Clusters, Cluster Initiatives, and Regional Competitiveness: What Have We Learned?

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The Current Policy Challenge

• Severe *macroeconomic challenges* in many economies

• Macroeconomic reactions *necessary*…
  – Fiscal consolidation
  – Counter-cyclical measures

…but *not sufficient* to achieve sustainable growth
  – Higher prosperity ultimately driven by higher competitiveness, not demand

• Microeconomic growth agenda critical for higher competitiveness
  – Much of the action is in *regions*
  – Much of the action is sector- (or *cluster*)- specific
  – Much of the action requires voluntary *collaboration* between a broad range of actors
Composition of Regional Economies, United States

**Local Cluster**
- Serve almost exclusively the local market
- Not exposed to cross-regional competition for employment

72% of employment
62% of income
4% of patents

**Traded Cluster**
- Serve markets in other regions and countries
- Free to choose location
- Exposed to competition from other regions

27% of employment
37% of income
96% of patents

**Resource-based Clusters**
- Location determined by resource availability
- 1% of income, employment, and <1% patents in the U.S.

Specialization of Regional Economies
Leading Clusters by U.S. Economic Area, 2008

- Boston, MA-NH
  - Analytical Instruments
  - Education and Knowledge Creation
  - Medical Devices
  - Financial Services

- Los Angeles, CA
  - Entertainment
  - Apparel
  - Distribution Services
  - Hospitality and Tourism

- San Jose-San Francisco, CA
  - Business Services
  - Information Technology
  - Agricultural Products
  - Communications Equipment
  - Biopharmaceuticals

- New York, NY-NJ-CT-PA
  - Financial Services
  - Biopharmaceuticals
  - Jewelry and Precious Metals
  - Publishing and Printing

- Seattle, WA
  - Aerospace Vehicles and Defense
  - Information Technology
  - Entertainment
  - Fishing and Fishing Products

- San Diego, CA
  - Aerospace Vehicles and Defense
  - Oil and Gas Products and Services
  - Information Technology
  - Transportation and Logistics

- Detroit, MI-Ohio-IN
  - Auto Manufacturing
  - Automotive Parts
  - Transportation Equipment

- Denver, CO
  - Business Services
  - Medical Devices
  - Entertainment
  - Oil and Gas Products and Services

- Raleigh-Durham, NC
  - Education and Knowledge Creation
  - Chemical Products
  - Textiles

- Atlanta, GA
  - Transportation and Logistics
  - Textiles
  - Motor Driven Products
  - Construction Materials

- Chicago, IL-IN-WI
  - Metal Manufacturing
  - Lighting and Electrical Equipment
  - Production Technology
  - Plastics

- Pittsburgh, PA
  - Education and Knowledge Creation
  - Metal Manufacturing
  - Chemical Products
  - Power Generation and Transmission

- Houston, TX
  - Oil and Gas Products and Services
  - Chemical Products
  - Heavy Construction Services
  - Transportation and Logistics

Stavanger (Rogaland) Cluster Portfolio

Specialization (Location Quotient), 2009

Growth in Employment, 2004 - 2009

Note: Bubble size reflects absolute employment in 2009
Source: European Cluster Observatory, (2011)
The Evolution of Regional Economies
San Diego

Climate and Geography

U.S. Military

Hospitality and Tourism

Transportation and Logistics

Power Generation

Aerospace Vehicles and Defense

Communications Equipment

Analytical Instruments

Education and Knowledge Creation

Bioscience Research Centers

Bioscience Research Centers

Information Technology

Medical Devices

Biotech / Pharmaceuticals

Cluster Overlap Matrix: Stockholm

Source: Ketels (2009). Cluster Overlap Matrix developed by Michael Porter, Mercedes Delgado
Note: Clusters with overlapping borders have at least 20% overlap (by number of industries) in both directions. Red shading indicates clusters with LQ > 1, dark red with LQ > 2.
Drivers of Cluster Emergence

Local Externalities

- Common labor markets
- Specialized suppliers
- Specialized infrastructure
- Knowledge Spillovers
- Competitive pressure

Productivity

New Business Formation

Innovation
Clusters and Regional Prosperity

Recent Findings

Determinants of Regional Job Growth, Wages, and Patenting

- Specialization in **strong clusters**
- **Breadth** of position within each cluster
- Positions in **related clusters**
- Presence of a region‘s clusters in **neighboring regions**

