# Competitiveness in the Global Economy: Sweden's Position

Professor Michael E. Porter
Dr Christian Ketels
Institute for Strategy and Competitiveness
Harvard Business School

Globalization Council
*Stockholm, Sweden*
April 27, 2007

# A Changing Global Competitive Environment

| | |
|---|---|
| **Driver** | • Fewer barriers to trade and investment<br>• Rapidly increasing stock and diffusion of knowledge<br>• Competitiveness upgrading in many countries |
| **Market reaction** | • Globalization of markets<br>• Globalization of value chains<br>• Internationalization of capital, especially portfolio investment<br>• Increasing knowledge and skill intensity of competition<br>• Value increasingly in the service component of activities |
| **Implications** | • **Productivity** increasingly determines success<br>• Competition among nations need **not** be zero-sum<br>• Economic success depends on providing **unique value**, not just meeting best practice benchmarks |

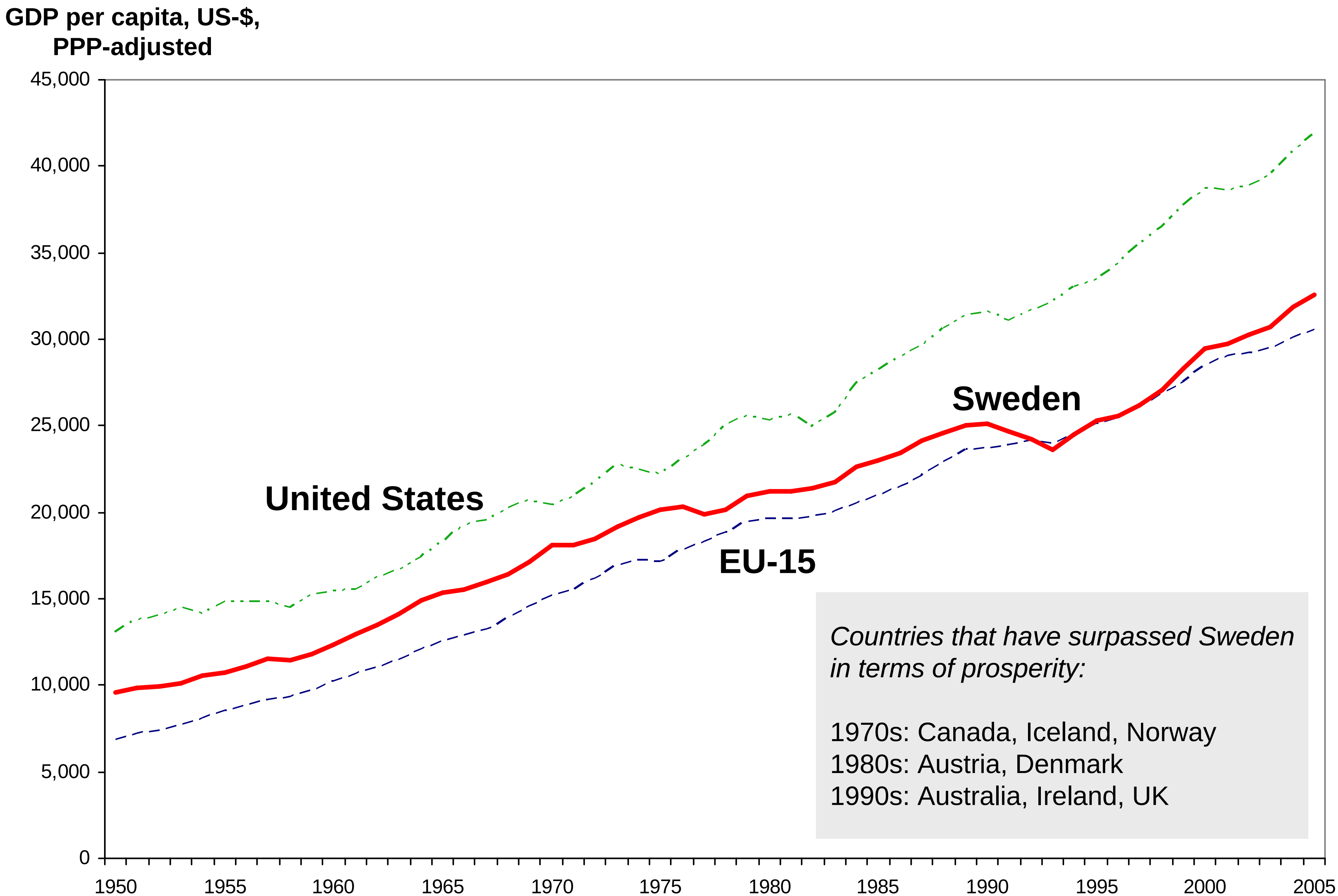
# Swedish Competitiveness in 2007

- Sweden is one of the **primary beneficiaries** of globalization

**HOWEVER**

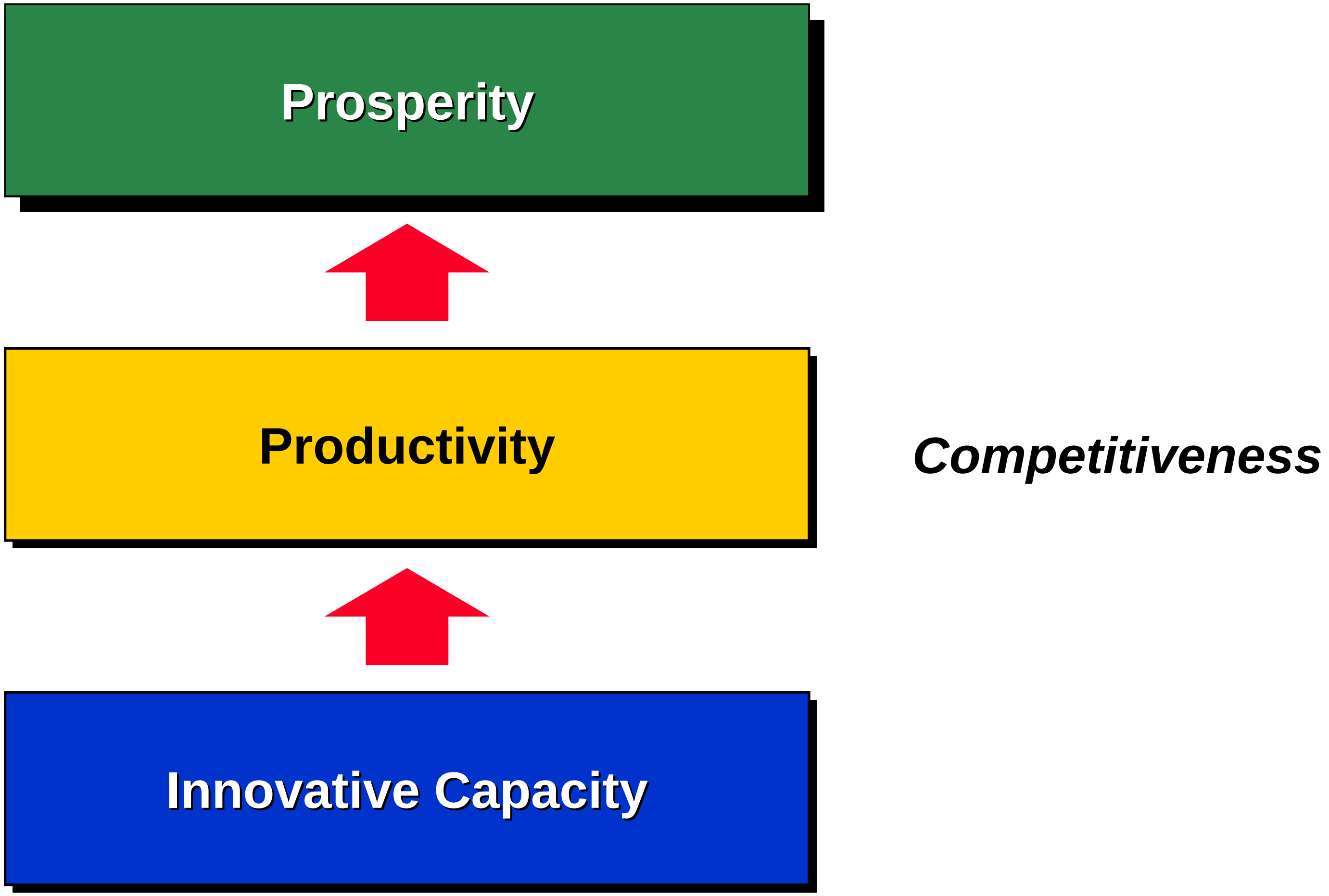
- Other countries are catching up, exposing **remaining weaknesses** in Swedish competitiveness
- Recent policy changes are a move in the **right direction** but they are **not sufficient**

# Long-Term Trends in Prosperity

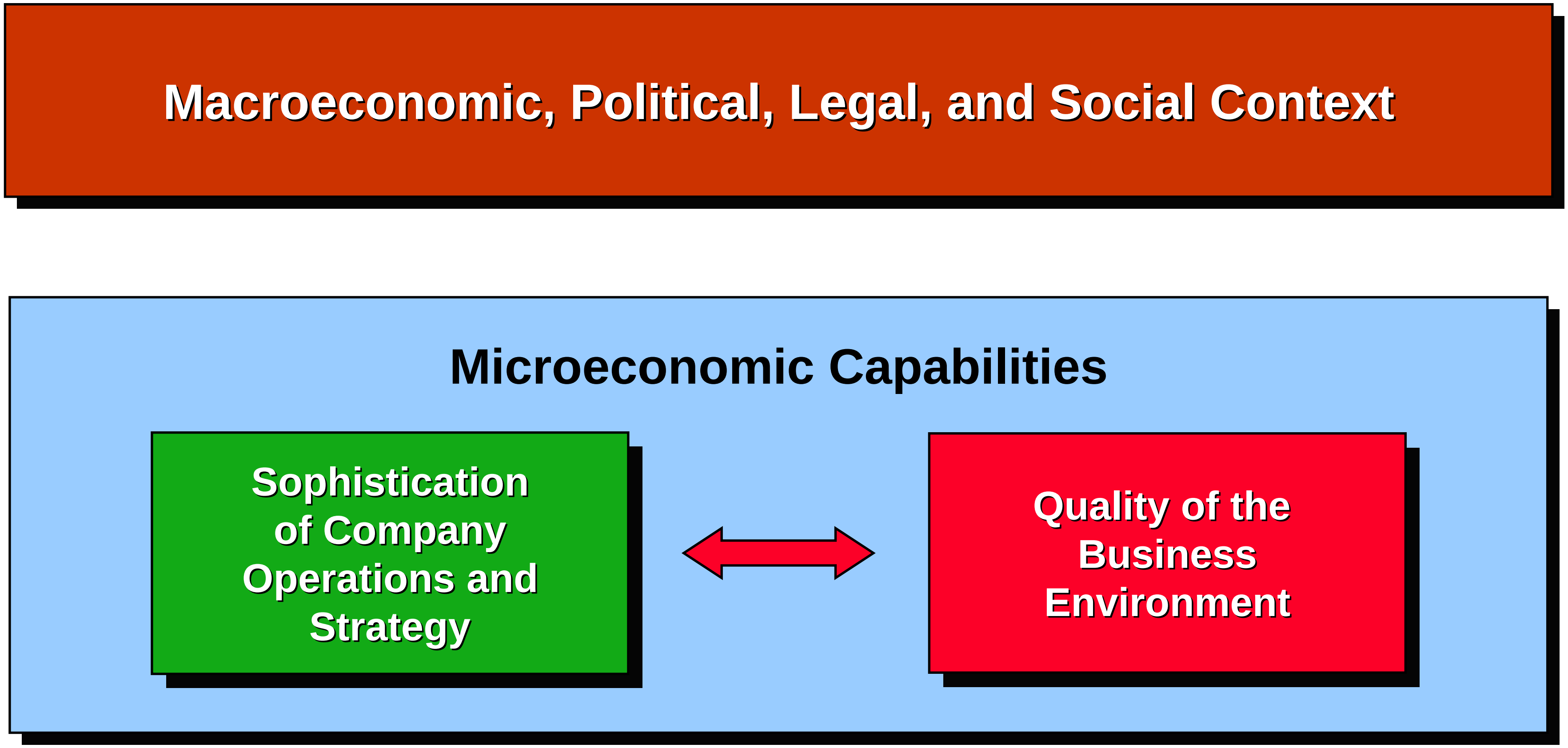



Source: Groningen Growth and Development Center, The Conference Board, 2006

# What Creates Sustainable Prosperity?



# Determinants of Productivity and Productivity Growth




- A sound context creates the potential for competitiveness, **but is not sufficient**
- Competitiveness ultimately depends on improving the **microeconomic capability** of the economy and the **sophistication of local companies and local competition**

# Improving the Business Environment

**Context for Firm Strategy and Rivalry**

- A local context and rules that encourage **investment** and **sustained upgrading**
  - –e.g., Intellectual property protection
- **Meritocratic** incentive systems across all major institutions
- Open and vigorous competition among **locally based rivals**

**Factor (Input) Conditions**

- **Presence of high quality, specialized inputs** available to firms
  - –Human resources
  - –Capital resources
  - –Physical infrastructure
  - –Administrative infrastructure
  - –Information infrastructure
  - –Scientific and technological infrastructure
  - –Natural resources

**Demand Conditions**

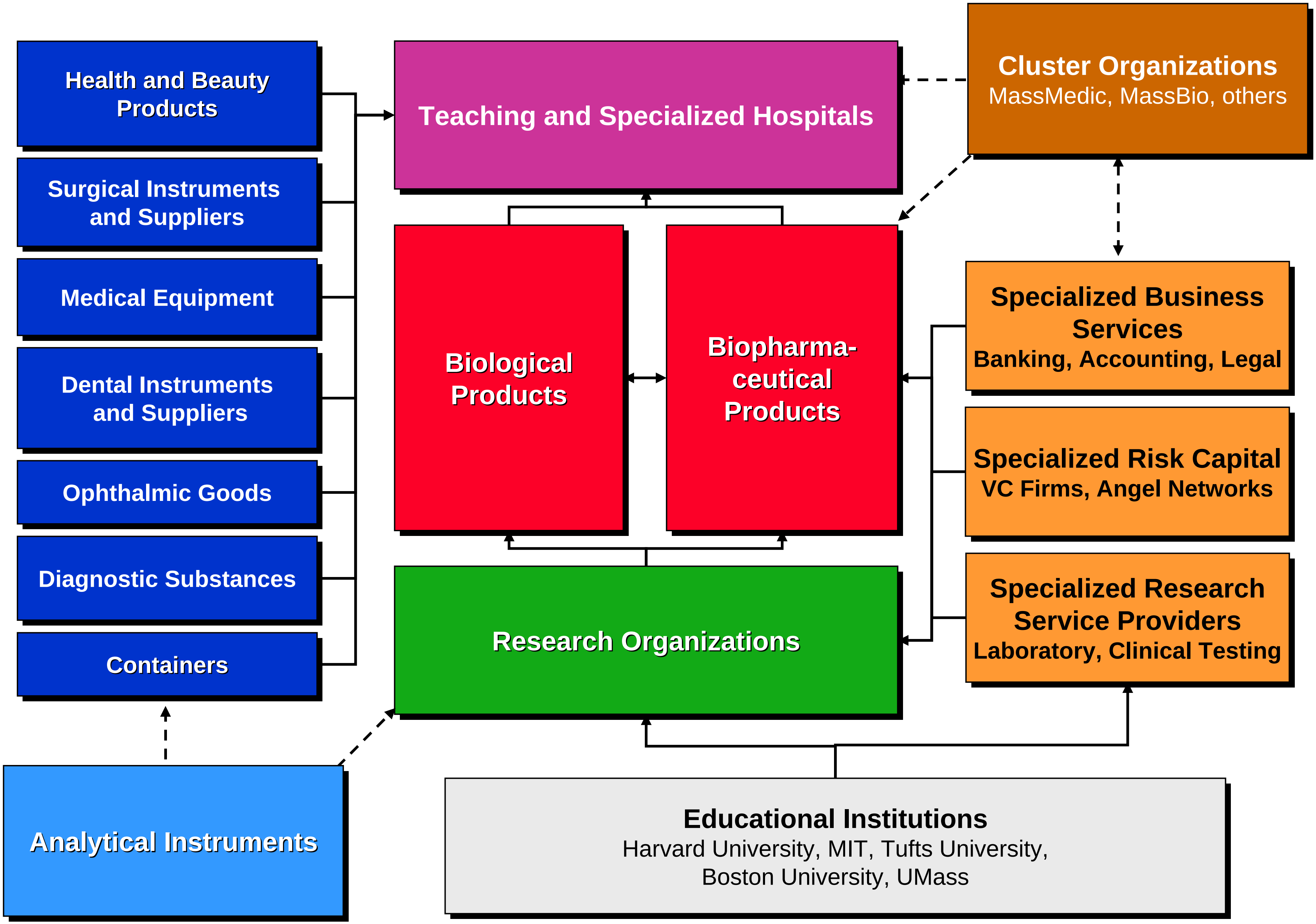
- **Sophisticated and demanding** local customer(s)
- Local customer needs that **anticipate** those elsewhere
- Unusual local demand in **specialized segments** that can be served nationally and globally

**Related and Supporting Industries**

- Access to capable, locally based **suppliers** and firms in **related fields**
- Presence of **clusters** instead of isolated industries

- Successful economic development is a process of **successive economic upgrading**, in which the business environment in a nation evolves to support and encourage increasingly sophisticated ways of competing

# The Boston Life Sciences Cluster



# Institutions for Collaboration

## Selected Massachusetts Organizations, Life Sciences

### Life Sciences Industry Associations

- Massachusetts Biotechnology Council
- Massachusetts Medical Device Industry Council
- Massachusetts Hospital Association

### University Initiatives

- Harvard Biomedical Community
- MIT Enterprise Forum
- Biotech Club at Harvard Medical School
- Technology Transfer offices

### General Industry Associations

- Associated Industries of Massachusetts
- Greater Boston Chamber of Commerce
- High Tech Council of Massachusetts

### Informal networks

- Company alumni groups
- Venture capital community
- University alumni groups

### Economic Development Initiatives

- Massachusetts Technology Collaborative
- Mass Biomedical Initiatives
- Mass Development
- Massachusetts Alliance for Economic Development

### Joint Research Initiatives

- New England Healthcare Institute
- Whitehead Institute For Biomedical Research
- Center for Integration of Medicine and Innovative Technology (CIMIT)

# The Composition of Regional Economies

## United States, 2004

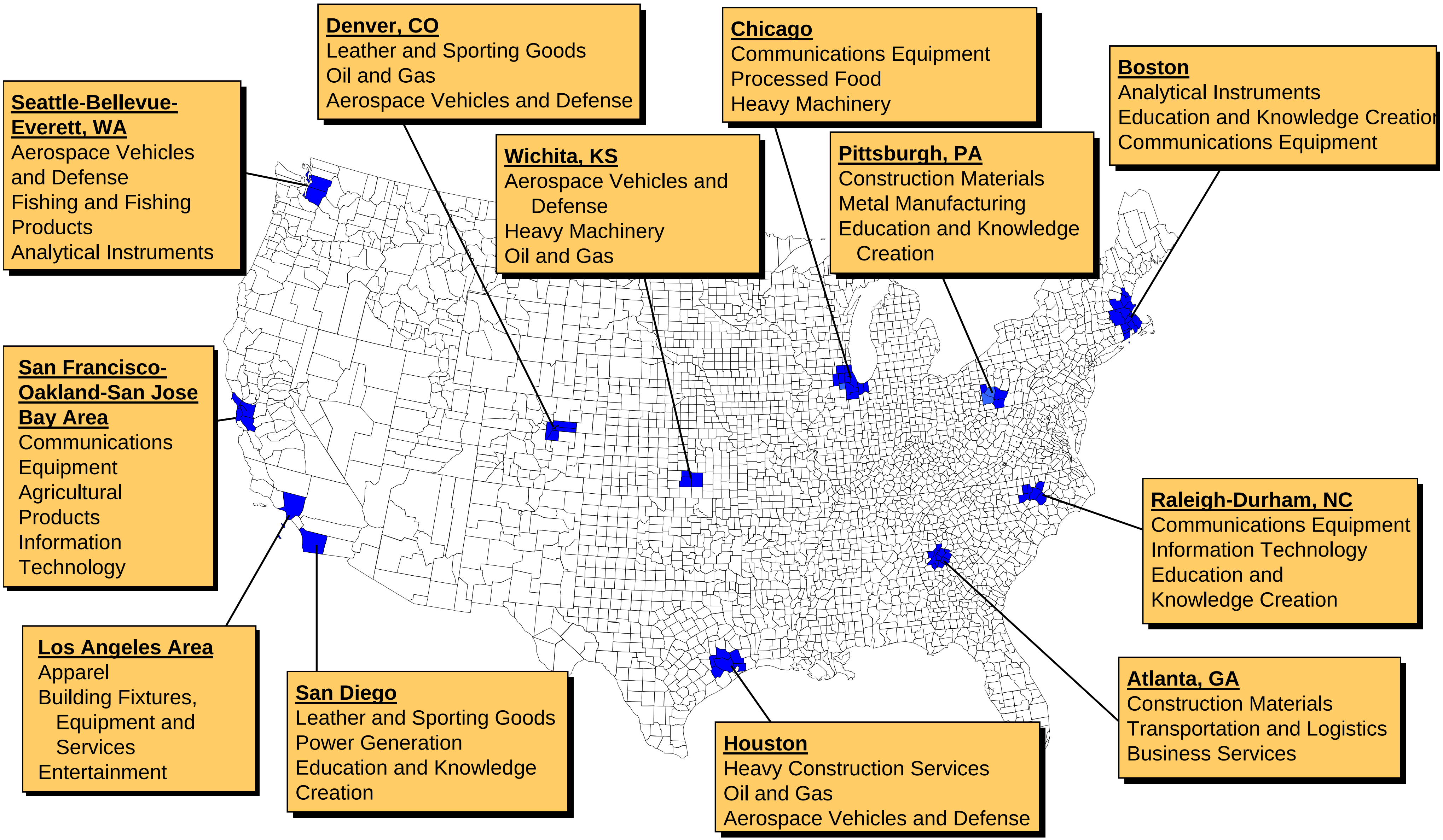
| | Traded | Local | Natural Resource-Driven |
|---|---|---|---|
| Share of Employment | 29.3% | 70.0% | 0.7% |
| Employment Growth Rate, 1990 to 2004 | 0.7% | 2.4% | -1.2% |
| Average Wage | $49,367 | $30,416 | $35,815 |
| Relative Wage | 137.2% | 84.5 | 99.5 |
| Wage Growth | 4.2% | 3.4% | 2.1% |
| Relative Productivity | 144.1 | 79.3 | 140.1 |
| Patents per 10,000 Employees | 23.0 | 0.4 | 3.3 |
| Number of SIC Industries | 590 | 241 | 48 |

Note: 2004 data, except relative productivity which uses 1997 data.

