Potential and Problems of Regional Cluster Policies: Evidence from Germany

Agenda

1) **What are Cluster Policies?**
2) Impacts of Regional Cluster Policies in Germany
3) Problems: Stylised Facts
4) Implications and Research Needs
What is a Cluster?

Clusters = geographic concentrations of

• interconnected companies,
• specialized suppliers,
• service providers,
• firms in related industries,
• and associated institutions (e.g. universities, standards agencies, chambers of commerce, trade associations…)

in particular fields that compete but also cooperate (cf. Porter 2008: p. 215 f.).

The Cluster as a Localized Value System

Customers

Manufacturer

Vertical Dimension

Intermediate goods
(Value Chain)

Suppliers

Institutional Dimension

• Values, Norms and Rules

Horizontal Dimension

Competition

Lateral/diagonal Dimension

• Business Services: KIBS, Financial Services (Banks, VC…)
• Research & Education ⇒ specialized labor
• Chambers, associations
• Network organizations
• Specialized infrastructure

Territorial boundary

External Dimension
What is (Regional) Cluster Policy?

- All efforts of government to develop and support clusters (in a particular region) (Hospers/Beugelsdijk 2002, p. 382)
- Industrial, structural, technology or innovation policy promoting regional specialisation
- Public efforts to develop concentrations of industry or network structures into clusters, or to promote existing clusters (cf. Bruch-Krumbein/Hochmuth 2000, p. 69 f.)
Elements of Cluster Policy

- **Identification of clusters** with their specific profiles, strengths and weaknesses
- **Identification and mobilisation** of cluster members
- Development of common **visions, strategies** and **projects**
- **Improvement of the general business environment**, e.g. taxation, regulations constraining innovation and firm growth
- Formation of **networks** between firms, including research, education and other supporting organisations
- Provision and sharing of **information** on market and technology trends
- Promotion of **entrepreneurship** to reach a critical mass of firms for localisation economies to kick in
- **Attraction of mobile firms** to fill gaps in regional value chains or to increase the agglomeration of firms
- Building and upgrading **cluster-specific infrastructure**, e.g. research and training centres
- **Locational marketing** to build cluster/place brand recognition

Maier et al. 2012, pp.163 f. (translated and amended)

Cluster Policy as Multi-level Governance

- **European Union**
  - **Identification** and cross-border networking** of clusters
  - **Knowledge exchange** and dissemination of **best practice** among policymakers and practitioners (cluster managers)
  - Funding for clusters through **structural funds**


- **Federal States (Länder)** (cf. Buhl/Meier zu Köcker 2008), e.g. North Rhine-Westphalia:
  - 16 NRW-Clusters + open RegioCluster contest
  - Cluster contests for disbursement of structural funds

- **Regions** and municipalities
  - Out of 144 cities > 50,000 inhabitants, 63% claimed to have a coherent strategy for the development of cluster, networks, fields of technology or competence (Hollbach-Grömig/Floeting 2008)
  - **Case studies**: see below

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Institute of Geography
Matthias Kiese
Urban and Regional Economics

ARL International Summer School 2015 "Winners and Losers: Why are the Effects of Regional Policy so Different?"
Prague, August 25th, 2015

• State-level policies
  • NRW ~ mature industries facing structural change
  • Bavaria ~ late industrialisation, high-tech industries
  • Niedersachsen ~ "normal" region

• Seven regional (sub-state) case studies
• 2006-2007: 110 semi-structured interviews with 134 practitioners, consultants and independent observers

State/Region/City | Programme/Organisation (Start year in brackets)
Lower Saxony | Regional growth concepts (since 2004)
Dortmund | Incubator and technology park since 1985, industry targeting in local economic development since 1997, dortmund-project (*7/2000)
Wuppertal-Solingen-Remscheid | kompetenzhoch3 (*2001)
Braunschweig | Projekt REGION BRAUNSCHWEIG GMBH (*02/2005)

Cartography: Stephan Pohl

Case Studies: Overview
Agenda

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2) Impacts of Regional Cluster Policies in Germany

3) Problems: Stylised Facts

4) Implications and Research Needs

Case Study Wolfsburg: AutoVision Cluster Strategy

- Implement and build-up
  - CMO with units
    - ICT incubator
    - Leisure
    - Supplier attraction
    - Personnel service agency
  - Cluster initiation
    - Mobility and leisure

- Build-up and establish
  - AutoVison GmbH
    - Venture
    - Service
    - People
  - Strengthening of clusters
    - Mobility and leisure
  - Cluster initiation
    - IT and health business

- Build-up, establish and network
  - Mobile Life Campus
  - Cluster Hub
    - Mobility
    - IT
    - Leisure
    - Health business

