITION OF CITIES

□ INTRA-SYSTEMIC

- **EXTERNALITIES (DE GROOT, POOT)**
 - **MARSHALL-ARROW-ROMER**
 - **JACOBS**
 - **PORTER**
- **RESOURCE**
- **LEARNING**

□ EXTRA-SYSTEMIC (CAMAGNI)

- **ACCESSIBILITY**
- **SPATIAL INTERACTION**
- **URBAN HIERARCHY**
- **COMPETITIVENESS**

CITIES AS MAGNETS

- EXTERNALITIES OF DENSITY AND PROXIMITY
 - AGGLOMERATION BENEFITS (ISARD, HOOVER)
 - SCALE
 - LOCALISATION (THISSE)
 - URBANISATION
 - KNOWLEDGE BASE AND SPILLOVERS (CAPELLO, STOUGH)
 - R&D
 - ENTREPRENEURSHIP
 - CREATIVENESS
 - INNOVATION
 - NEW LIFE STYLE
 - COMMUNICATION
- RESOURCE BASE
 - PHYSICAL (ADAM SMITH)
 - HUMAN RESOURCES (SASSEN)
- LEARNING
 - INTERACTION
 - EVOLUTION
 - COMPLEXITY (REGGIANI)

RECENT NEW PERSPECTIVES ON URBAN ECONOMICS

- NEW URBAN ECONOMICS (RICHARDSON, CHESHIRE)**
- NEW ECONOMIC GEOGRAPHY (KRUGMAN, FUJITA)**
- SPATIAL ENDOGENOUS GROWTH THEORY (POOT, STIMSON, STOUGH)**
- SPATIAL COMPLEXITY THEORY (REGGIANI, NIJKAMP)**

SYNTHESIS:

NEED FOR COMPUTABLE URBAN EQUILIBRIUM THEORY WITH A BALANCE BETWEEN GROWTH-INDUCING AND GROWTH-REDUCING FACTORS, THAT ARE LINKED TOGETHER VIA ENDOGENOUS URBAN GROWTH THEORY (VERHOEF & NIJKAMP, 2007)

SUSTAINABLE URBAN DEVELOPMENT: A SHAKY BALANCE

POSITIVES AND NEGATIVES (OECD, 2006)

+	—
<p>AGGLOMERATION ECONOMIES SPECIALISATION AND DIVERSITY R&D AND INNOVATION PHYSICAL CAPITAL (SPATIAL HUB)</p>	<p>URBAN DETERIORATION DISECONOMIES OF AGGLOMERATION UNEMPLOYMENT EXCLUSION AND POVERTY SOIO-ECONOMIC INEQUALITIES IMMIGRANTS CRIMINALITY CONGESTION POOR-QUALITY INFRASTRUCTURE</p>

NEED TO IDENTIFY LOCAL SUSTAINABILITY CONDITIONS

REGION	WASTE MANAGEMENT	URBANIZATION/ TRANSPORTATION	POVERTY	OTHER
JAPAN	**	*		
ASIA-4	**	*		
EAST EUR	**	*		
MID EAST	**	*		
WEST EUR	*	**		
USA/CAN		**		*
AFRICA	*		**	
REST ASIA	*		**	
LAT AMER			**	*
OCEAN				**

FIGURE 1. MOST PRESSING LOCAL ENVIRONMENTAL PROBLEMS (2005)

REGION	ACTIVE RECYCLING	ACTIVE WASTE POLICY
JAPAN	*	**
ASIA-4	*	*
EAST EUR	-	*
MID EAST	-	-
WEST EUR	*	**
USA/CAN	*	*
AFRICA	-	-
REST ASIA	-	-

**FIGURE 2. PRIORITIES OF LOCAL WASTE
MANAGEMENT (2006)**

REGION	CONGESTION	INFRASTRUCTURE	ENVIRONMENTAL DECAY
JAPAN	**		*
ASIA-4	*		**
EAST EUR	*	**	
MID EAST	*	**	
WEST EUR	**		*
USA/CAN	*	**	

FIGURE 3. MOST PRESSING TRANSPORTATION PROBLEMS (2006)

REGION	WASTE	AIR AND NOISE	NATURAL SYSTEMS & WATER	URBAN SPRAWL
JAPAN	**		*	
ASIA-4		**		*
EAST EUR		*	**	
MID EAST	**		*	
WEST EUR		*		**
USA/CAN	*			**

FIGURE 4. MOST PRESSING URBAN ENVIRONMENTAL PROBLEMS (2006)

THE COUNTERBALANCE: PRODUCTIVITY IS THE KEY!