Source: Prof. Michael E. Porter, Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

# Specialization of Regional Economies

## Select U.S. Geographic Areas

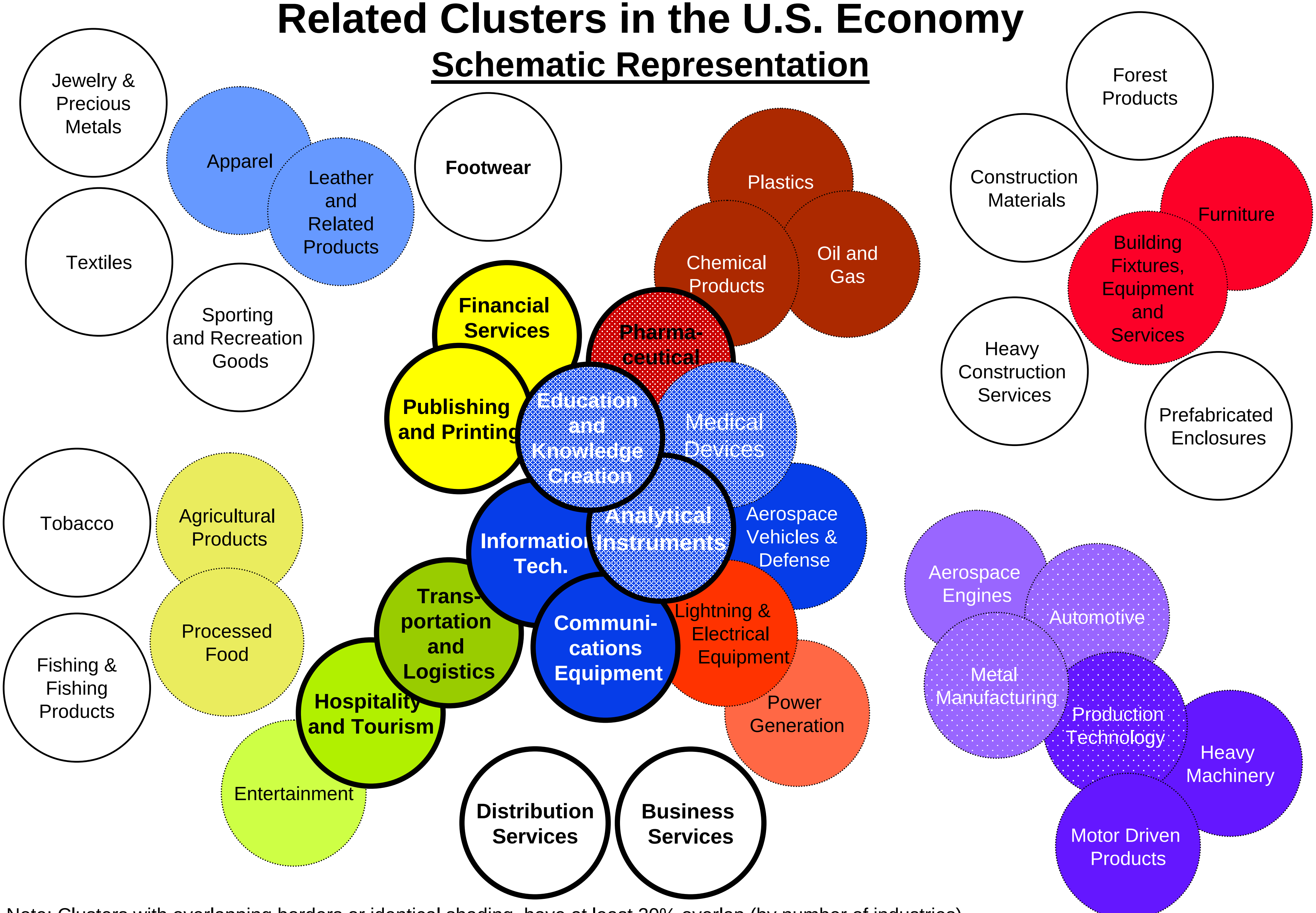



Note: Clusters listed are the three highest ranking clusters in terms of share of national employment

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School

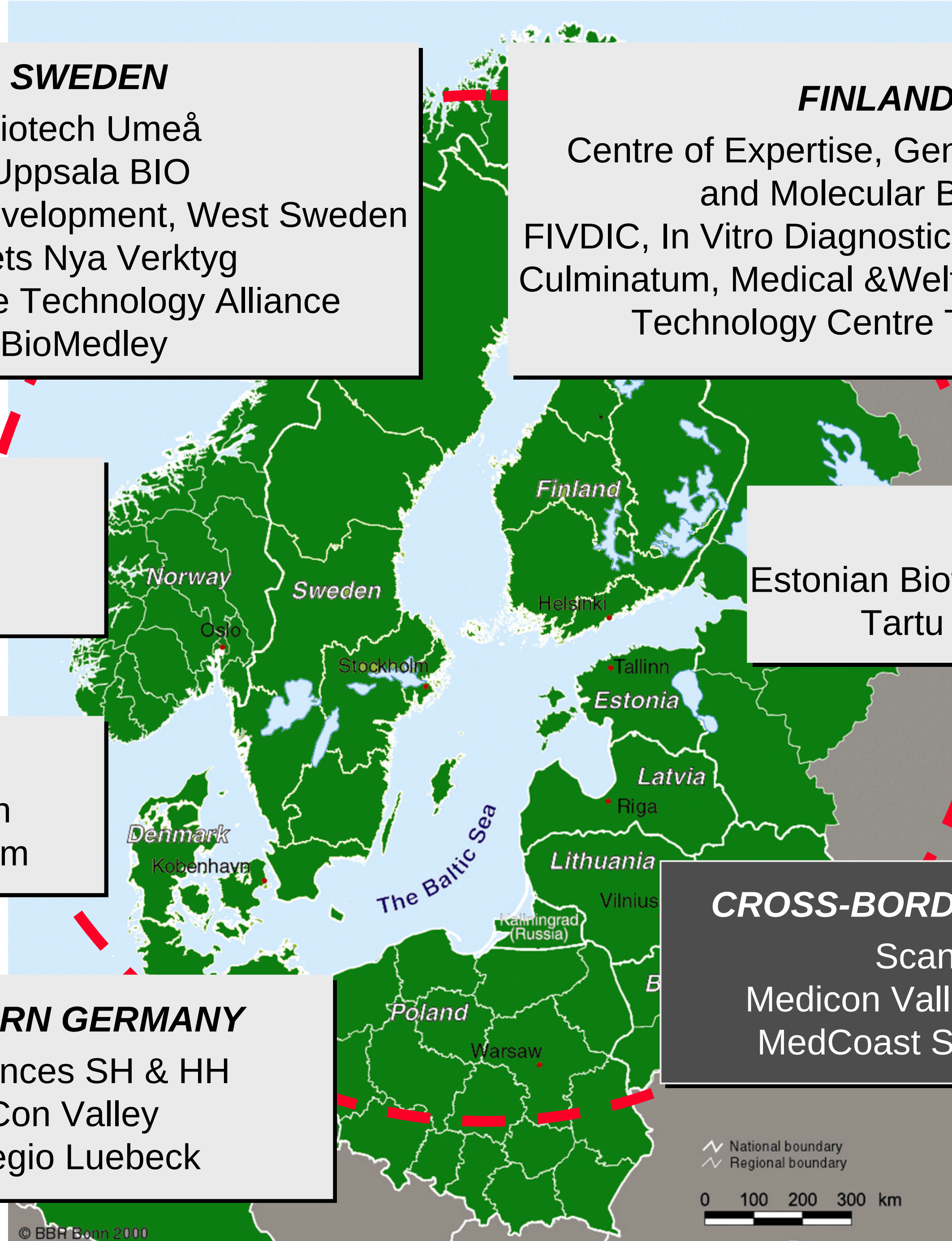
# Related Clusters in the U.S. Economy

## Schematic Representation




Note: Clusters with overlapping borders or identical shading have at least 20% overlap (by number of industries) in both directions. Clusters in which Stockholm has a strong position within Sweden are in bold

# Cross-National Collaboration of Cluster Initiatives




***SWEDEN***

Biotech Umeå
Uppsala BIO
Biomedical Development, West Sweden
Livets Nya Verktyg
Healthcare Technology Alliance
BioMedley

***FINLAND***

Centre of Expertise, Gene Technology and Molecular Biology
FIVDIC, In Vitro Diagnostics Industry Cluster
Culminatum, Medical &Welfare Technologies
Technology Centre Teknia Ltd

***NORWAY***

BIOINN
BCNorth

***ESTONIA***

Estonian Biotechnology Association
Tartu Biotech Cluster

***DENMARK***

bioTEAMsouth
BioMedico Forum

***CROSS-BORDER EFFORTS***

ScanBalt
Medicon Valley Academy
MedCoast Scandinavia

***NORTHERN GERMANY***

Life Sciences SH & HH
BioCon Valley
medRegio Luebeck

# The Process of Economic Development

## Shifting Roles and Responsibilities

| Old Model | New Model |
| --- | --- |
| • **Government** drives economic development through policy decisions and incentives | • Economic development is a **collaborative process** involving government at multiple levels, companies, teaching and research institutions, and institutions for collaboration |

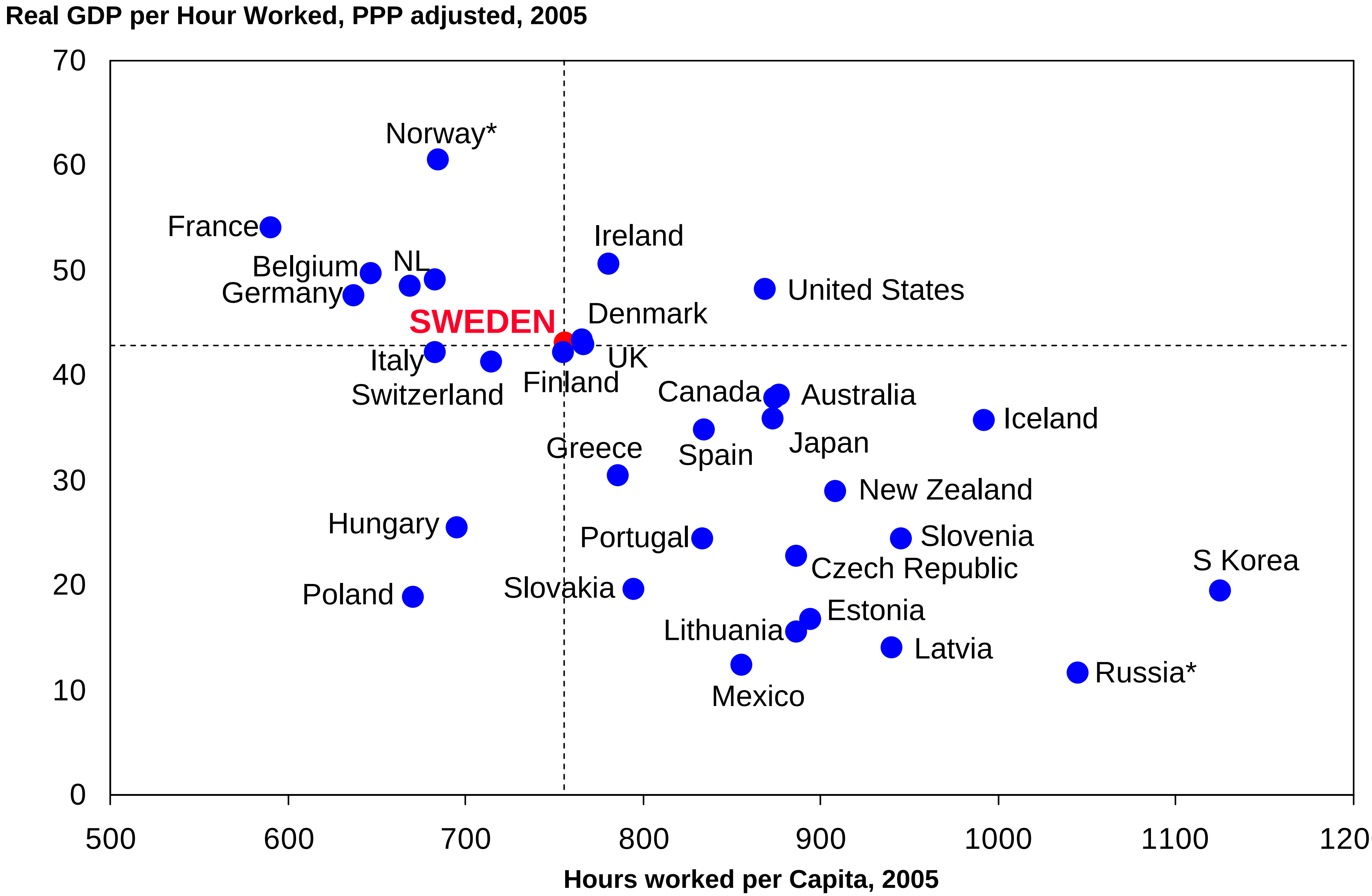
- Competitiveness must become a **bottom-up process** in which many individuals, companies, clusters, and institutions take responsibility
- **Every** region and cluster can take steps to enhance competitiveness
- Successful competitiveness efforts set clear **priorities** reflecting the specific barriers companies face

# Swedish Competitiveness 2007

- Prosperity driven by solid levels of **productivity** and **labor mobilization**
  - Labor productivity still below EU-15 average but closing the gap
  - Labor mobilization advantage relative to EU-15 stable after significant drop in 1990s; little job creation in the private sector
- Strong **integration into global markets**, driven by core of multinationals
  - Export market share broadly stable, shifting to services
  - Significant presence of foreign companies
  - Strong outward investment, especially in the Baltic Sea Region
- Low domestic **investment rate**
- High but falling **patenting rate**
  - Universities leading in the region, but not globally

# Productivity versus Working Hours

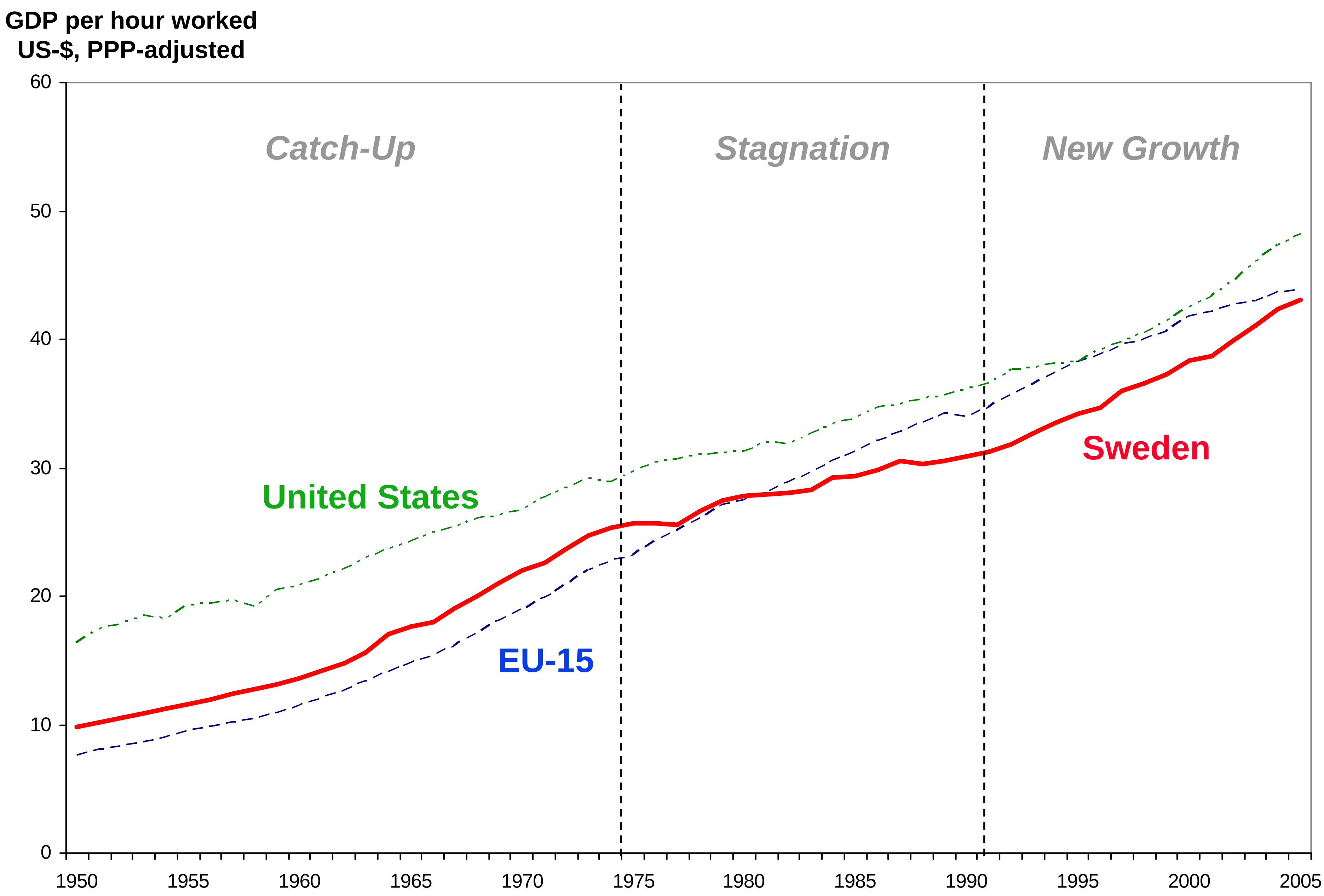
## Selected Countries




Note: Affected by oil revenues

Source: Groningen Growth and Development Centre and The Conference Board (2006), authors' calculations