Source: Wolfsburg AG 2005, p. 16 (own translation)
Wolfsburg AG: Balance Sheet

- **+ 43,255 jobs** with compulsory social security contributions (June 1997: 73,363 ⇒ June 2014: 116,618 = +59%)
- **+16,000 permanent jobs** in clusters ("key growth areas")
- **Unemployment** rate of 4.8% (∅ 2014; 1998: 19.3%)
- **586 companies founded** in or **attracted** to WOB in key growth areas (June 2015)
  - Including 183 **supplier** companies relocated to WOB
- **100-200 million €** drain on **consumer spending** in 1997 reversed to a **70 million €** surplus in 2008
- **Benchmarked as a German region with “very high prospects”** in the Prognos **city rankings** published in 2004, 2007, 2010 and as a German region with “the best prospects” in 2013

Regional Cluster Policy: What has been achieved?

**The Case of hannoverimpuls**

- **Customer Relations Management** since 2004: Annual survey of employment figures for all firms and start-ups using the organisation’s services
- **Figures grossed up** for non-response, multiplier effects and general growth of focus industries (based on McKinsey & Co. formula)
- 2013: **3,379 jobs created** (+47% vis-a-vis target of 2,300)
- 2003-2013: **33,701 jobs created** (+10.2% vis-a-vis target of 30,570)

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<td>Firms</td>
<td>2,970</td>
<td>564</td>
<td>619</td>
<td>657</td>
<td>624</td>
<td>475</td>
<td>2,741</td>
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<tr>
<td>Employment</td>
<td>12,558</td>
<td>1,814</td>
<td>2,682</td>
<td>4,246</td>
<td>3,735</td>
<td>3,379</td>
<td>15,856</td>
</tr>
</tbody>
</table>

- "jobs originally created through hannoverimpuls" (hannoverimpuls 2007)
- "a performance record that is unique in its clarity and significance" (LHH 2007, p. 5)
- "Game of questions and answers with politicians"; "absolutely voodoo" (interviewed practitioners)

Kiese 2008b, p. 224-227; Data: hannoverimpuls 2008, p. 36; LHH 2014, pp. 108 & 112; *) from 2009 only start-ups
What has **really** been achieved?

- **Professionalization**, focus and **strategic orientation** of local and regional economic development efforts
  - E.g. Dortmund
    - Innovation centre ⇒ ten specialised incubators
    - Start-up contests
  - Process benefits: Improving a region's **organising capacity**
  - Indicator: **Capacity to attract public funding** from higher levels (e.g. Dortmund, Central Franconia)

Source: Adapted from van den Berg et al. 1997, p. 260

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**Capacity to Attract: ERDF-RCE in NRW, 2007-2013**

Dortmund is among the top recipients!

Source: Own calculations based on MWEIMH-NRW 2015

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**Legend**

- Amount of Structural Funds
  - In excess of 100 m€
  - 50 to 100 m€
  - 20 to 50 m€
  - 10 to 20 m€
  - Lower than 10 m€
Phoenix West: Urban Renewal through Cluster Policy

Phoenix West (dortmund-project 2007, p. 26)

- New 115 hectare technology park for micro and nano technologies, manufacturing process technology and IT on former steel mill site
- MST.factory as specialised business incubator with cleanroom facilities, cost 50 million €

<table>
<thead>
<tr>
<th>Mio. €</th>
<th>Source of Funding</th>
<th>Utilisation</th>
<th>Source</th>
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<td>80.0</td>
<td>ERDF Objective 2</td>
<td>Phoenix-West</td>
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<td></td>
<td>2000-2006 funding period</td>
<td>of which: infrastructure</td>
<td>1</td>
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<td>19.0</td>
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<tr>
<td>36.6</td>
<td></td>
<td>MST.factory</td>
<td>2</td>
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<td>19.6</td>
<td></td>
<td>Improvement of location, perception and environment</td>
<td>3</td>
</tr>
</tbody>
</table>

Sources: 1) StadtbezirksMarketing Dortmund-Hörde 2006, 2) BMWi 2008, p. 24; 3) MWME-NRW 2009

Agenda

1) What are Cluster Policies?
2) Impacts of Regional Cluster Policies in Germany
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Stylized Facts on Regional Cluster Policies in Germany

1. **Technocratic** understanding of clusters in policy and practice
2. For simplicity’s sake, clusters are understood as **networks**
3. **Spatial mismatch** between cluster and policy ⇒ over-/underbounding
4. **Temporal mismatch** (short-termism vs. cluster development)
5. **Herd behaviour** (ICT, bio, nano…)
6. From horizontal demonstration effects to **top-down diffusion**
7. Inflationary use of cluster term ⇒ meaning, credibility ↓
8. Lack of explicit **theoretical foundation/reference**
9. **Sloppy identification** of cluster potential
10. **Declining cluster focus** over time