Not significant
- Positions in “high-tech“ versus other clusters

Clustering and New Business Formation

- **Clusters** → **New Industries (+)**
  - The stronger the cluster, the more likely new industries within the cluster are to emerge

- **New Industries (+)** → **New Business Formation (+)**
  - The stronger the cluster, the more dynamic is the process of new business formation

- **New Business Formation (+)** → **Survival Rates of New Businesses (+)**
  - The stronger the cluster, the higher the survival rate of new businesses

- **Survival Rates of New Businesses (+)** → **Job Growth In New Businesses (+)**
  - The stronger the cluster, the higher the job growth in new businesses

Drivers of Prosperity
Revisiting the Role of Location

Prosperity

Urbanization (Density)

Competitiveness

Clusters (Specialization)
Clusters and Competitiveness

State of Cluster Development

Competitiveness

Source: ISC analysis based on WEF Global Executive Opinion Survey, 2010
Clusters, Urbanization, and Regional Economic Performance

Swedish Regional Clusters, 2006

Source: Ketels (2009)
Clusters: What Do We Know?

• Clusters are an important feature of modern economies; there is no evidence that their relative importance is declining.

• Regional cluster portfolios develop in a highly path-dependent process of diversification across related clusters.

• The presence of strong clusters is associated with higher levels of economic performance.

• Regional economic performance emerges in the interplay of competitiveness, cluster presence, and urbanization.
The Case for Cluster Policy

Create Platforms for Joint Action

Target Public Policy at Clusters

Path dependency

Local Externalities

Coordination failures

Information asymmetries
Two Opposing Approaches to Cluster Policy

MORE (Agglomeration)

BETTER (Competitiveness)
Agglomeration Approach

- Economic geography roughly in line with fundamentals
- Moving a company from one location to another has little impact on productivity
- "California dreaming" meets "Big Push"
- If you do it, hit "hard and early"

Weak case for cluster policies
Competitiveness Approach

• Agglomeration largely driven by business environment conditions and ‘automatic’ cluster effects

• Exploitation of localized spill-overs not automatic

• Exploration of opportunities for joint action not automatic

• If you do it, be patient and develop existing agglomerations and qualities

Solid case for cluster policies

“Smart government” meets “coopetition”
The Case for Cluster Policy

- Path dependency
- Local Externalities
- Coordination failures
- Information asymmetries
Target Public Policy at Clusters

- Business Attraction
- Education and Workforce Training
- Science and Technology Infrastructure (e.g., centers, university departments, technology transfer)
- Setting standards
- Environmental Stewardship
- Natural Resource Protection
- Specialized Physical Infrastructure
- Market Information and Disclosure
- Export Promotion

• Clusters provide a framework for organizing the implementation of public policy and public investments towards economic development
Impact and Neutrality of Government Policies

- Companies: High impact, low neutrality
- Clusters: High neutrality, low impact
- Specific Industry: Low impact, high neutrality
- Entire Economy: Low neutrality, low impact

Impact and Neutrality Graph: Neutrality/Absence of Distortion vs. Impact.
What are Cluster Initiatives?

Cluster initiatives are **collaborative activities** by a **group** of companies, public sector entities, and other related institutions with the objective to improve the competitiveness of a group of **interlinked economic activities in a specific geographic region**

- Upgrading of company operations and strategies across a group of companies
- Strengthening of networks to enhance spill-overs and other economic benefits of clusters
- Upgrading of cluster-specific business environment conditions
Drivers of Cluster Initiative Success

Setting
- Strong business environment
- Trust in government
- Strong regional government
- Cluster strength

Objectives
- Broad range of objectives
- Objectives selected based on cluster’s specific needs
- *No significant effect of special objectives*

Process
- CI Facilitator with cluster insight
- CI has office and significant budget
- CI has clear strategy and measurable goals
- *No negative effect of government financing*
- *Negative effect of limiting participation*

The Role of Government in Cluster Initiatives

- **Government should**
  - Support *all* existing and emerging clusters
  - Participate
  - Enable data collection and dissemination at the cluster level
  - Be ready to implement recommendations