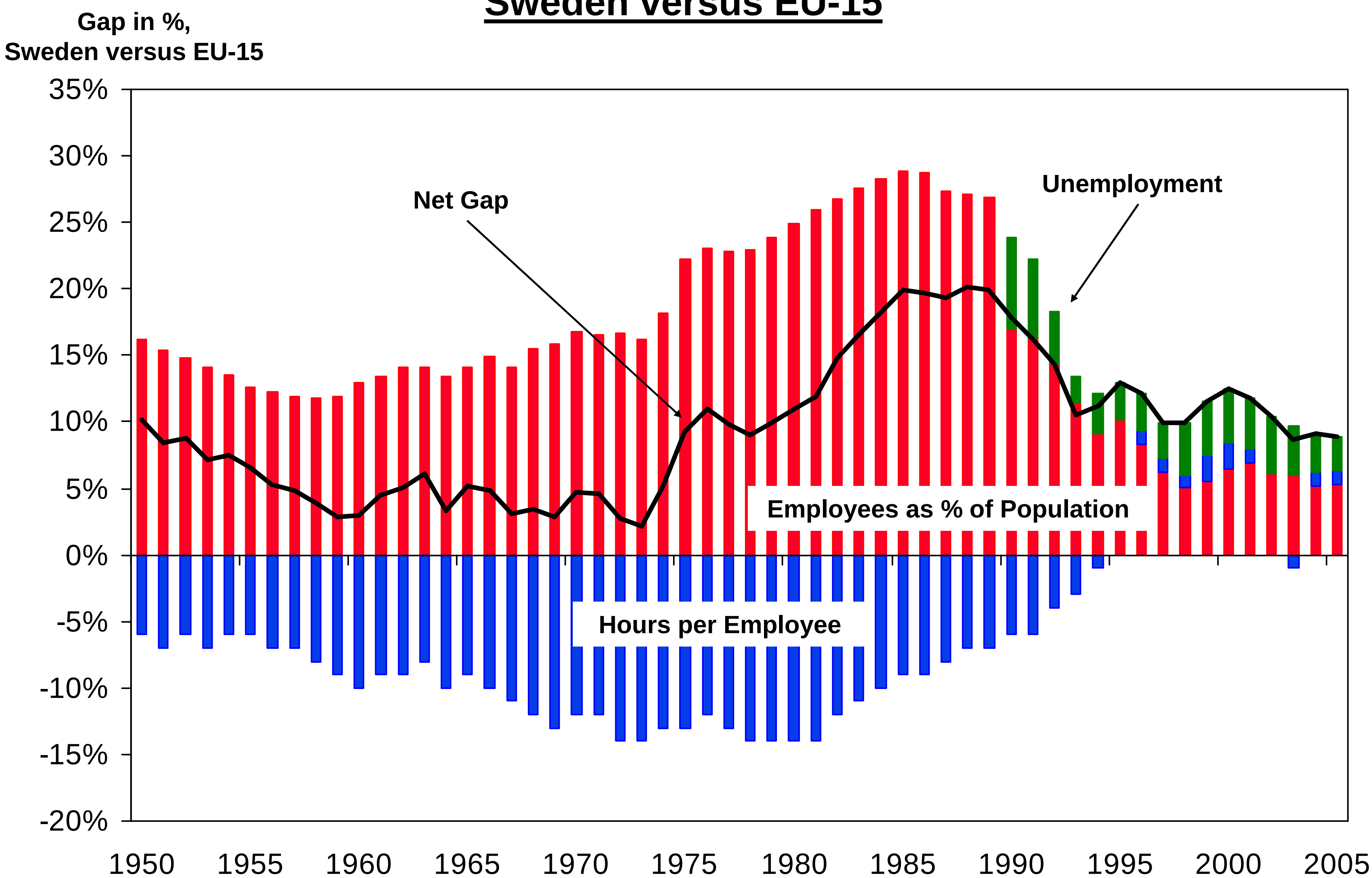
# Long-Term Trends in Labor Productivity




Source: Groningen Growth and Development Center, The Conference Board, 2006

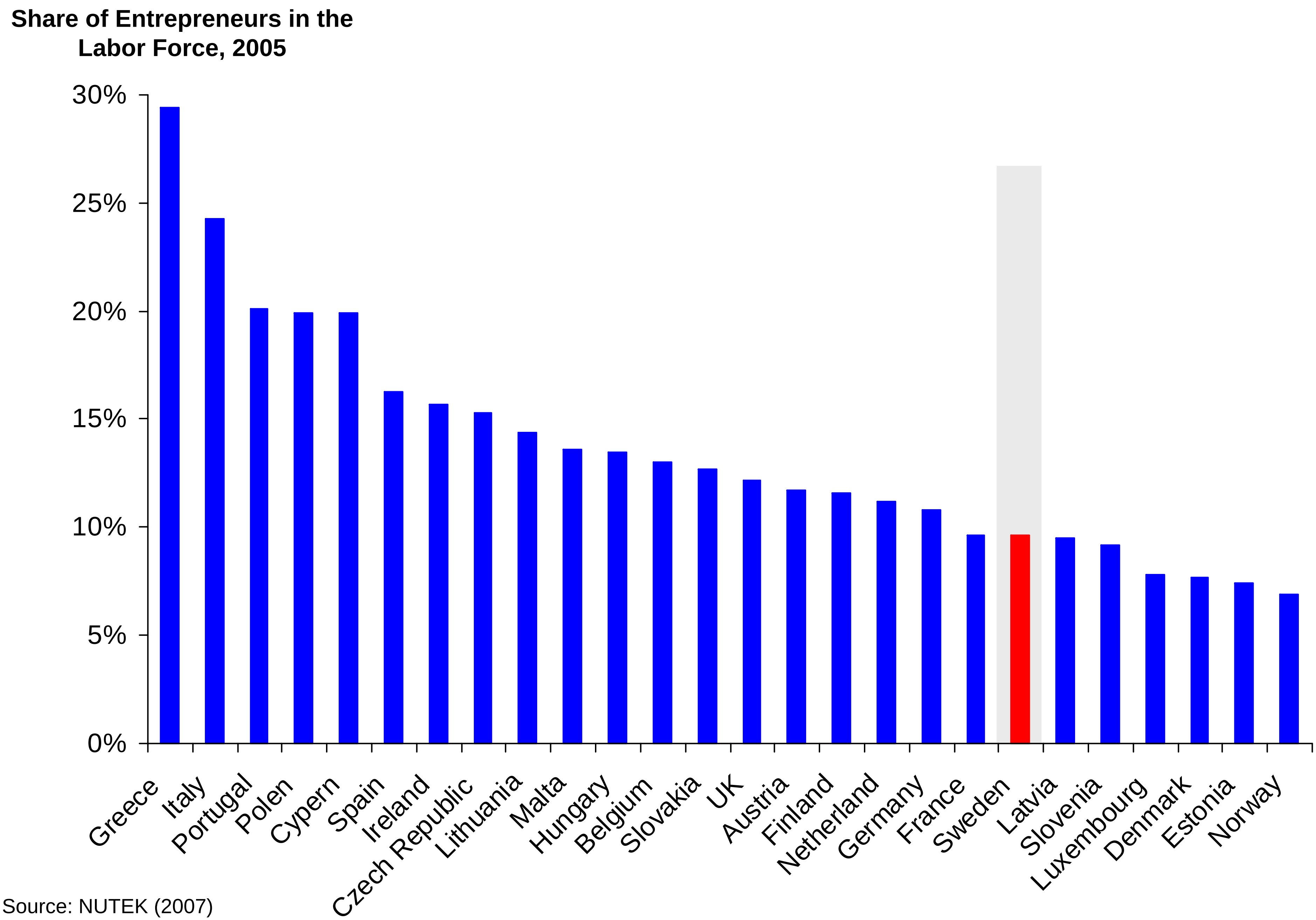
# Long-Term Trends in Labor Mobilization

## Sweden versus EU-15




Source: Groningen Growth and Development Center, The Conference Board, 2006

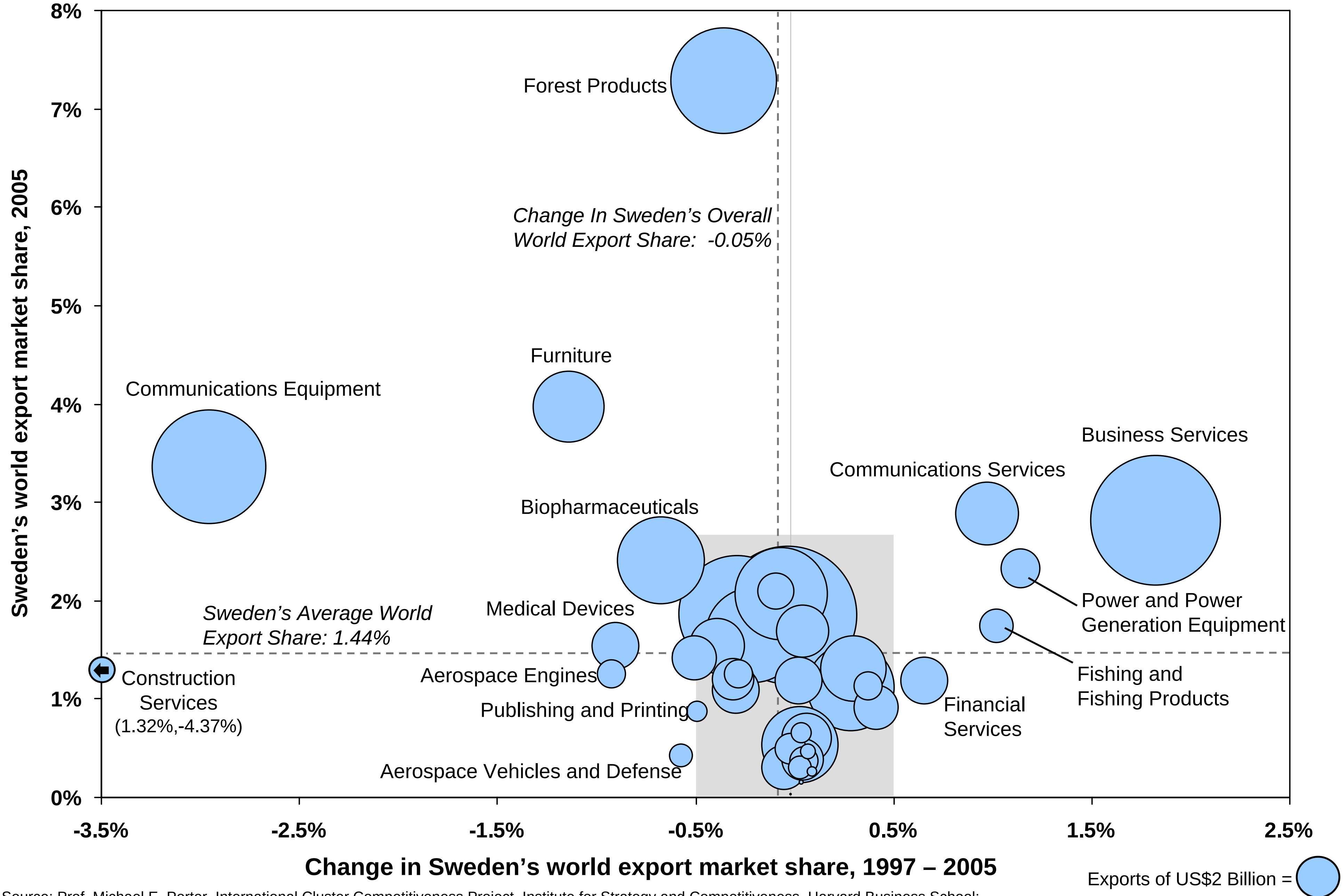
# Entrepreneurship




Source: NUTEK (2007)

# Sweden

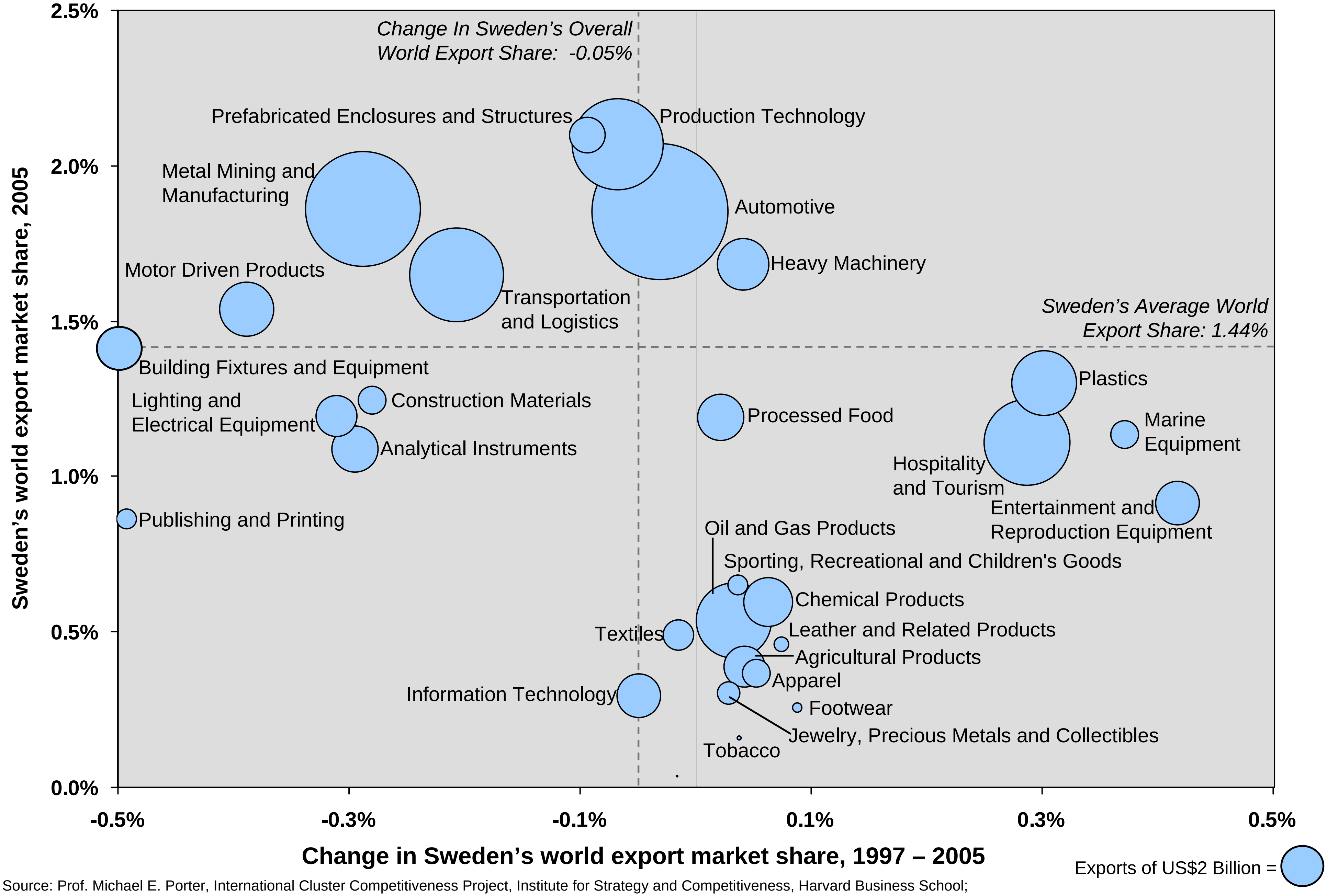
## Cluster Export Portfolio, 1997-2005




Source: Prof. Michael E. Porter, International Cluster Competitiveness Project, Institute for Strategy and Competitiveness, Harvard Business School; Richard Bryden, Project Director. Underlying data drawn from the UN Commodity Trade Statistics Database and the IMF BOP statistics.

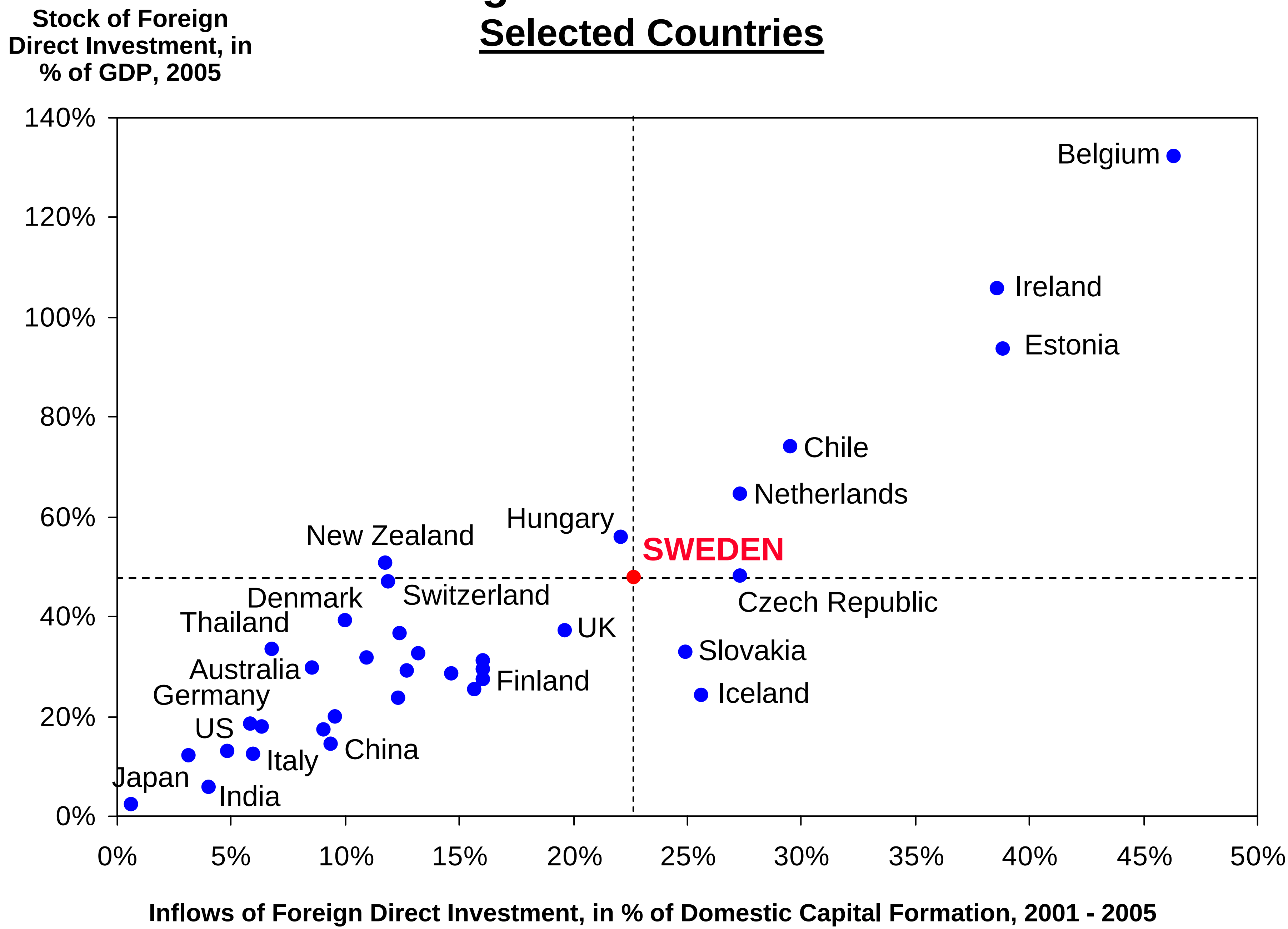
# Sweden

## Cluster Export Portfolio, 1997-2005 (continued)




Source: Prof. Michael E. Porter, International Cluster Competitiveness Project, Institute for Strategy and Competitiveness, Harvard Business School; Richard Bryden, Project Director. Underlying data drawn from the UN Commodity Trade Statistics Database and the IMF BOP statistics.

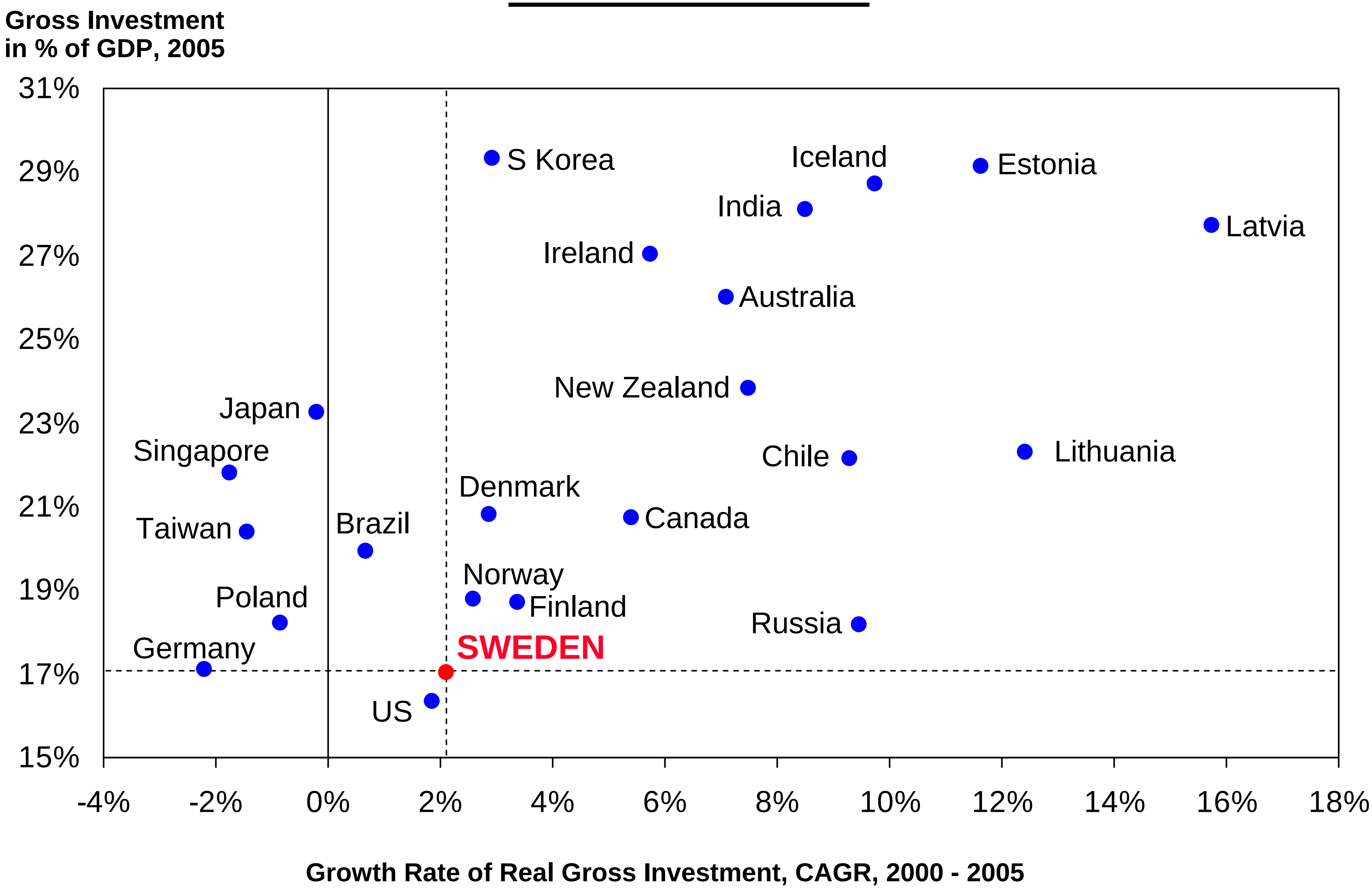
# Foreign Direct Investment
## Selected Countries




Source: World Investment Report (2006), author's analysis.