- ❑ **PRODUCTIVITY PER WORKER OUTSTRIPS OTHER FACTORS (OECD, 2002)**
- ❑ **URBAN ACTIVITY RATE < URBAN GDP/EMPLOYMENT**
- ❑ **DETERMINANTS OF PRODUCTIVITY (HENDERSON):**
 - **KNOWLEDGE**
 - **ICT**
- ❑ **COMPARISON BETWEEN CITIES (FIGURE 6)**

WINNERS	INTERMEDIATE	LOOSERS
BOSTON	FRANKFURT	ISTANBUL
SAN FRANCISCO	STUTTGART	KRAKOW
NEW YORK	STOCKHOLM	ANKARA
WASHINGTON	MUNICH	DAEGU
SAN DIEGO	SYDNEY	IZMIR

COMPARISON OF METROPOLITAN AREAS

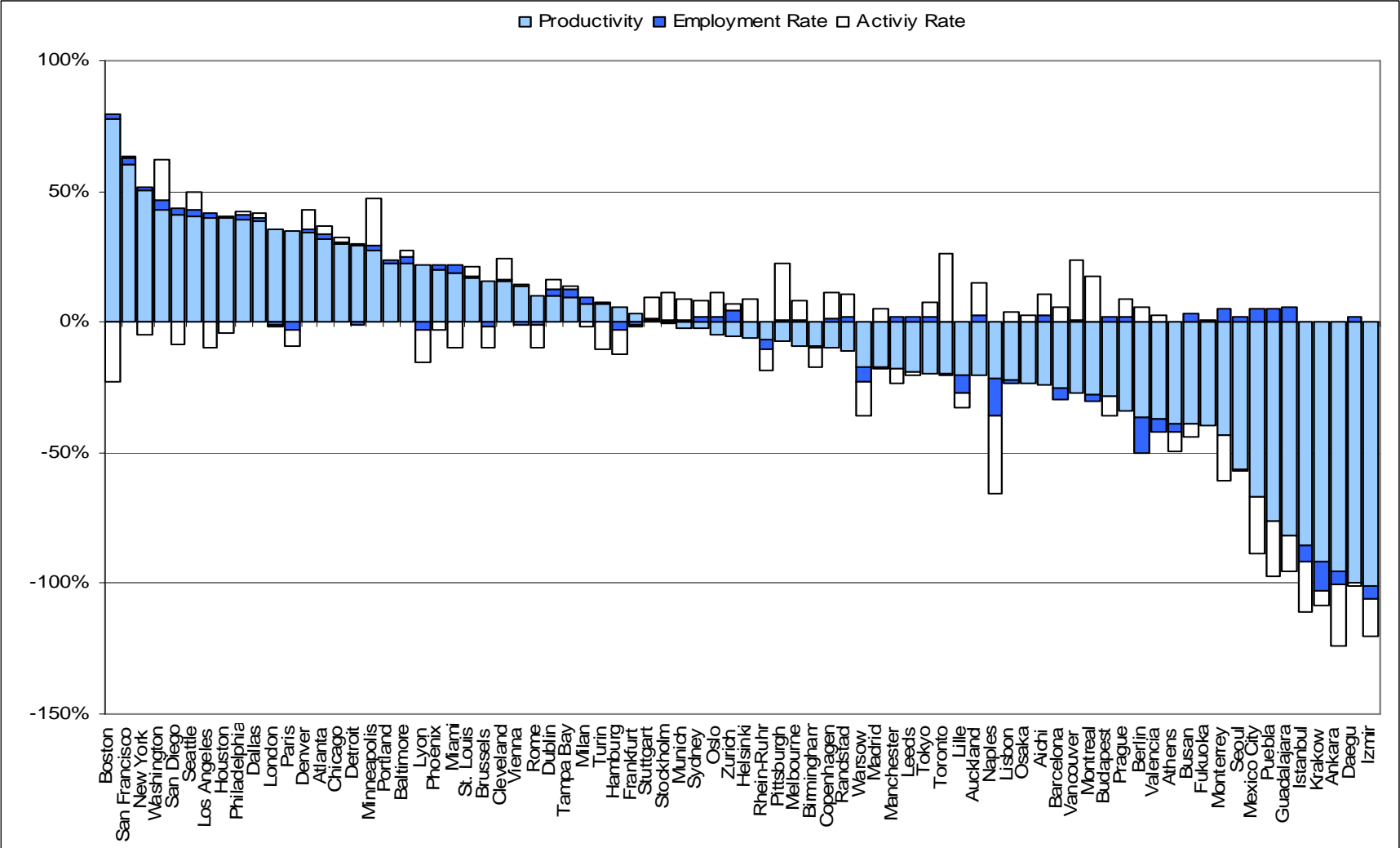


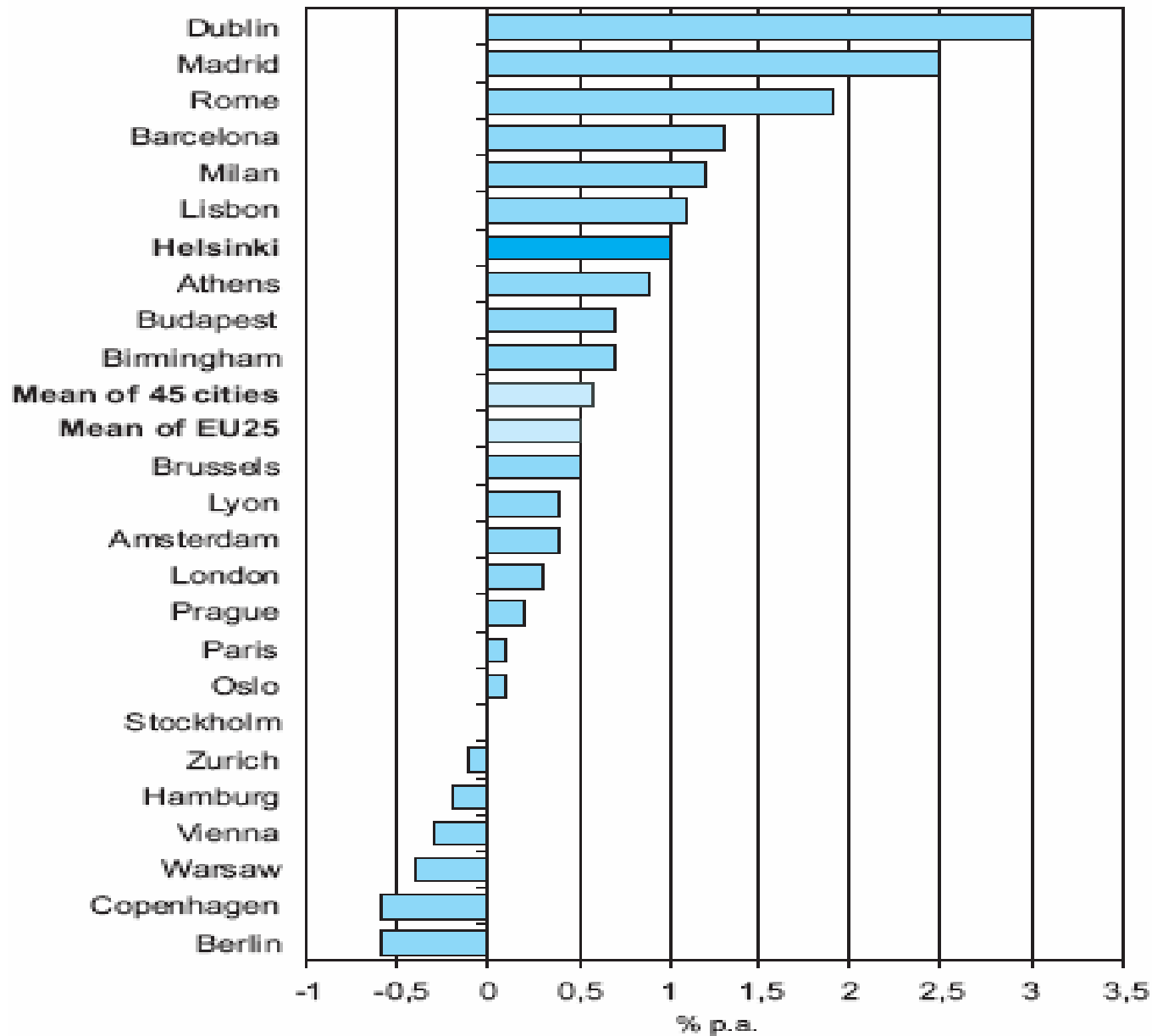
FIGURE 5. DETERMINANTS OF GDP DIFFERENTIALS BETWEEN OECD METROPOLITAN REGIONS

THE IMPORTANCE OF KNOWLEDGE

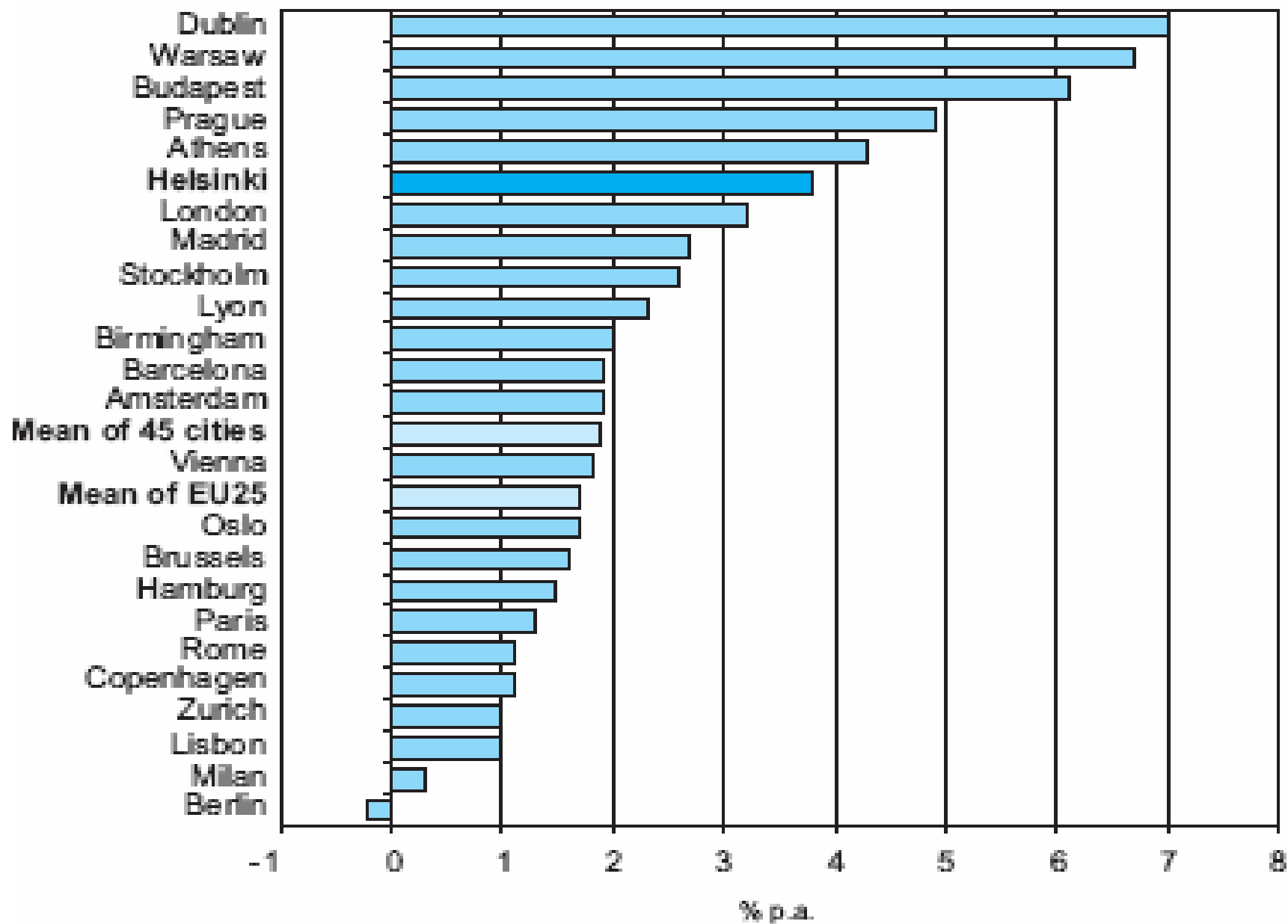
% of GDP	1994	2002	CHANGE
<i>WORLDWIDE</i>			
US	5.4%	6.6%	+1.2
KOREA	4.9%	5.9%	+1.0
JAPAN	3.9%	5.0%	+1.1
CANADA	4.5%	4.7%	+0.2
AUSTRALIA	3.9%	4.1%	+0.2
<i>EUROPE</i>			
SWEDEN	5.1%	6.8%	+1.7
FINLAND	4.7%	6.1%	+1.4
DENMARK	3.7%	5.5%	+1.8
GERMANY	3.4%	3.7%	+0.3
BELGIUM	3.6%	3.8%	+0.2
NETHERLANDS	3.4%	3.8%	+0.4
FRANCE	3.4%	3.7%	+0.3
UK	3.5%	3.7%	+0.2
AUSTRIA	2.3%	3.4%	+1.1
SPAIN	2.1%	2.8%	+0.7
IRELAND	2.6%	2.4%	-0.2
ITALY	2.0%	2.4%	+0.4
GREECE	1.1%	1.9%	+0.8
PORTUGAL	1.3%	1.8%	+0.5

TABLE 1. INVESTMENT IN KNOWLEDGE IN OECD COUNTRIES (1994-2002)