- **Government may**
  - Initiate/Convene
  - Co-Finance

- **Government should not**
  - Pick favored clusters
  - Pick favored companies
  - Subsidize or distort competition
  - Define cluster action priorities
Cluster Policy: The Track Record So Far

• Increasingly clear evidence on the economic benefits of cluster presence

• Evaluations of cluster programs generally positive, especially in comparison with traditional policy tools

• Economic benefits of cluster programs so far limited to active participants

• Quality of cluster initiatives is heterogeneous

• How can the benefits of clusters and cluster initiatives be improved?
Key Issues for Cluster Mobilization

Increase the *impact* of cluster-driven policies

Enhance the *quality* of cluster initiatives
Cluster Policy: Breaking the Glass Ceiling

From a few successful cluster islands…

…to a more competitive economy

- Systematic use of clusters as a delivery channel for microeconomic policies
- Active management of regional cluster portfolios that engage many clusters and harness cross-cluster linkages
- Design of feedback mechanisms from cluster efforts to general business environment upgrading

Locations will only be able to harness the full potential of cluster efforts, if they match a bottom-up operational approach with a clear top-down concept for the use of clusters in economic policy.
Cluster Portfolio Policy

• **Existing clusters**
  – Already meeting the market test with significant economic activity

• **Emerging clusters**
  – Becoming visible around individual companies and at borders of existing clusters

• **New clusters**
  – Start-ups and chance events create the seeds of emerging clusters
Clusters and Structural Change

• Cluster policy is most effective if it focuses on **existing clusters**

**BUT**

• For many economies the challenge is to **broaden or change** the portfolio of clusters they are in

**Direction of structural change**

• **Natural structural change** occurs through growth in fields related to activities already present

• **Encourage diversification into related clusters**

**Management of structural change**

• Depending on their **maturity**, clusters differ in their likelihood of success and policy needs

• **Manage clusters as a portfolio**
  - Existing clusters
  - Emerging clusters
  - New clusters
Feed-back Mechanisms

- **Initiate general changes**
- **What can be changed?**

**Cluster**

- **What’s wrong?**
- **Identify general challenges**

- **What’s right?**
- **Highlight broader features of the region**

What’s wrong? What’s right? What can be changed?
Clusters and Economic Strategy

Positioning

• Identifies, communicates, and strengthens the specific value proposition of the location

Business Environment

• Improves the economic platform for all clusters and companies

Cluster Portfolio

• Accelerates growth in those fields where the country has some strengths

• New clusters emerge from established clusters
Regional Economic Strategy

**Positioning**

*Defining a unique overall position*
- What roles in the world and regional economy?
- What is the unique value as a business location?
- For what range or types of business activities?

**Priority Policies**

*Developing unique strengths*
- What elements of the business environment are critical to the regional value proposition?

*Maintaining parity on necessary qualities*
- What policy improvements are necessary to maintain parity with peer regions?

**Best Practices**

*Putting low emphasis on the rest*
- What aspects of the business environment are currently of limited relevance?
What is Different about Cluster-Based Policy?

- Cluster vs. Narrow Industries
- Public-Private Collaboration
- Regional Perspective
- Demand-driven Policy Priorities
- Build on Regional Strengths

Productivity Focus
Cluster Management: Professionalizing Practice

• Strategy Design
  – Combine existing tools to analyze the industry, the cluster, and the region

• Activities
  – Combine international with external collaboration

• Services
  – Cluster organization as the management of complex collaborations

• Management systems
  – Systematic impact assessment
Analytical Tools for Strategy Design

Industry
- Market Intelligence
- Foresight
- Five Forces

Cluster
- Cluster Map
- Linkages and IFCs
- Diamond

... ... 

EXTERNAL

INTERNAL
Activities

Cluster Mobilization:
Strengthening Internal Capacity and Linkages

Network Development:
Connecting to Outside Resources and Markets

Strategy Design:
Identifying a Target Positioning and the Critical Assets to Deliver
Key Points

• Clusters are a **critical element** of modern economies

• Clusters **emerge naturally** in market processes, but cluster policies and initiatives can **enhance and leverage** these dynamics

• Clusters policies need to **broaden their scope** to achieve meaningful regional and national impact

• Cluster initiatives need to **broaden their toolkit** to effectively support companies and research institutions in their clusters