# Capital Investment Intensity

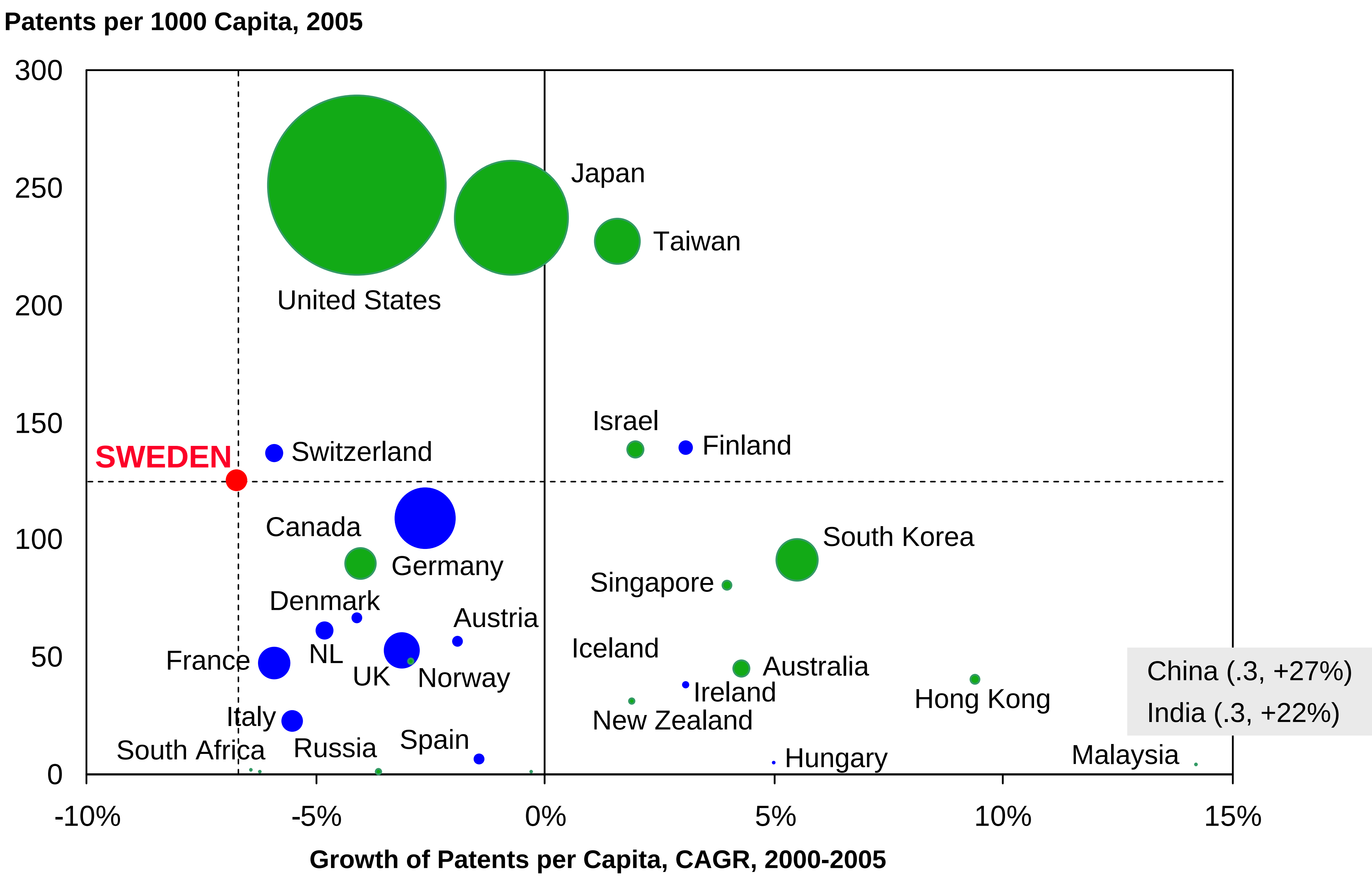
## Selected Countries




Source: EIU (2006), author's analysis.

# Innovation Performance

## Patenting in the United States




Source: USPTO (2006), author's analysis.

# Sweden in the Business Competitiveness Index

## Key Observations

- **Sweden ranks 7** on the Business Competitiveness Index and has been consistently among the top 10 in most years

**Changes over time**

- Sweden has in the medium-term **lost ground** on critical competitiveness factors relative to its peers, despite the positive current results

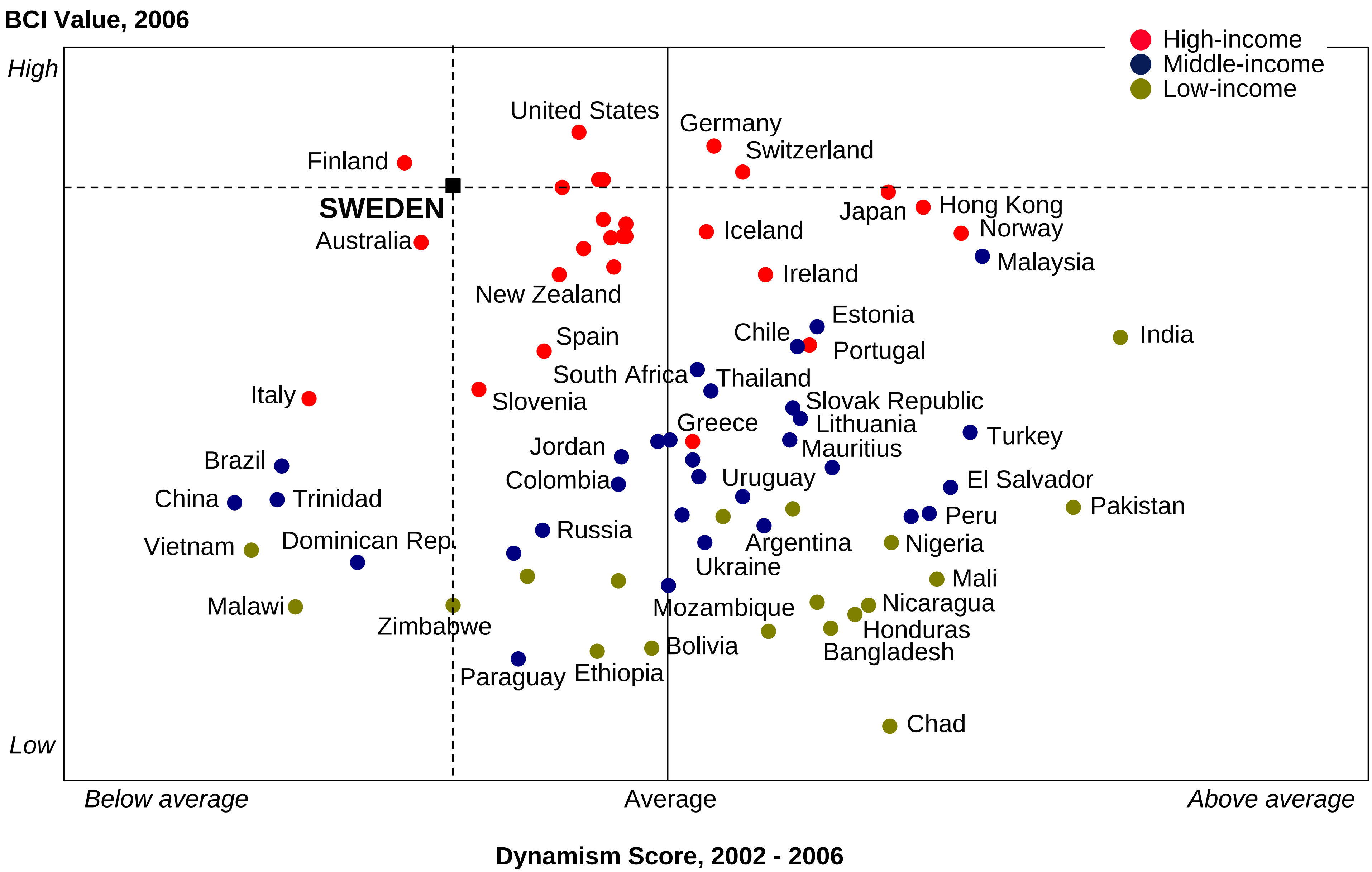
**Wages**

- Swedish wages are **broadly in line** with the level of competitiveness but wage growth has recently been **stronger** than the speed of competitiveness upgrading

**Challenges**

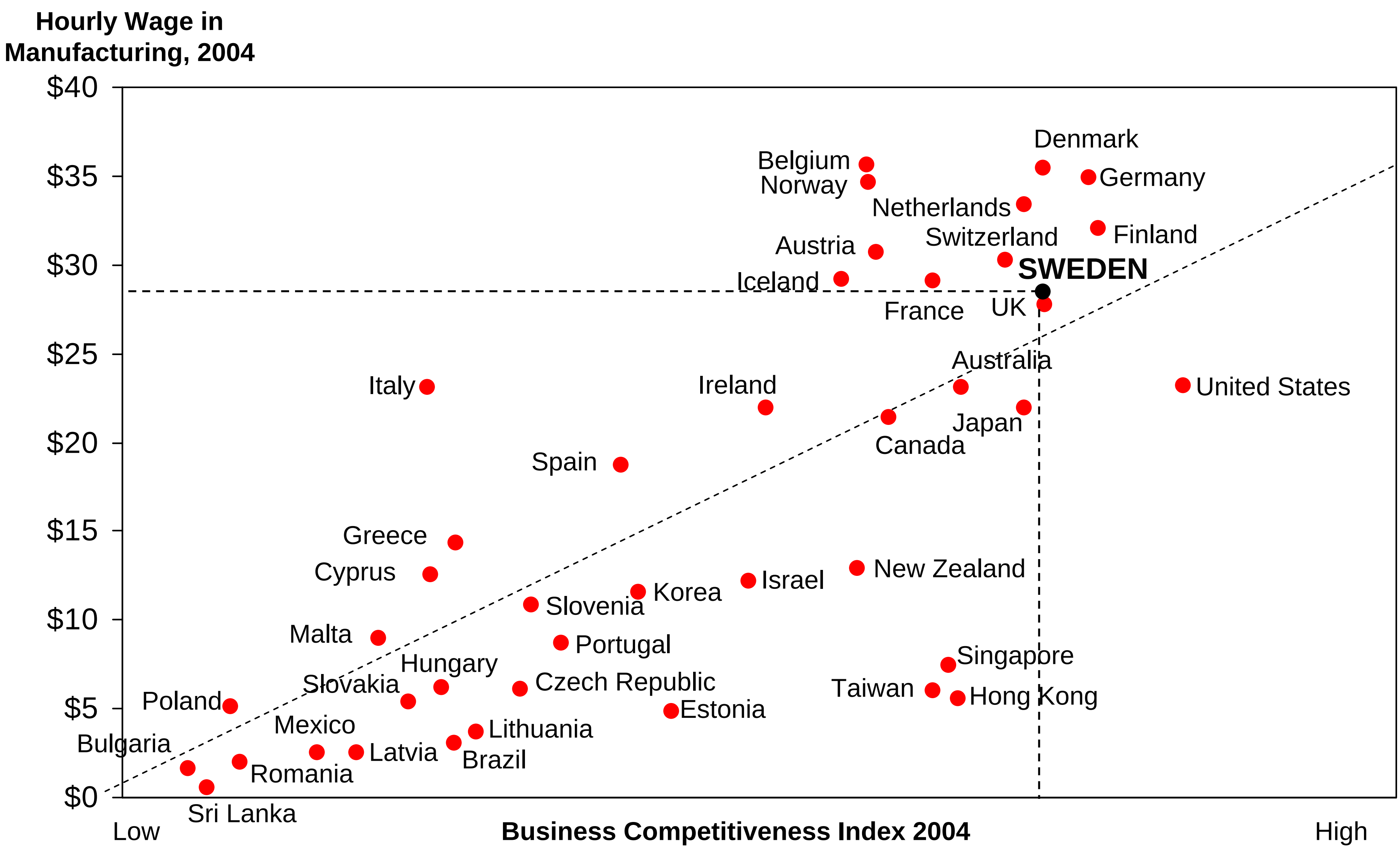
- Sweden continues to suffer from an **imbalance** between sound macroeconomic policies and strong companies on the one hand and a weaker business environment conditions on the other
- Key **weaknesses** are educational quality, government efficiency, and infrastructure

# Medium-Term Dynamism in Competitiveness




Source: Global Competitiveness Report (2006)

# Locational Value: Competitiveness and Wages




Source: Global Competitiveness Report 2006, Eurostat, Bureau of Labor Statistics

Factor (Input) Conditions

# Factor (Input) Conditions

## Sweden's Relative Position 2006

### Competitive Advantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 2001

| | |
|---|---|
| University/industry research collaboration | 3 |
| Local equity market access | 3 ⇧ |
| Ease of access to loans | 5 |
| Efficiency of legal framework | 6 |
| Venture capital availability | 9 ⬇ |
| Quality of scientific research institutions | 9 |
| Financial market sophistication | 10 |
| Availability of scientists and engineers | 10 |
| Telephone/fax infrastructure quality | 11 ⬇ |
| Railroad infrastructure development | 12 |
| Port infrastructure quality | 14 ⬇ |

### Competitive Disadvantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 2001

| | |
|---|---|
| Quality of math and science education | 35 ⬇ |
| Reliability of police services | 26 ⬇ |
| Quality of public schools | 25 |
| Quality of management schools | 25 |
| Air transport infrastructure quality | 23 ⬇ |
| Quality of electricity supply | 18 ⬇ |
| Overall infrastructure quality | 17 ⬇ |

Note: Rank versus 121 countries; overall, Sweden ranks 7th in Business Competitiveness and 18th in 2005 PPP adjusted GDP per capita.
Source: Global Competitiveness Report 2006-2007.

Context for Firm Strategy and Rivalry

# Context for Firm Strategy and Rivalry

## Sweden's Relative Position 2006

### Competitive Advantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 2001

| | | |
|---|---|---|
| Efficacy of corporate boards | 2 | |
| Prevalence of trade barriers | 4 | ⇧ |
| Intellectual property protection | 8 | |
| Business costs of corruption | 9 | |
| Intensity of local competition | 11 | |
| Favoritism in decisions of government officials | 11 | |
| Effectiveness of antitrust policy | 14 | |

### Competitive Disadvantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 2001

| | | |
|---|---|---|
| Centralization of economic policymaking | 65 | ⬇ |
| Decentralization of corporate activity | 25 | ⬇ |
| Cooperation in labor-employer relations | 18 | ⬇ |

Note: Rank versus 121 countries; overall, Sweden ranks 7th in Business Competitiveness and 18th in 2005 PPP adjusted GDP per capita.
Source: Global Competitiveness Report 2006-2007.

Demand Conditions

# Demand Conditions

## Sweden's Relative Position 2006

| Competitive Advantages Relative to GDP per Capita | |
|---|---|
| *Country Ranking, Arrows indicate a change of 5 or more ranks since 2001* | |
| Stringency of environmental regulations | 5 |
| Presence of demanding regulatory standards | 5 |

| Competitive Disadvantages Relative to GDP per Capita | |
|---|---|
| *Country Ranking, Arrows indicate a change of 5 or more ranks since 2001* | |
| Laws relating to ICT | 18 ↓ |
| Government procurement advanced technology products | 18 ↓ |
| Buyer sophistication | 16 ↓ |

Note: Rank versus 121 countries; overall, Sweden ranks 7th in Business Competitiveness and 18th in 2005 PPP adjusted GDP per capita.
Source: Global Competitiveness Report 2006-2007.

Related and Supporting Industries

# Related and Supporting Industries

## Sweden's Relative Position 2006

### Competitive Advantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 2001

| | | |
|---|---|---|
| Local supplier quality | 7 | |
| Local availability of specialized research and training services | 9 | |
| Local availability of process machinery | 10 | ↑ |
| Local supplier quantity | 11 | |

### Competitive Disadvantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 2001

Note: Rank versus 121 countries; overall, Sweden ranks 7th in Business Competitiveness and 18th in 2005 PPP adjusted GDP per capita.

Source: Global Competitiveness Report 2006-2007.