COMPARISON OF EMPLOYMENT GROWTH IN EUROPEAN METROPOLITAN AREAS (2001-2004)



COMPARISON OF ECONOMIC GROWTH (GVA) IN EUROPEAN METROPOLITAN AREAS (2001-2004)

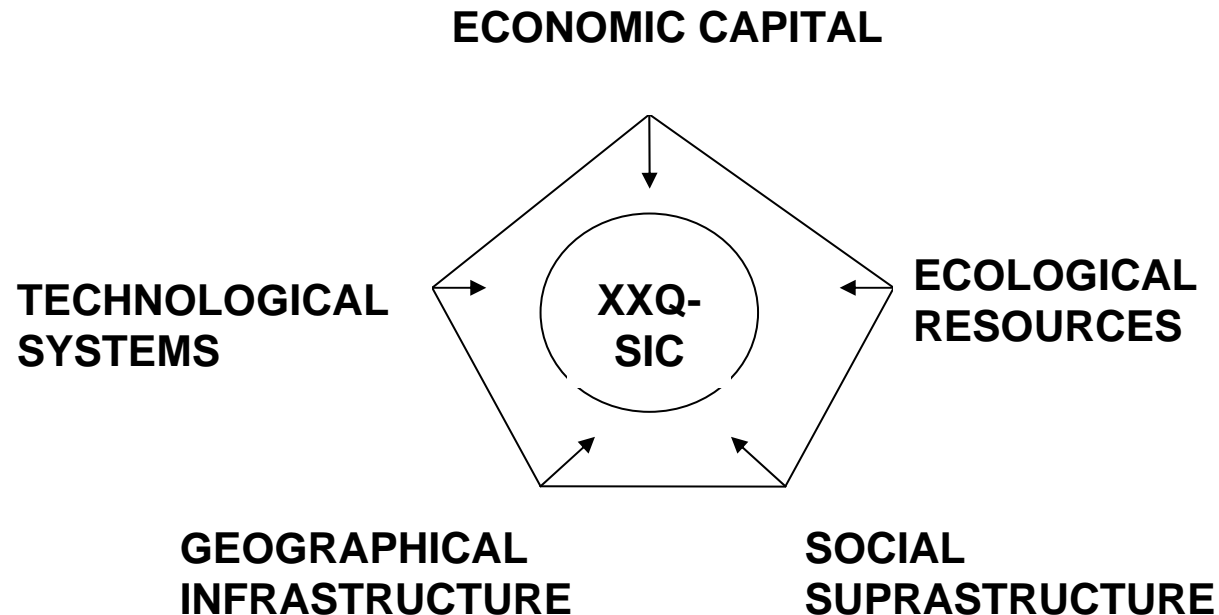


MODERN VIEW: CITIES AS SELF-ORGANIZING INNOVATIVE COMPLEXES (SIC)

□ FEATURES OF XXQ-SIC:

- CREATIVITY AND LEADERSHIP
- R&D AND KNOWLEDGE INTENSITY
- PRODUCTIVITY
- HETEROGENEITY AND MONOPOLISTIC COMPETITION
- EVOLUTIONARY DYNAMICS

□ URBAN SYSTEMS ECONOMICS: A PENTAGON MODEL



PENTAGON FACTORS

- ❑ **ECONOMIC CAPITAL**
 - OPEN COMPETITION
 - ENTREPRENEURSHIP

- ❑ **ECOLOGICAL RESOURCES**
 - QUALITY OF LIFE
 - URBAN GREEN (BAYCAN LEVENT)

- ❑ **TECHNOLOGICAL SYSTEMS**
 - LAUNCHING ACTORS (PRODUCERS AND USERS)
 - IMAGE

- ❑ **GEOGRAPHICAL INFRASTRUCTURE**
 - ACCESSIBILITY
 - CONNECTIVITY

- ❑ **SOCIAL SUPRASTRUCTURE**
 - CREATIVITY
 - DIVERSITY

NEW METHODOLOGICAL PERSPECTIVES: A RESEARCH AGENDA FOR URBAN SYSTEMS ECONOMICS

- META-ANALYSIS OF URBAN GROWTH FACTORS**
- DATA ENVELOPMENT ANALYSIS OF URBAN EFFICIENCY DIFFERENTIALS**
- COMPUTABLE URBAN ECONOMIC EQUILIBRIUM MODELS**
- ANALYSIS OF CITIES AS GLOBAL LEADERS**
- ANALYSIS OF URBAN COMPLEXITY IN MULTI-ACTOR NETWORKS**
- SYNTHESIS OF MICRO-, MACRO- AND SOCIO-ECONOMIC THEORY**