Cf. Kiese 2012, pp. 323-331
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Prague, August 25th, 2015

Understanding of Clusters and Matching Problems

1. **Technocratic understanding** of clusters
   - „Let's form a cluster!“
   - Dominance of bureaucratic rationality (cf. Kiese 2008a)
2. For simplicity’s sake, clusters are understood as **networks**
   - Focus on **co-operation**, neglect of **competition**
   - **Geography of clusters** ignored in state-level policies attempting at networking across administrative territory

Cf. Kiese 2012, pp. 323-326
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Clusters and Networks: Conceptual Differences

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Networks</th>
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<tbody>
<tr>
<td>• Spatially bounded</td>
<td>• No spatial dimension</td>
</tr>
<tr>
<td>• Focuses co-operation and competition</td>
<td>• More than co-operative than competitive</td>
</tr>
<tr>
<td>• Element of networks (external dimension)</td>
<td>• Part of clusters, but usually extending beyond clusters’ spatial confines</td>
</tr>
<tr>
<td>• Policy: Concept</td>
<td>• Policy: Instrument/Tool</td>
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</tbody>
</table>

...but commonly equated in policy and practice!

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3. Spatial mismatch between cluster and policy
   • Densities and scales of interaction vs. parochial thinking
   • Danger of over- or underbounding
   • Neglect of external cluster dimension

Cf. Kiese 2012, pp. 323-326
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**Overbounding**

- Manufacturing firms
  - Knowledge-intensive business services
  - Universities, research organisations
  - Specialised infrastructure, supporting organisations

Own visualisation inspired by Bennett/McCoshan 1993, p. 222

Prague, August 25th, 2015

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**Underbounding**

- Manufacturing firms
  - Knowledge-intensive business services
  - Universities, research organisations
  - Specialised infrastructure, supporting organisations

Own inspiration inspired by Bennett/McCoshan 1993, p. 222

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Understanding of Clusters and Matching Problems

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4. Temporal mismatch
   - Cluster development requires long gestation periods
   - Electoral cycles demand short-term and visible effects

Cf. Kiese 2012, pp. 323-326

Inflation of Cluster Policy

5. Herd behaviour
   - Megatrends and key technologies (biotech, nanotech, ICT, health-related technologies...)
   - Demonstration effects (“me too”)
   ⇒ Convergence of cluster policy portfolios

**Convergence of Cluster Portfolios: Herd Behaviour?**

<table>
<thead>
<tr>
<th>Number of clusters</th>
<th>NRW</th>
<th>L Saxony</th>
<th>N Dusseldorf</th>
<th>Berg</th>
<th>Halle</th>
<th>Munich</th>
<th>Brandenburg</th>
<th>Hamburg</th>
<th>Regensburg</th>
<th>Total</th>
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<td>56</td>
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<tr>
<td>Automotive, transport technology, telematics</td>
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<td>Health services, life sciences</td>
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<td>7</td>
<td>7</td>
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<td>Biotech, medtech</td>
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<tr>
<td>Mechanical engineering, (mechatronics, automation)</td>
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<td>Media, event &amp; communication</td>
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<td>Nano &amp; micro technology</td>
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<td>Tourism, leisure &amp; sports equipment</td>
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<tr>
<td>Aircraft &amp; spacecraft, satellite navigation</td>
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<td>Metal processing</td>
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<td>Optical technologies</td>
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<tr>
<td>Product design &amp; development</td>
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</table>

1) in Regional Growth Concepts; but focus in technology policy and state initiatives:

Cf. Kiese 2012, pp. 232, 313

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**Inflation of Cluster Policy**

### 5. Herd behaviour
- Megatrends and key technologies (biotech, nanotech, ICT, health-related technologies...)
- Demonstration effects ("me too")
  
  \( \Rightarrow \) **Convergence** of cluster policy portfolios

### 6. Top-Down Diffusion
- Originally bottom-up and horizontal diffusion
- Increasingly vertical diffusion EU \( \Rightarrow \) (federal \( \Rightarrow \) states \( \Rightarrow \) regions/municipalities
- **Professionalisation** of economic development practice and specialisation of consultants as transfer agents (cf. Stone 2004, Kiese 2010)

### 7. Inflation
- "Clusters" as meaningless labels?!
- Danger of arbitrariness


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Danger of Conceptual Dilution

8. Lack of theory
   - Porter’s definition only reference to academic literature
   - Incremental, cumulative, path-dependent learning by doing \(\Rightarrow\) coagulated experience and implicit theories (Hofmann 1993)

9. Insufficient identification of cluster potential
   - Methodological toolbox used only scantily
   - Political decisions shaped by interest groups, proportional representation and concerns for spatial equity
     \(\Rightarrow\) Inflation, danger of promoting „wishful thinking“ clusters (Enright 2003, p. 104)