# Action Priorities

- Further strengthen **physical and communication infrastructure** to connect better to the neighborhood and the world
- **Educate** the public on the benefits of globalization for Sweden
- Sustain focus on **education** and **skill upgrading**
- Increase **attractiveness for human capital** from abroad
- Create a better environment for **entrepreneurship**
- Achieve **world-class in science areas** tied to cluster strengths
- **Integrate** the environmental and competitiveness agendas
- Create a strategy for **economic integration** of immigrant groups
- Pursue deep **integration in the Baltic Sea Region**

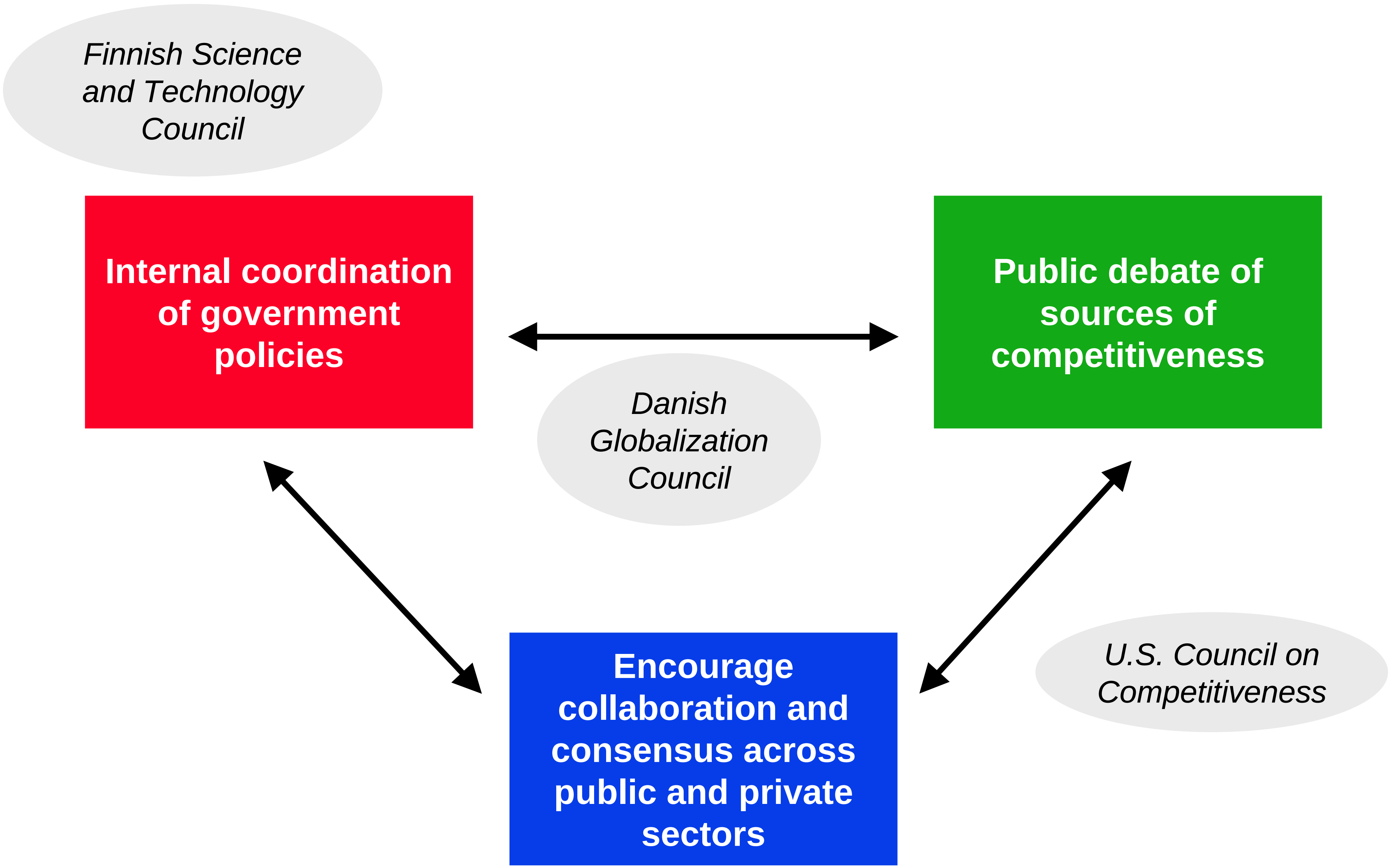
# Moving Towards a New Model for Sweden

## Key Themes

- Sound **macroeconomic policies**, **solid institutions**, and **high skills** are the basis of competitiveness
- **Capital-intensive multinationals** drive the economy
- Innovation is based on **large company R&D,** drawing on university research
- **National government** defines and executes policy

- Strong **microeconomic foundations** and **regional specialization** add critical strengths to competitiveness
- **Knowledge-intensive clusters** of entrepreneurs drive the economy
- Innovation emerges in **open networks** of academia and firms of all sizes
- Policy design and execution in **triple helix partnership**

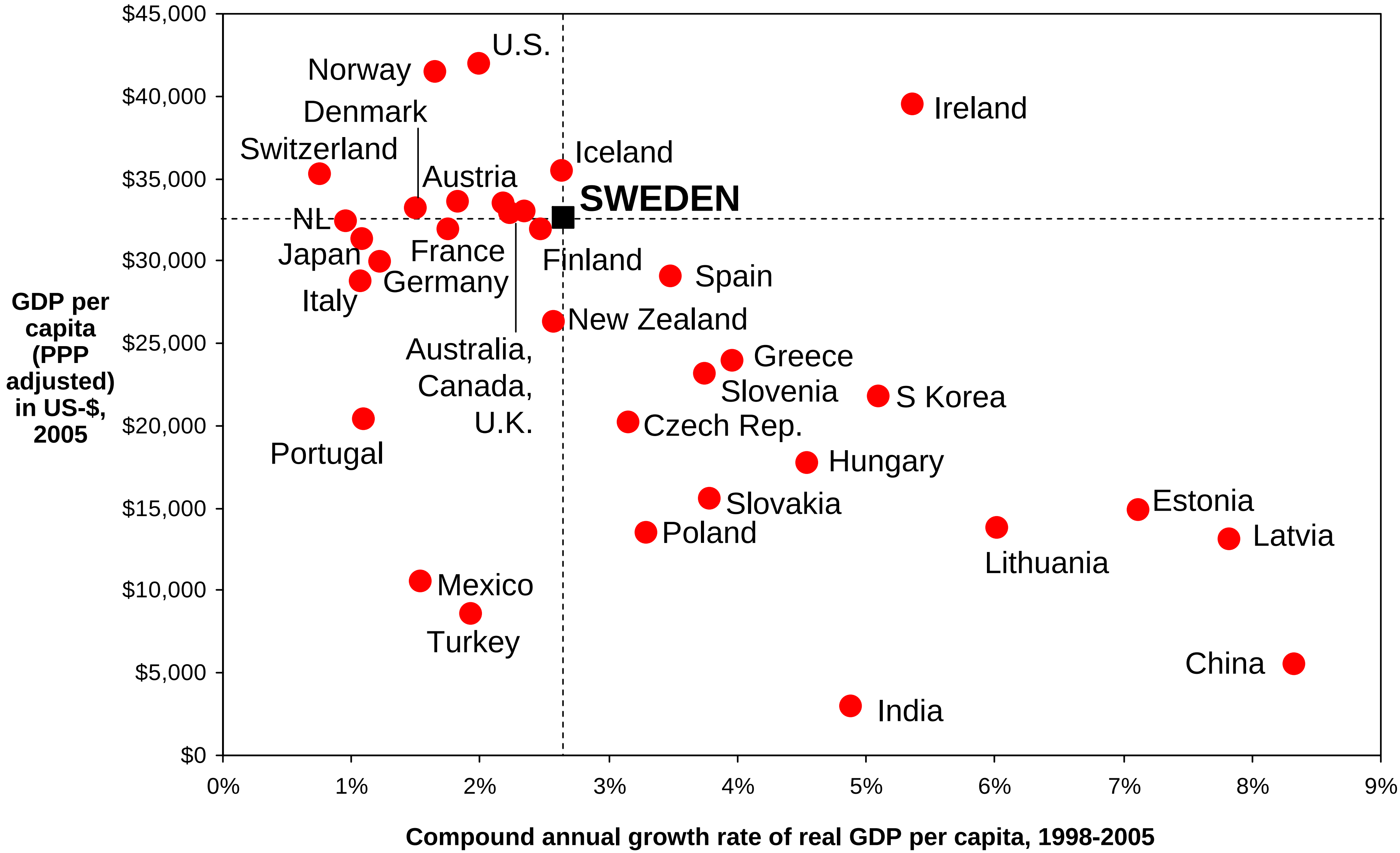
# Competitiveness Councils



# Background Data

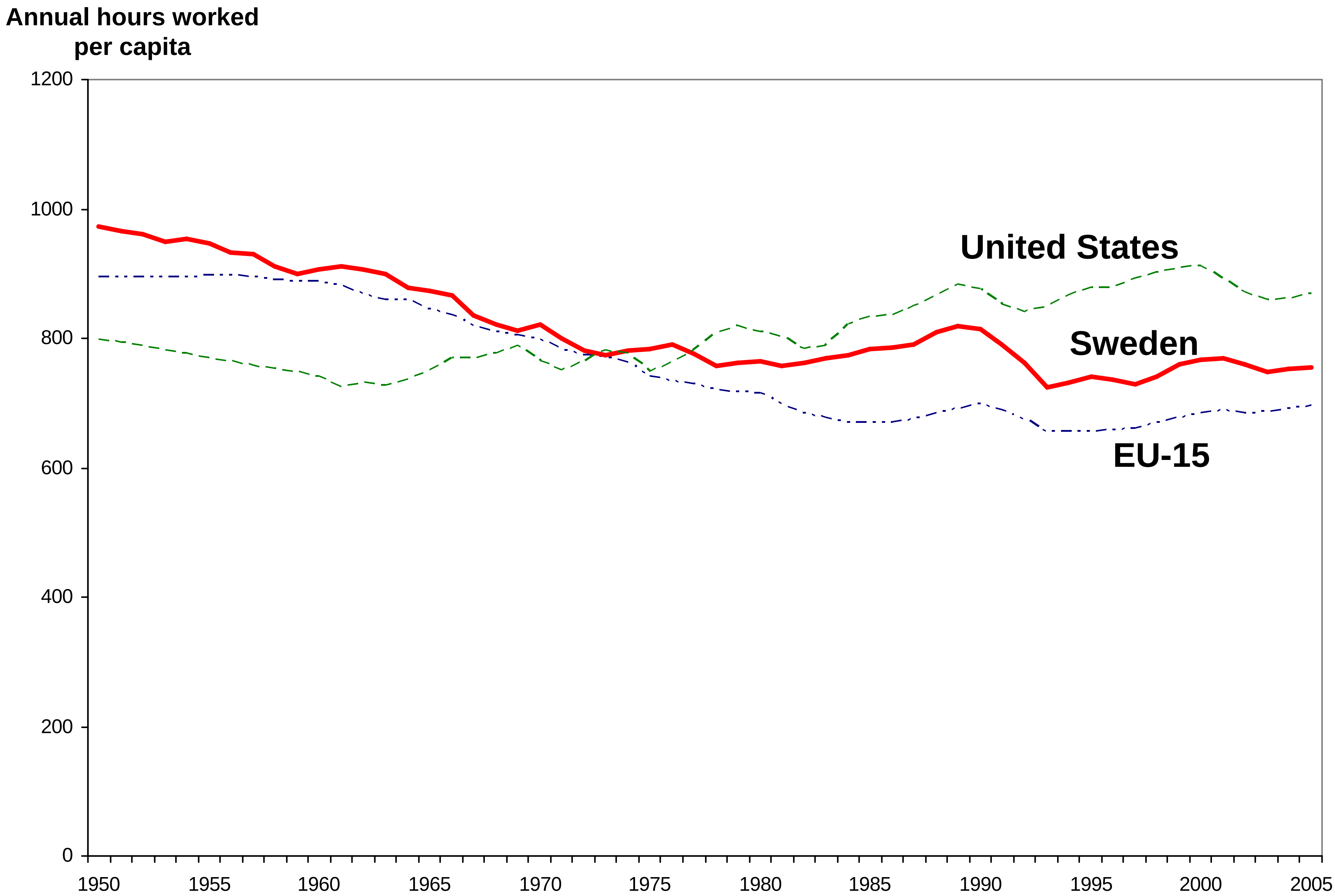
# Comparative Economic Performance

## Selected Countries




Source: Groningen Growth and Development Centre and The Conference Board (2006), authors' calculations

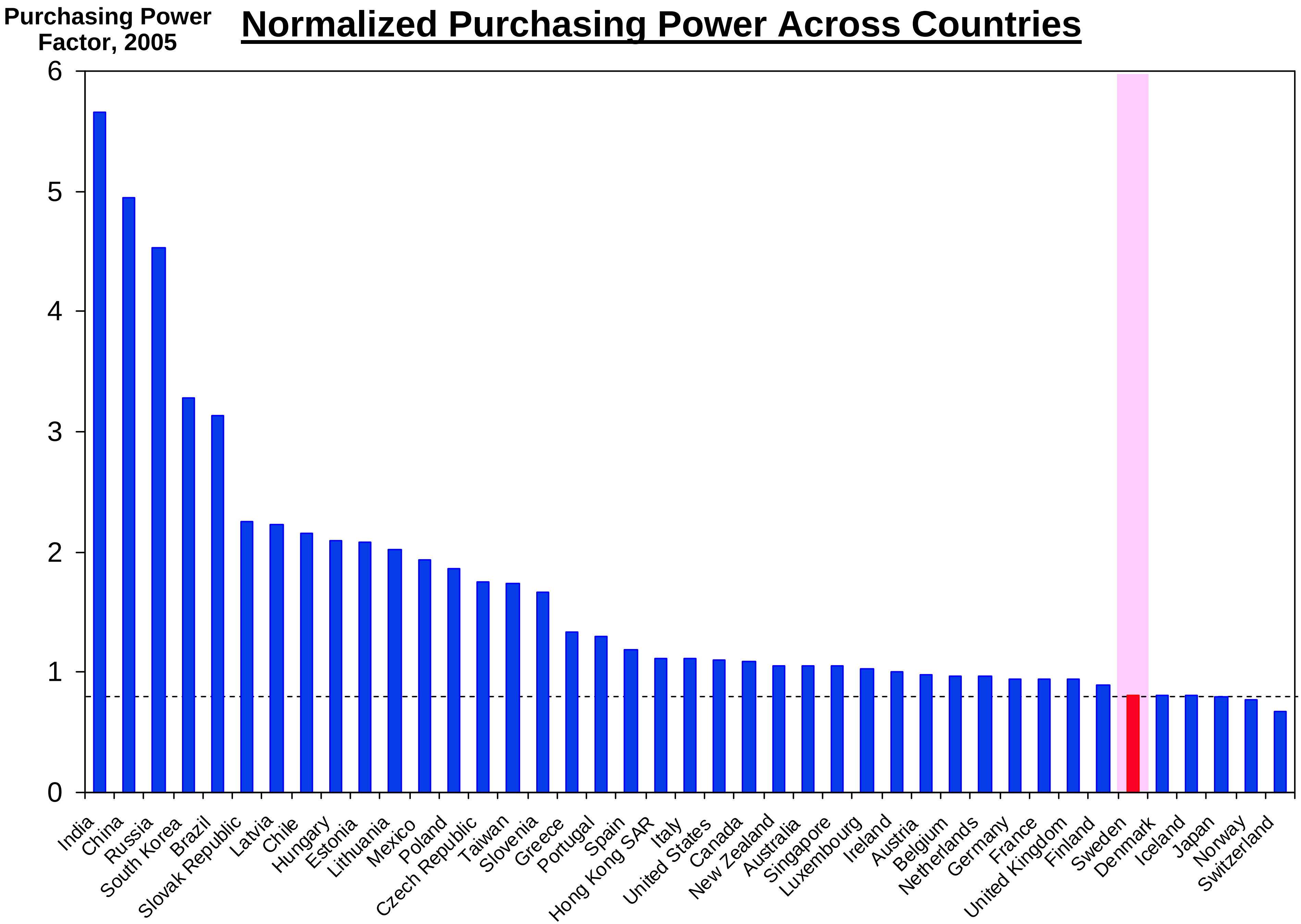
# Long-Term Trends in Labor Mobilization




Source: Groningen Growth and Development Center, The Conference Board, 2006

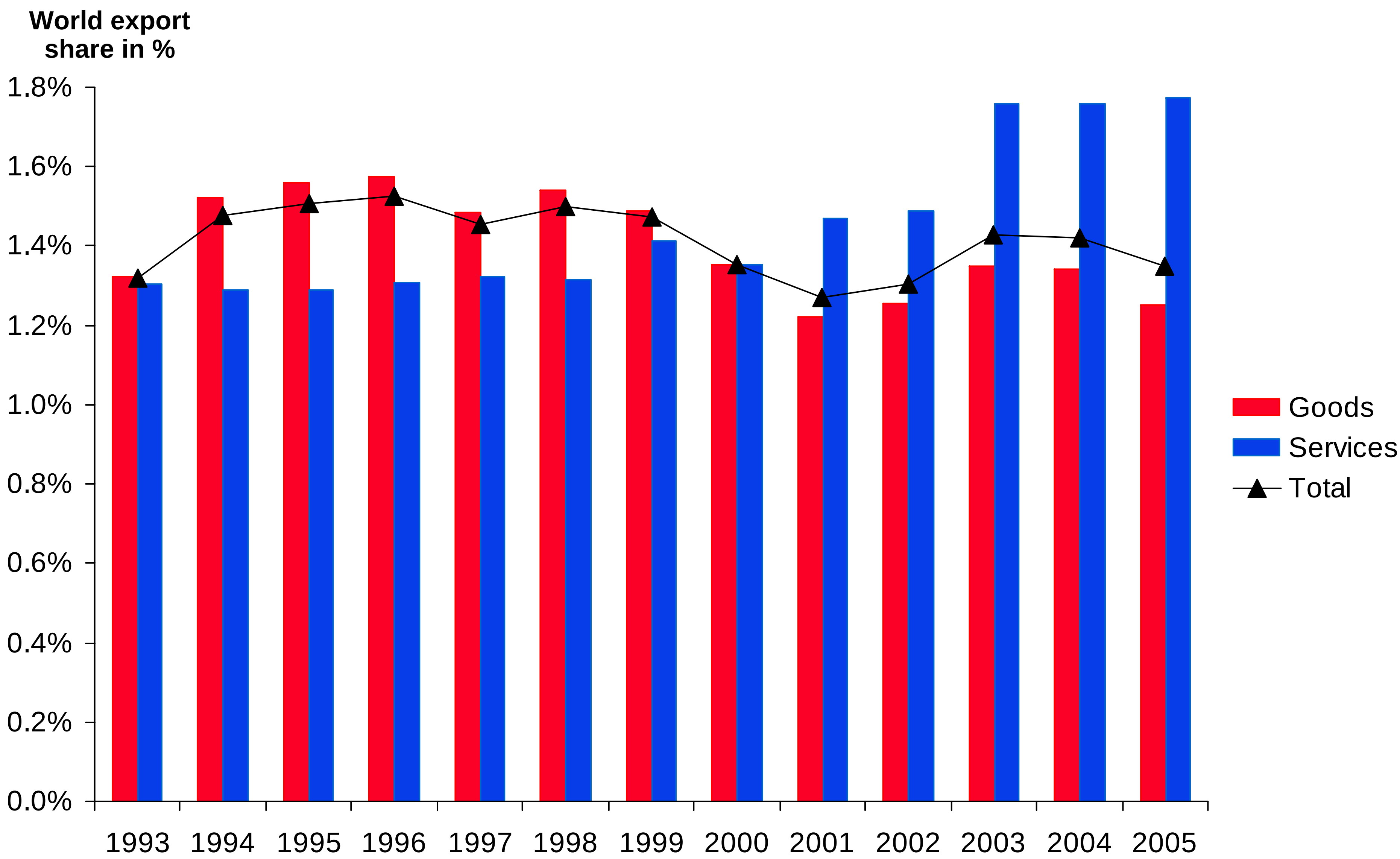
# Domestic Purchasing Power

## Normalized Purchasing Power Across Countries




Source: IMF (2006), authors' calculations

# Sweden's Export Performance
## World Export Market Shares




Source: WTO (2006)

# Sweden

## Leading Goods Export Industries, 2005

| | Industry | Cluster | World Export Share | Change in Share, 1997-2005 | Export Value (in US$1,000) |
|---|---|---|---|---|---|
| 1 | Passenger transport vehicles | Automotive | 1.72% | 0.19% | $8,122,269 |
| 2 | Miscellaneous medicaments | Biopharmaceuticals | 3.18% | -2.49% | $5,321,590 |
| 3 | Petroleum Oils | Oil and Gas Products | 1.58% | 0.01% | $5,095,941 |
| 4 | Parts for telecommunication equipment | Communications Equipment | 4.47% | -4.10% | $4,693,454 |
| 5 | TV, radio transmitters | Communications Equipment | 3.06% | -10.94% | $4,242,399 |
| 6 | Flat-rolled products of alloy steel | Metal Mining and Manufacturing | 8.74% | 1.09% | $3,532,018 |
| 7 | Wood of conifer, sawn | Furniture | 12.63% | -0.69% | $2,808,103 |
| 8 | Line telephone or telegraph equipment | Communications Equipment | 6.21% | 3.48% | $2,182,022 |
| 9 | Miscellaneous paper and paperboard, coated | Forest Products | 10.66% | 1.31% | $2,051,603 |
| 10 | Kraft paper and paperboard, uncoated | Forest Products | 20.19% | -0.83% | $1,726,457 |
| 11 | Paper and paperboard, uncoated | Forest Products | 8.48% | 1.08% | $1,678,481 |
| 12 | Chemical wood pulp, soda, bleached | Forest Products | 9.65% | 0.38% | $1,580,115 |
| 13 | Other parts for motor vehicles | Automotive | 1.32% | -1.09% | $1,562,860 |
| 14 | Internal combustion engines for vehicles | Automotive | 2.81% | -0.23% | $1,443,783 |
| 15 | Road tractors, semi-trailers | Automotive | 6.14% | 1.49% | $1,240,373 |
| 16 | Iron Ore and Concentrates | Metal Mining and Manufacturing | 4.18% | -1.68% | $1,123,839 |
| 17 | Iron or steel bars, rods, angles, shapes and sections | Metal Mining and Manufacturing | 2.24% | -0.94% | $1,120,379 |
| 18 | Medicaments containing hormones | Biopharmaceuticals | 5.57% | -1.04% | $1,100,424 |
| 19 | Other parts of vehicle bodies | Automotive | 2.52% | -0.67% | $1,085,385 |
| 20 | Newsprint, rolls, sheets | Forest Products | 9.99% | -1.74% | $938,702 |
| 21 | Motor vehicle bodies | Automotive | 15.43% | -1.00% | $868,325 |
| 22 | Fish, fresh, chilled, or frozen | Fishing and Fishing Products | 2.77% | 1.68% | $850,010 |
| 23 | Polymers of ethylene | Plastics | 2.19% | 2.02% | $788,119 |
| 24 | Work trucks, tractors, and parts | Production Technology | 6.54% | 0.87% | $778,778 |
| 25 | Other plastics in primary forms | Plastics | 1.26% | 0.70% | $764,654 |

Source: Prof. Michael E. Porter, International Cluster Competitiveness Project, Institute for Strategy and Competitiveness, Harvard Business School; Richard Bryden, Project Director. Underlying data drawn from the UN Commodity Trade Statistics Database and the IMF BOP statistics.

# Sweden

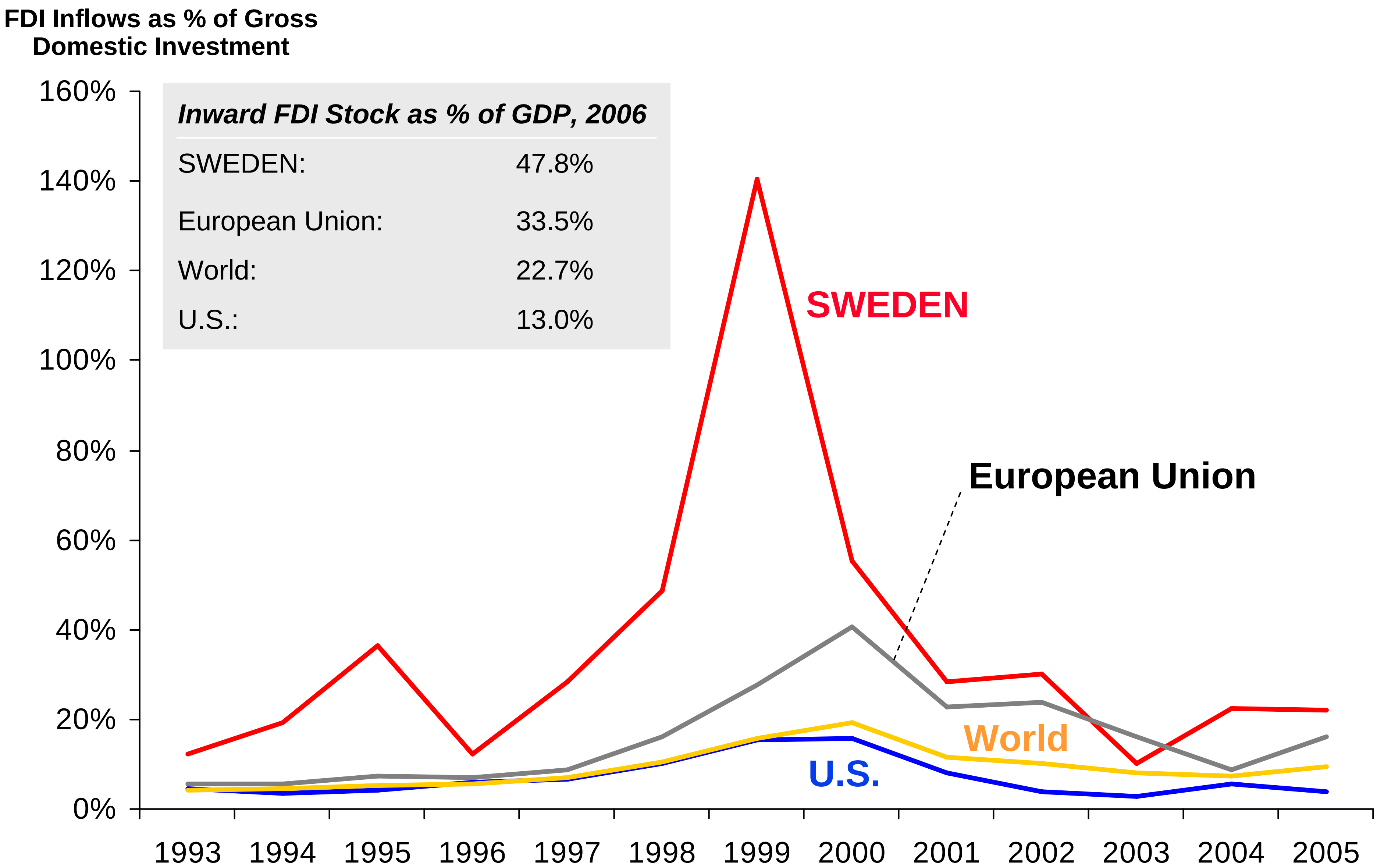
## Leading Goods Export Industries, 2005 (continued)

| | Industry | Cluster | World Export Share | Change in Share, 1997-2005 | Export Value (in US$1,000) |
|---|---|---|---|---|---|
| 26 | Insulted wire, cable and conductors | Communications Equipment | 1.45% | -0.51% | $752,156 |
| 27 | Ball or roller bearings | Production Technology | 3.85% | -0.72% | $726,793 |
| 28 | Flat-rolled iron, not clad, plated or coated | Metal Mining and Manufacturing | 1.17% | -0.49% | $722,591 |
| 29 | Electric current | Power and Power Generation Equipment | 3.35% | 3.35% | $719,514 |
| 30 | Miscellaneous goods vehicles | Automotive | 0.93% | 0.65% | $716,505 |
| 31 | Paper and paperboard, coated, other | Forest Products | 7.51% | 2.42% | $654,918 |
| 32 | Other medical instruments | Medical Devices | 1.61% | -0.66% | $650,456 |
| 33 | Industrial washing, bottling machinery | Production Technology | 3.99% | 0.00% | $616,407 |
| 34 | Motor vehicle chassis | Automotive | 20.92% | 7.14% | $612,510 |
| 35 | Spirits | Agricultural Products | 3.85% | 1.87% | $592,975 |
| 36 | Miscellaneous articles of pulp, paper and paperboard | Forest Products | 4.49% | 0.20% | $589,734 |
| 37 | Other recorded media | Entertainment and Reproduction Equipment | 2.47% | 1.26% | $584,794 |
| 38 | Parts of jet, gas turbine engines | Aerospace Engines | 1.60% | -1.11% | $568,076 |
| 39 | Seamless tubes, pipes and hollow profiles of iron or steel | Metal Mining and Manufacturing | 2.52% | -1.46% | $521,242 |
| 40 | Construction, mining machinery | Heavy Machinery | 11.62% | -1.27% | $515,621 |
| 41 | Miscellaneous machinery with individual functions | Production Technology | 1.40% | 0.05% | $512,652 |
| 42 | Builders joinery and carpentry of wood | Furniture | 4.51% | -2.60% | $498,075 |
| 43 | Gear boxes | Automotive | 1.99% | -0.49% | $496,631 |
| 44 | Artificial aids, disabled | Medical Devices | 2.10% | -2.47% | $489,379 |
| 45 | Color television receivers | Entertainment and Reproduction Equipment | 0.93% | 0.46% | $481,866 |
| 46 | Paints, varnishes | Plastics | 3.19% | 0.52% | $481,749 |
| 47 | Miscellaneous parts of civil engineering machinery | Heavy Machinery | 1.62% | 1.60% | $480,504 |
| 48 | Instruments for analysis, measuring viscosity, expansion | Analytical Instruments | 2.60% | -0.35% | $479,735 |
| 49 | Electric, laser or plasma arc soldering, welding, brazing machines | Production Technology | 5.86% | -0.34% | $467,533 |
| 50 | Miscellaneous articles of iron or steel | Metal Mining and Manufacturing | 1.61% | 0.01% | $465,437 |

**Top 50 Industries as % of Sweden's total goods exports: 58.3%**

Source: Prof. Michael E. Porter, International Cluster Competitiveness Project, Institute for Strategy and Competitiveness, Harvard Business School; Richard Bryden, Project Director. Underlying data drawn from the UN Commodity Trade Statistics Database and the IMF BOP statistics.

# FDI Inflows over Time

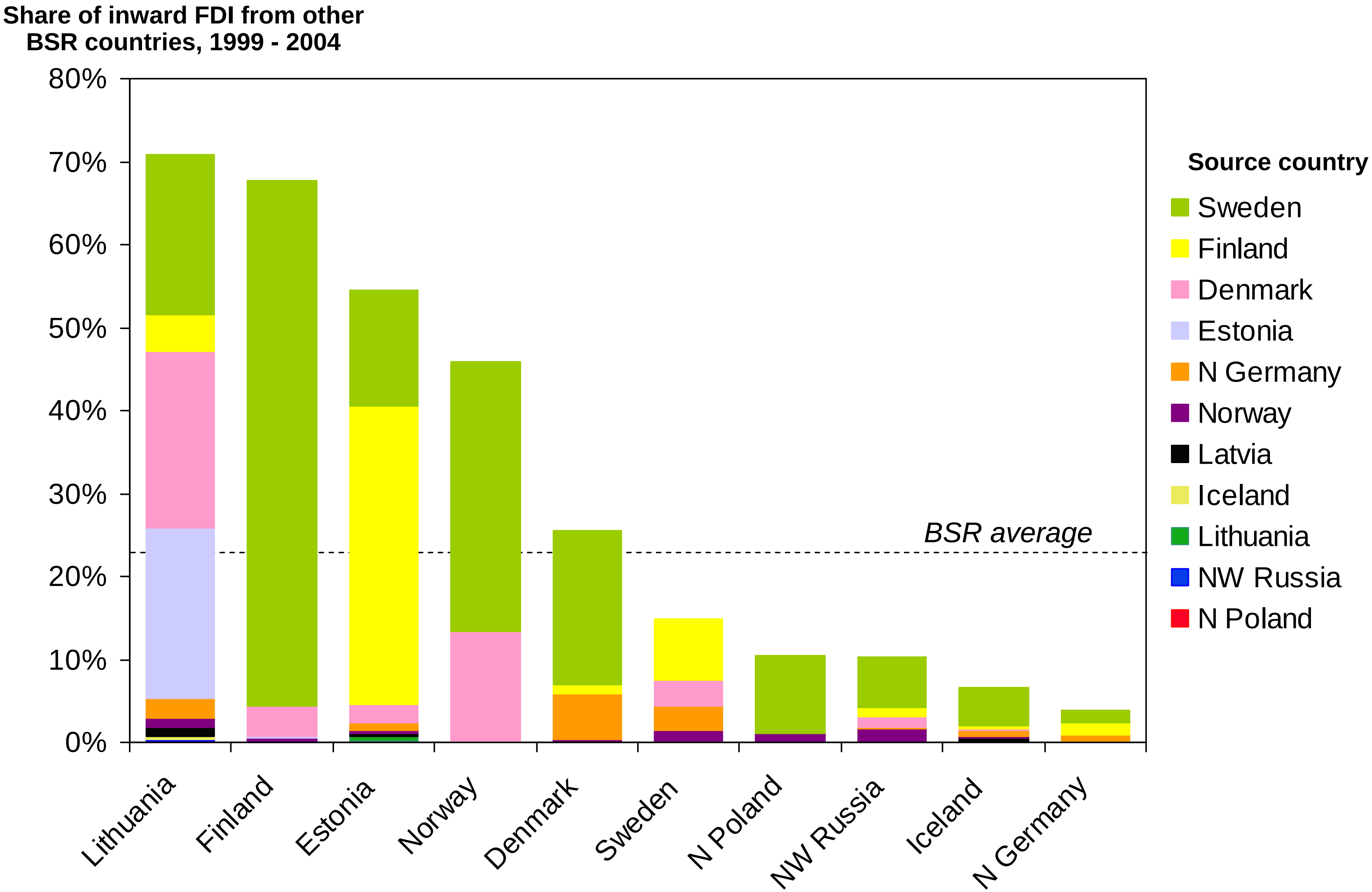



| *Inward FDI Stock as % of GDP, 2006* | |
|---|---|
| SWEDEN: | 47.8% |
| European Union: | 33.5% |
| World: | 22.7% |
| U.S.: | 13.0% |

Source: UNCTAD (2006), author's analysis.