Cf. Kiese 2012, pp. 323-331
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Methods for Cluster Identification

- Own experience
- External expertise
- Growth forecasts
- Workshops with stakeholders
- Network analysis
- Measures of concentration
- Value chain analysis
- Contests
- Others

Data: Hollbach-Grömg/Floating 2008, p. 11 (n=94)
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Methods for Cluster Identification: Case Studies

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<th>Method</th>
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<th>Bav</th>
<th>Dort</th>
<th>Berg</th>
<th>WOB</th>
<th>Han</th>
<th>Brun</th>
<th>CF</th>
<th>Reg</th>
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<tr>
<td>Expert opinion, professional reports</td>
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<tr>
<td>Moderation of regional actors</td>
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<tr>
<td>Measures of concentration (absolute/relative)</td>
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<tr>
<td>Dynamic analysis, e.g. shift-share input/output analysis</td>
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<tr>
<td>Functional value chain analysis</td>
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<tr>
<td>Network analysis</td>
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<td>Cluster contests</td>
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<td>Growth forecasts (”Megatrends”)</td>
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<td>Decision by shareholders (politics) or (”) pre-dating the analysis</td>
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Translated from Kiese 2008a, p. 138
ARL International Summer School 2015 “Winners and Losers: Why are the Effects of Regional Policy so Different?”
Prague, August 25th, 2015

Danger of Conceptual Dilution

8. Lack of theory
- Porter’s definition only reference to academic literature
- Incremental, cumulative, path-dependent learning by doing ⇒ coagulated experience and implicit theories (Hofmann 1993)

9. Insufficient identification of cluster potential
- Methodological toolbox used only scantily
- Political decisions shaped by interest groups, proportional representation and concerns for spatial equity
  ⇒ Inflation, danger of promoting „wishful thinking“ clusters (Enright 2003, p. 104)

10. Declining cluster orientation during implementation
- Promotion of too many “clusters” without sufficient potential to reach critical mass
- Generic project easier to realise (“early wins”)
- Bureaucratic rationality: CMO fighting for budgets and survival

Cf. Kiese 2012, pp. 323-331
ARL International Summer School 2015 “Winners and Losers: Why are the Effects of Regional Policy so Different?”
Prague, August 25th, 2015
Agenda

1) What are Cluster Policies?
2) Impacts of Regional Cluster Policies in Germany
3) Problems: Stylised Facts
4) Implications and Research Needs

Challenges for Regional Cluster Policies

<table>
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<tr>
<th>Problem</th>
<th>Solution</th>
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<td>Understanding of clusters</td>
<td>moderating and facilitating role of policy</td>
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<td>appreciate organic forces of cluster evolution</td>
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<td>Matching problems (space &amp; time)</td>
<td>overcome parochial thinking to form regional alliances that match the spatial extent of clusters</td>
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<td>leadership and long-term strategy</td>
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<td>Inflation</td>
<td>identify and promote original regional assets rather than just follow fads; marry trends and tradition (cf. Hospers 2004)</td>
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<td>use participatory methods (e.g., foresight, cf. Koschatzky 2005) to discover regional trajectories</td>
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<td>Conceptual dilution, declining cluster orientation</td>
<td>careful and objective analysis of cluster potential</td>
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<td>exploit toolbox for cluster identification more fully, including open cluster contests as discovery device</td>
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<td>continuous monitoring, independent evaluation</td>
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<td>continuous review and adaptation of concept/strategy</td>
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</table>
Research Needs

- **Comparative** cluster policy research
  - Structural & institutional *variety* ⇒ *design, implementation* and *outcomes* of cluster policy
  - Interregional (e.g., Kiese 2012 for Germany) and international (e.g., Sternberg et al. 2010 for the U.S. vs. Germany)
- Different *perspectives* proved usefulness
  - Institutional (varieties of capitalism [cf. Sternberg et al. 2010], regional & multilevel governance)
  - Policy diffusion/transfer and learning (cf. Kiese 2010)
- **Evolutionary** perspective: Cluster policy *learning* across time and space (cf. Kiese 2010)
- Independent *evaluation* of cluster policies
  - Conceptual and methodological challenges
  - Practice of commissioned evaluation governed by political-administrative system (cf. Kiese 2009, 2014)

### Cluster Policies: Beware of Context!

- Silicon Valley
- Silicon X
- Y Valley

*Thank you very much for your attention!*
References (1/4)


References (2/4)


ARL International Summer School 2015 “Winners and Losers: Why are the Effects of Regional Policy so Different?” Prague, August 29th, 2015

Institute of Geography
Matthias Kiese • Urban and Regional Economics


References (4/4)