# Regional Integration

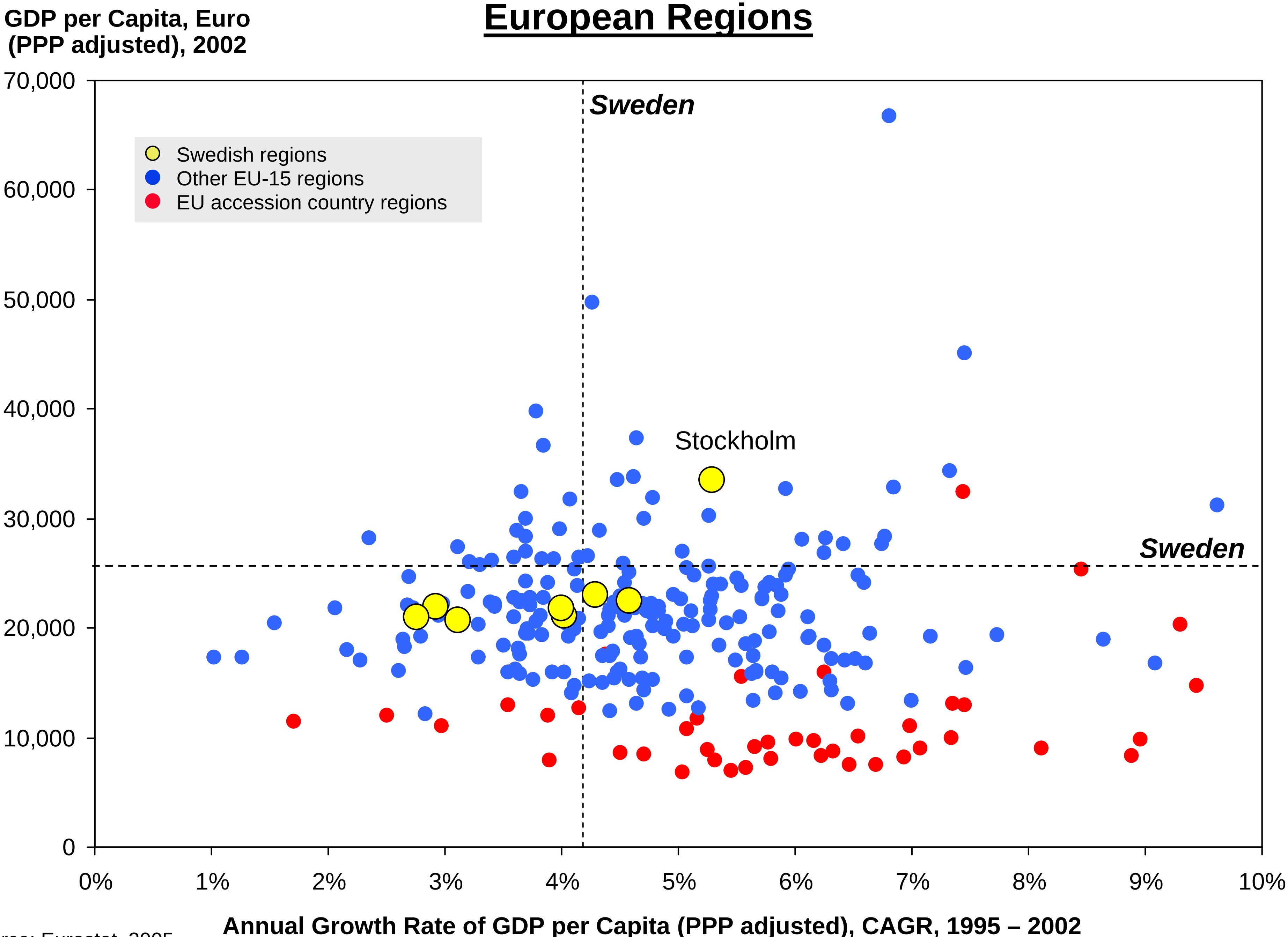
## Foreign Direct Investment Flows




Source: UNCTAD, national statistical offices, author's calculations

# Prosperity

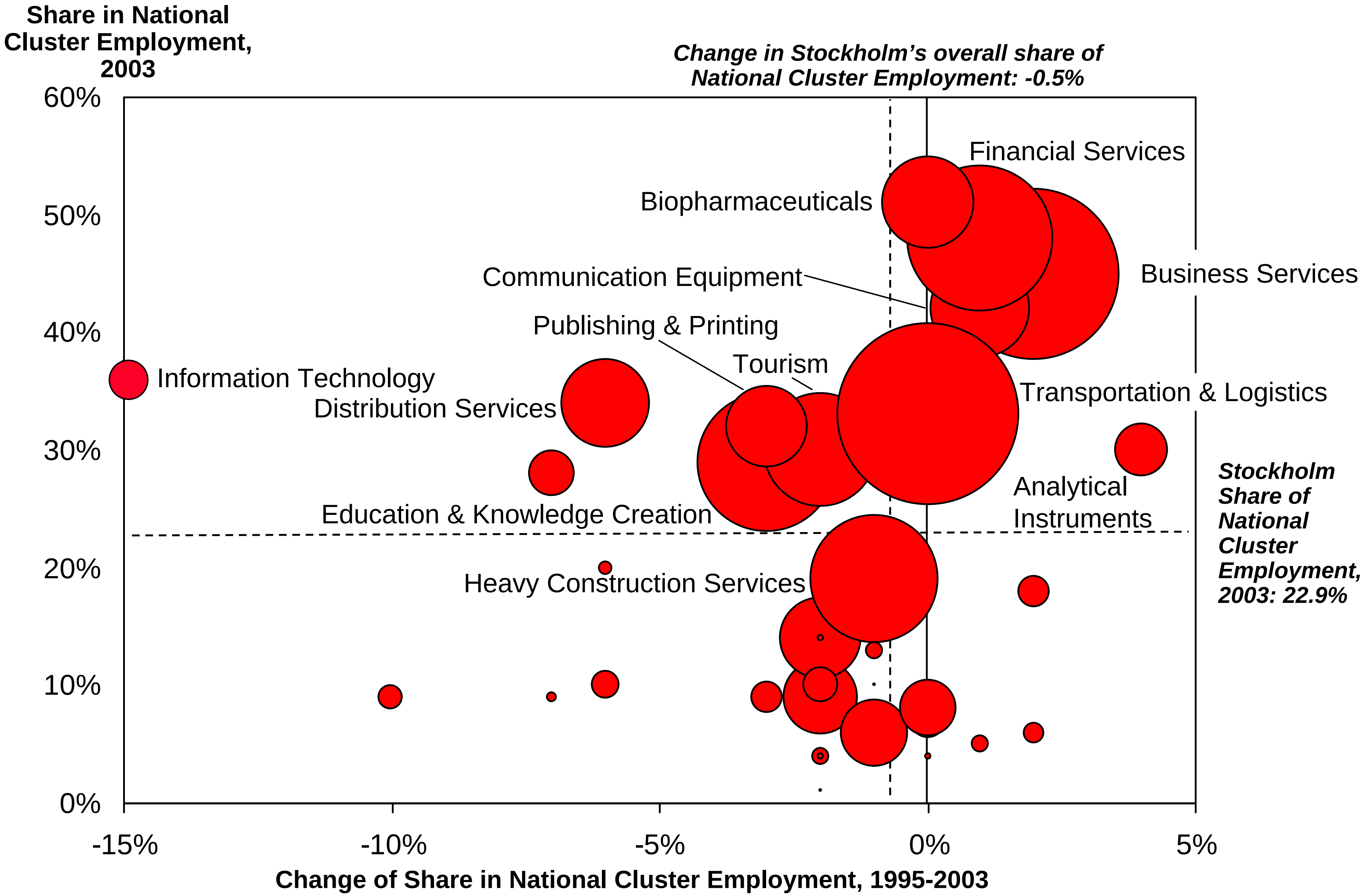
## European Regions




Source: Eurostat, 2005

# Composition of the Traded Economy

## Stockholm Cluster Portfolio

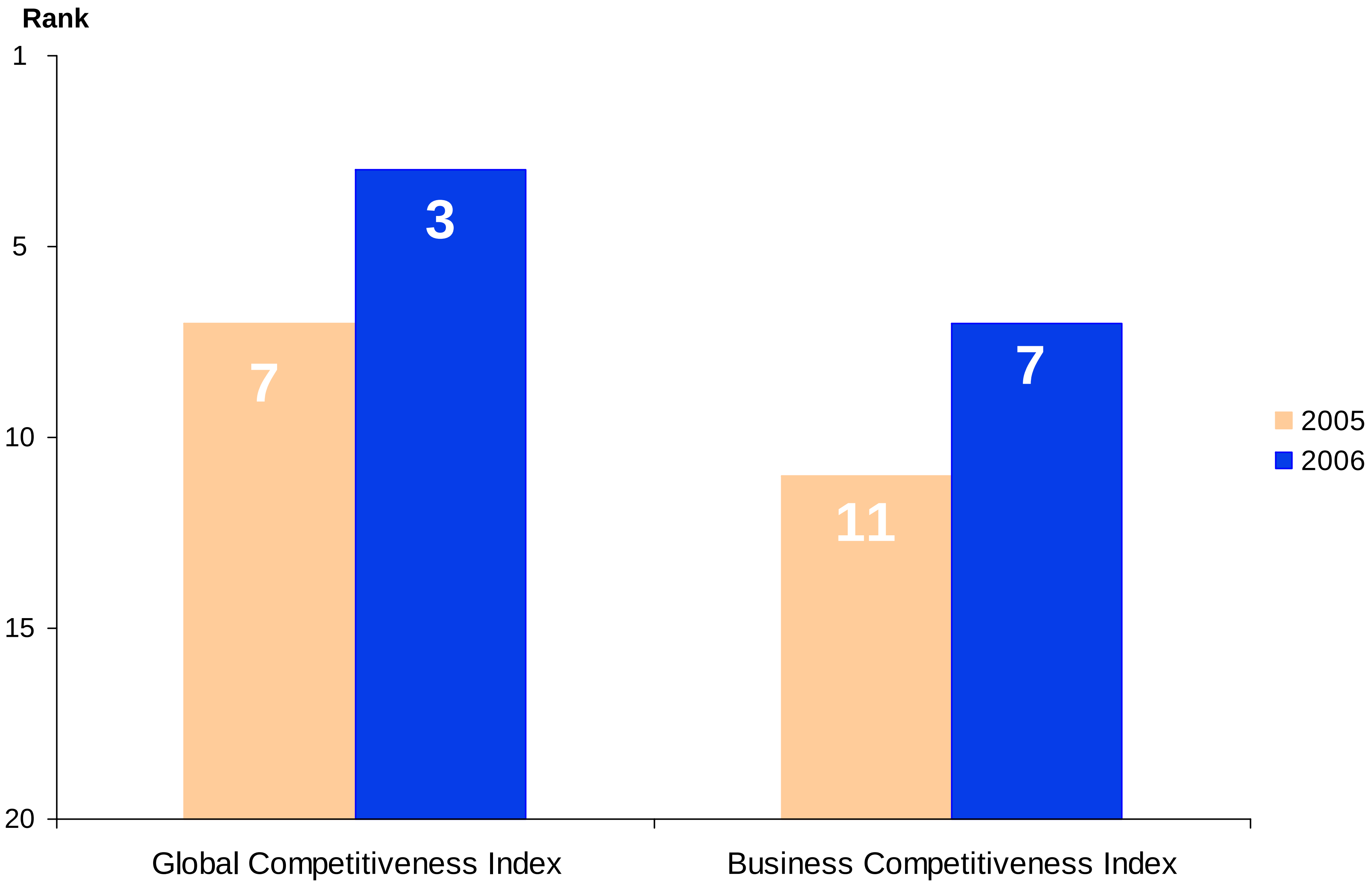



Note: Bubble size is proportional to employment levels

Source: Statistics Sweden (2005), author's calculations

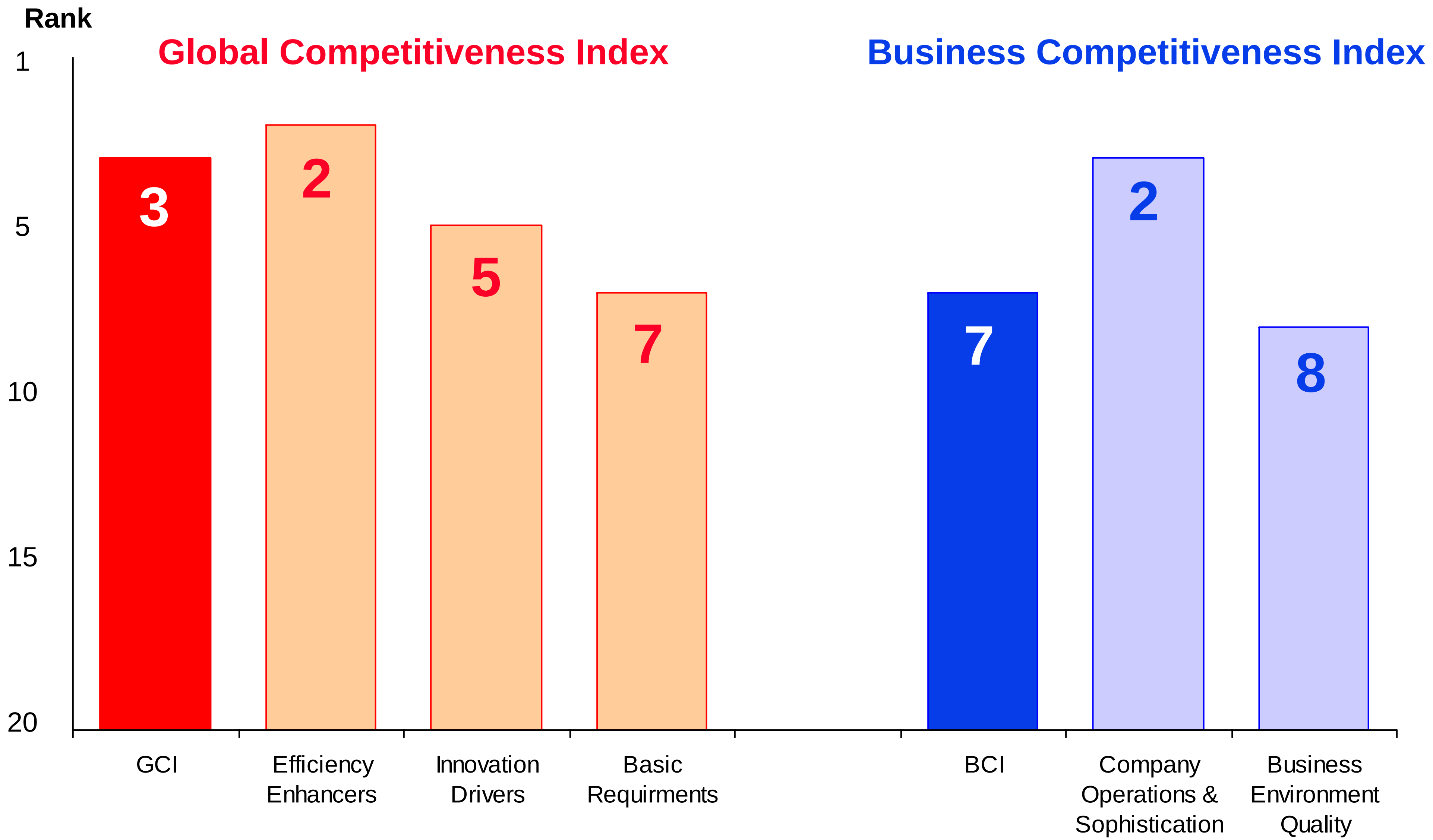
# Global Competitiveness Report 2006-07

## Sweden



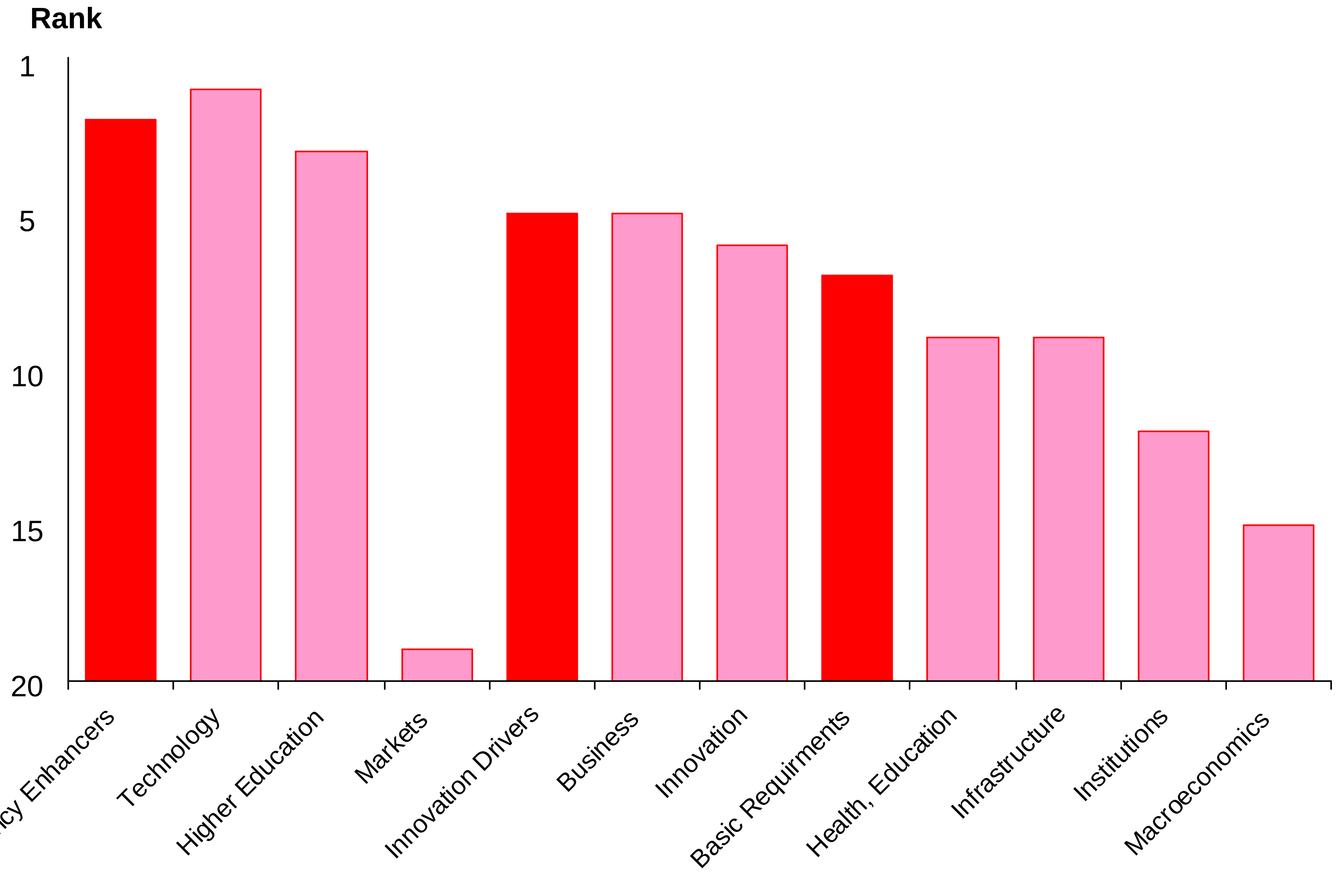

Source: Global Competitiveness Report (2006)

# Sweden's Profile in the Global Competitiveness Report




Source: Global Competitiveness Report (2006)

# Global Competitiveness Index
## Sweden




Source: Global Competitiveness Report (2006)

# Country Context

| Country | BCI rank | *Country context: Effect of ...* Political Stability | Logistical Location | Neighboring Countries | Natural Resources |
|---|---|---|---|---|---|
| United States | 1 | ++ | | | |
| Germany | 2 | ++ | + | ++ | |
| Finland | 3 | +++ | | + | |
| Switzerland | 4 | ++ | | + | |
| Denmark | 5 | +++ | ++ | ++ | ++ |
| Netherlands | 6 | ++ | ++ | + | ++ |
| **Sweden** | 7 | +++ | | ++ | |
| United Kingdom | 8 | ++ | ++ | ++ | |
| Japan | 9 | | ++ | | - - |
| Hong Kong SAR | 10 | | ++ | | |
| Singapore | 11 | | ++ | | |
| Austria | 12 | ++ | | + | |
| Iceland | 13 | ++ | ++ | +++ | |
| Norway | 14 | +++ | | + | +++ |
| Canada | 15 | ++ | | +++ | ++ |
| France | 16 | ++ | | ++ | |
| Belgium | 17 | ++ | ++ | +++ | + |
| Australia | 18 | ++ | | | ++ |
| Israel | 19 | | ++ | - | |
| Malaysia | 20 | | + | | |
| Taiwan, Province of China | 21 | | ++ | | NA |
| Ireland | 22 | ++ | + | ++ | |
| New Zealand | 23 | ++ | ++ | + | + |
| Estonia | 24 | + | | | |
| Korea, Rep. | 25 | | ++ | + | - - |

Source: Global Competitiveness Report (2006)

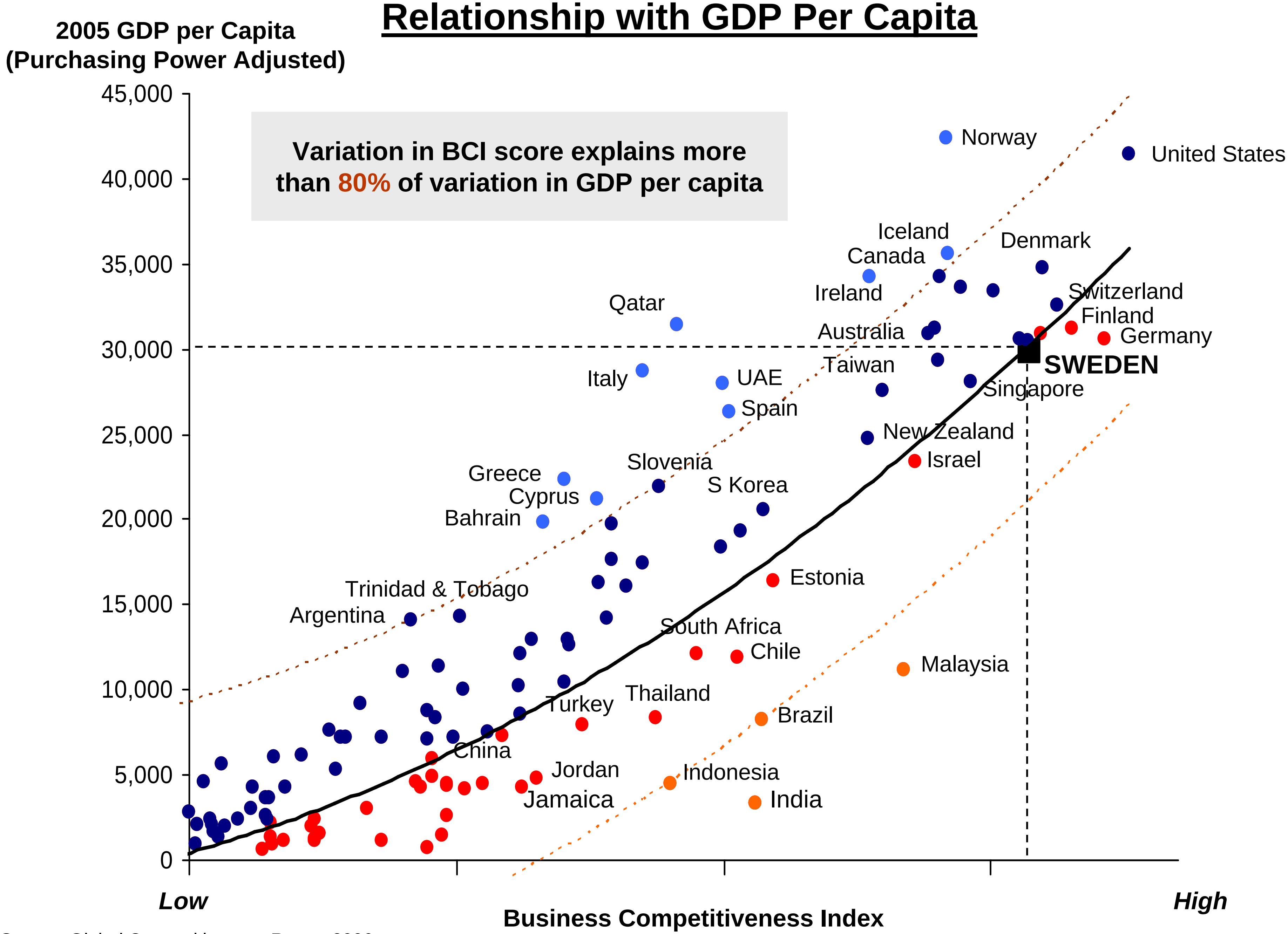
# Business Competitiveness Index 2006

| Top 25 | Country | Change |
|---|---|---|
| 1 | United States | 0 |
| 2 | Germany | 0 |
| 3 | Finland | 0 |
| 4 | Switzerland | +4 |
| 5 | Denmark | -1 |
| 6 | Netherlands | +1 |
| **7** | **SWEDEN** | **+4** |
| 8 | United Kingdom | -3 |
| 9 | Japan | 0 |
| 10 | Hong Kong SAR | +7 |
| 11 | Singapore | -5 |
| 12 | Austria | 0 |
| 13 | Iceland | +3 |
| 14 | Norway | +5 |
| 15 | Canada | -1 |
| 16 | France | -6 |
| 17 | Belgium | +1 |
| 18 | Australia | -5 |
| 19 | Israel | +3 |
| 20 | Malaysia | +3 |
| 21 | Taiwan | -6 |
| 22 | Ireland | -1 |
| 23 | New Zealand | -3 |
| 24 | Estonia | +3 |
| 25 | Korea, Rep. | -1 |

Note: Constant sample of countries

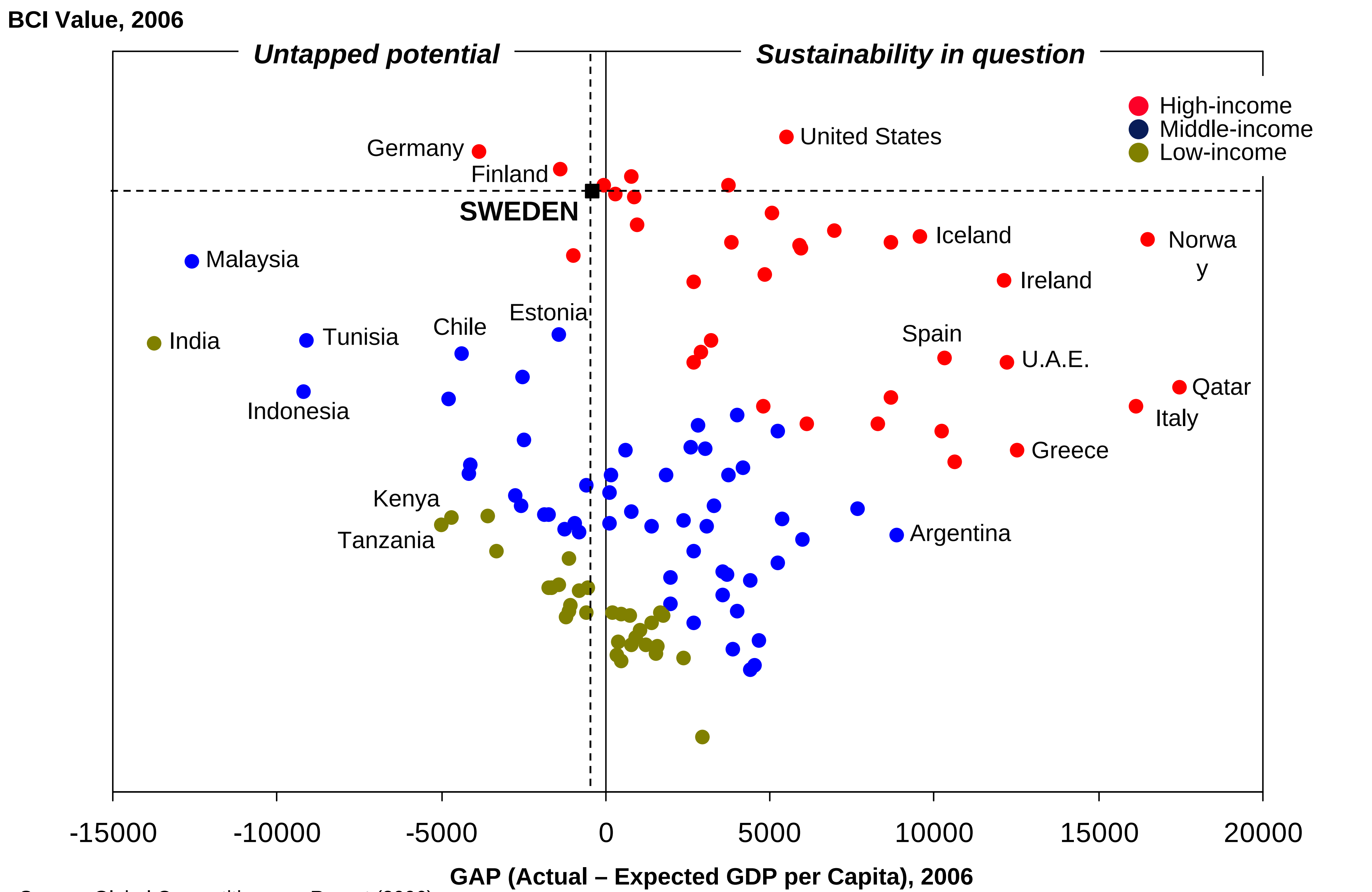
# Business Competitiveness Index 2006

## Relationship with GDP Per Capita




Source: Global Competitiveness Report 2006

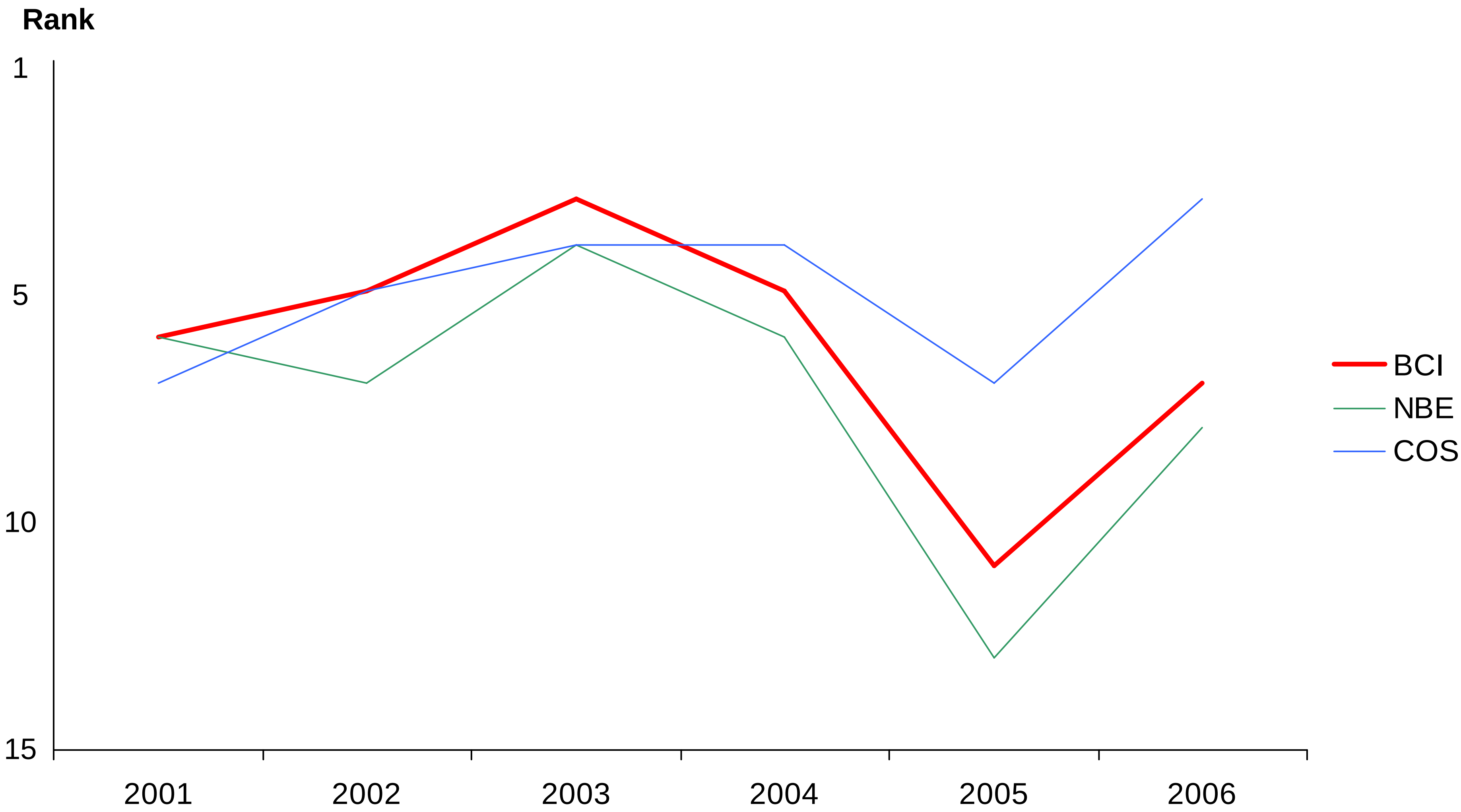
# Economic Sustainability of Current Prosperity




Source: Global Competitiveness Report (2006)

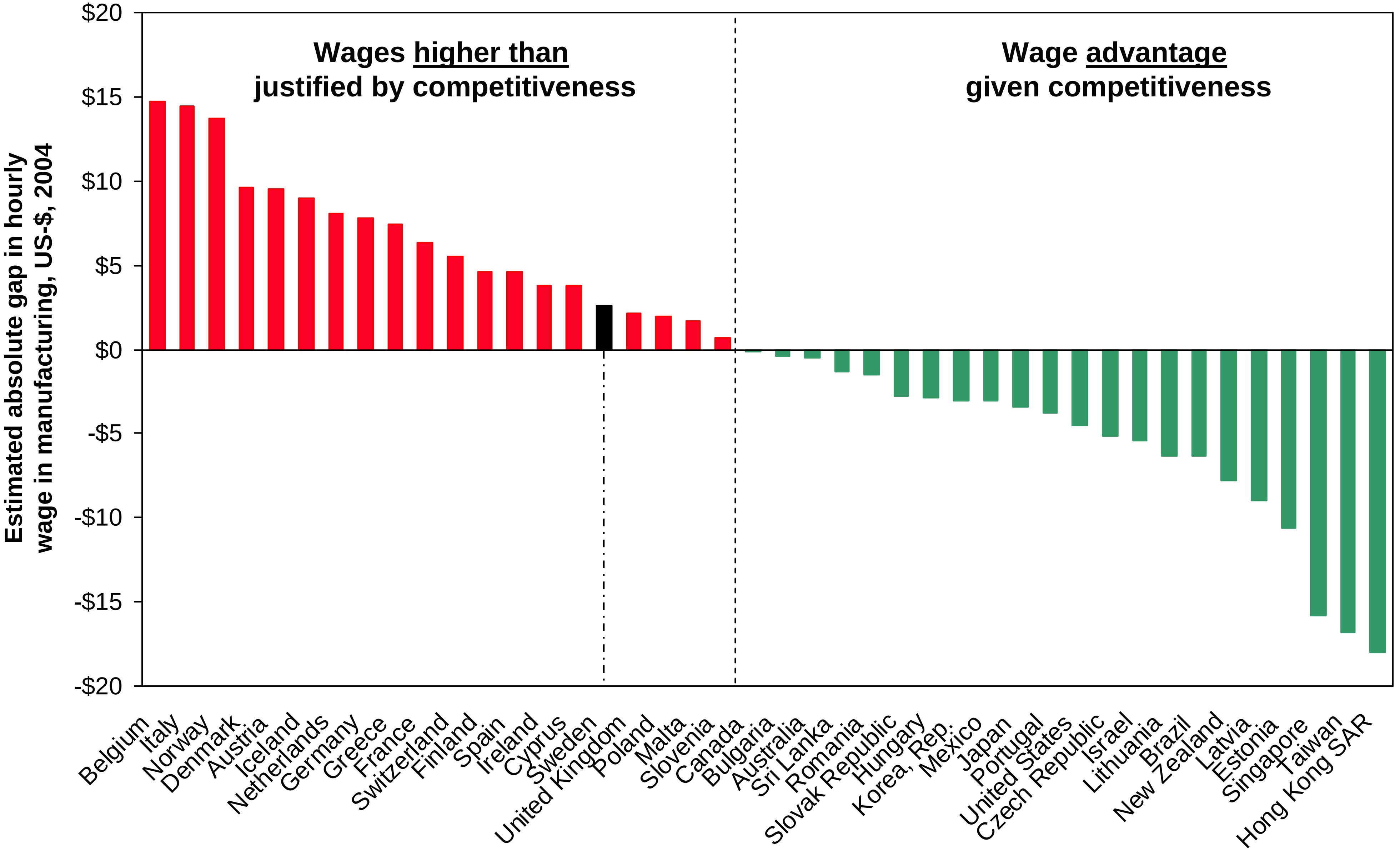
# Business Competitiveness Ranking Over Time

## Sweden




Source: Global Competitiveness Report (2006)

# Wage Differentials by Country




Source: Business Competitiveness Index, 2006

# Company Operations and Strategy

## Sweden's Relative Position 2006

### Competitive Advantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 2001

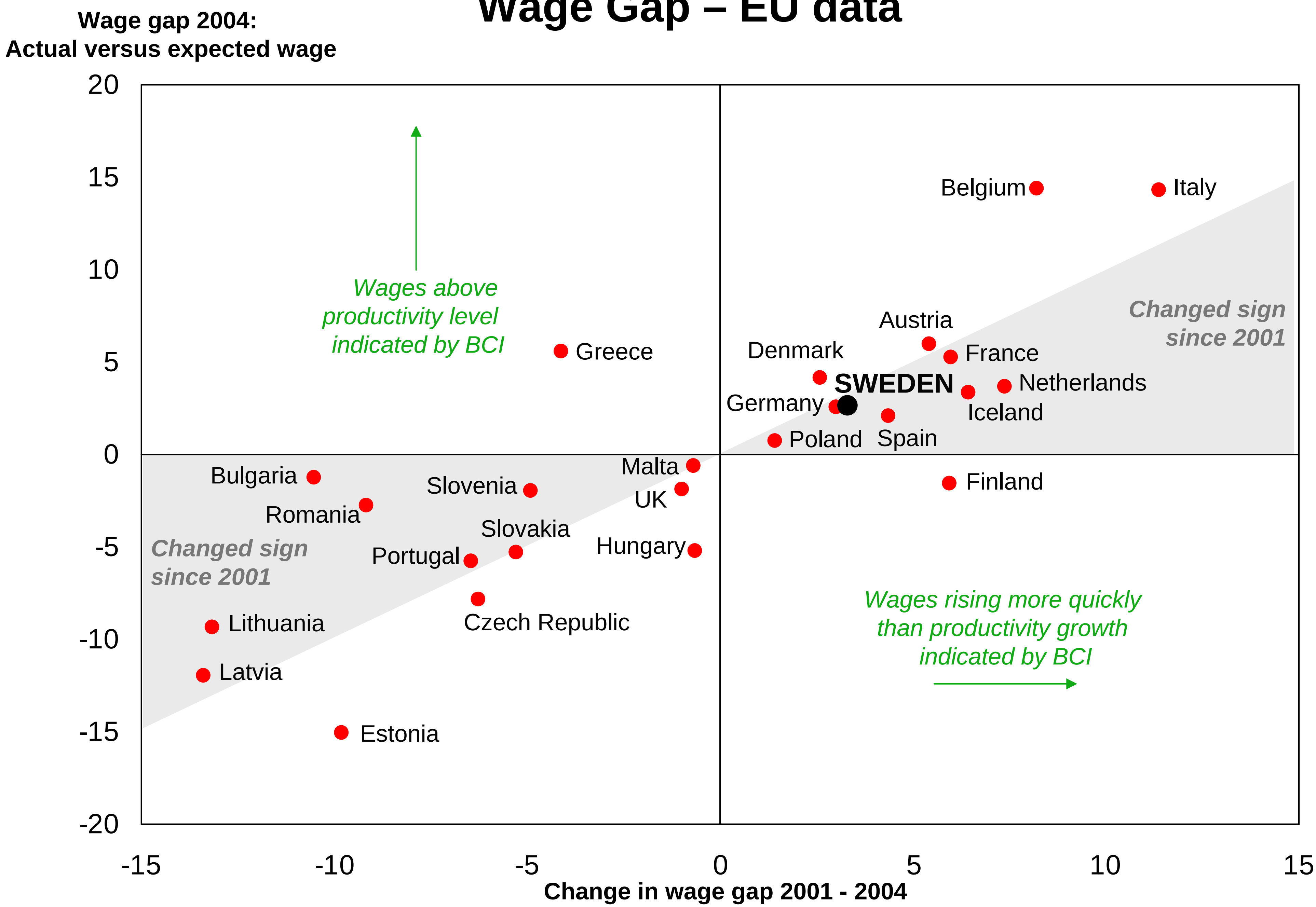
| | | |
|---|---|---|
| Willingness to delegate authority | 1 | |
| Reliance on professional management | 1 | ⇧ |
| Capacity for innovation | 2 | |
| Breadth of international markets | 3 | |
| Extent of staff training | 3 | |
| Company spending on research and development | 5 | |
| Extent of regional sales | 5 | ⇧ |
| Extent of incentive compensation | 5 | ⇧ |
| Nature of competitive advantage | 7 | |
| Production process sophistication | 7 | |
| Value chain presence | 9 | |
| Degree of customer orientation | 9 | |
| Control of international distribution | 9 | |
| Extent of marketing | 10 | |

### Competitive Disadvantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 2001

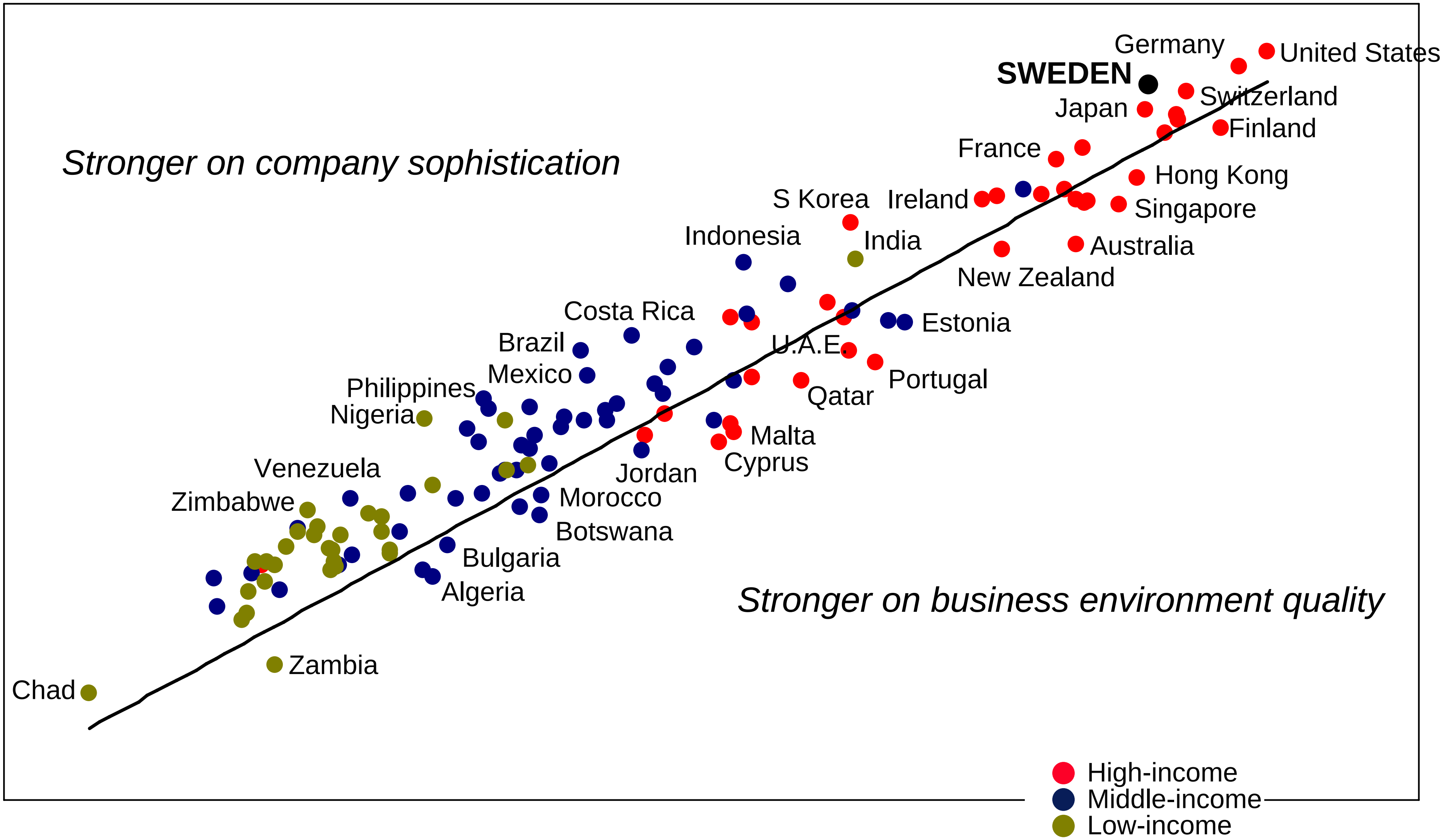
Note: Rank versus 121 countries; overall, Sweden ranks 7th in Business Competitiveness and 18th in 2005 PPP adjusted GDP per capita.
Source: Global Competitiveness Report 2006-2007.

# Wage Gap – EU data




Note: Countries in the grey area have changed their sign between 201 and 2004
Source: Global Competitiveness Report 2006 and Eurostat

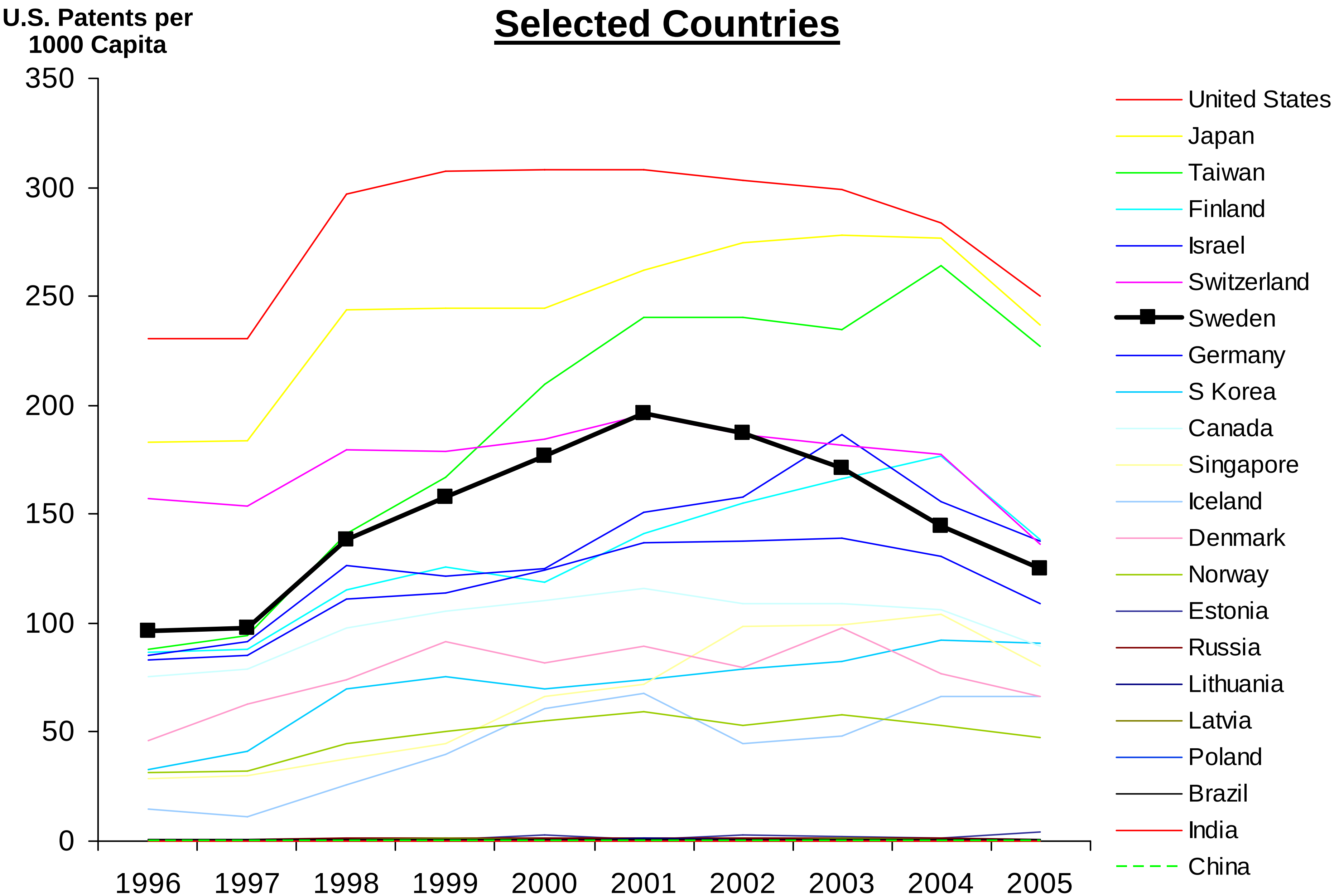
# Business Environment and Company Sophistication




Source: Global Competitiveness Report 2006

# Patenting Intensity: 1996 – 2005

## Selected Countries




Source: USPTO (2006), author's analysis.

# U.S. Patents by Sweden-based Institutions

| | Patentor | Number of patents, 2000-04 |
|---|---|---|
| 1 | TELEFONAKTIEBOLAGET LM ERICSSON | 1698 |
| 2 | SANDVIK AKTIEBOLAG | 226 |
| 3 | ASEA BROWN BOVERI AB | 179 |
| 4 | SCA HYGIENE PRODUCTS AB | 164 |
| 5 | ASTRAZENECA AB | 142 |
| 6 | TETRA LAVAL HOLDINGS & FINANCE S.A. | 121 |
| 7 | SIEMENS ELEMA AB | 90 |
| 8 | AKTIEBOLAGET ASTRA | 88 |
| 9 | VOLVO LASTVAGNAR AB | 75 |
| 10 | AB VOLVO | 74 |
| 11 | AKTIEBOLAGET ELECTROLUX | 64 |
| 12 | KVAERNER PULPING AKTIEBOLAG | 64 |
| 13 | AKZO NOBEL NV | 57 |
| 14 | SCANIA CV AKTIEBOLAG | 56 |
| 15 | PHARMACIA AKTIEBOLAG | 51 |
| 16 | VALMET FIBERTECH AKTIEBOLAG | 50 |
| 16 | VOLVO CAR CORPORATION AB | 50 |
| 18 | ALLGON AB | 49 |
| 18 | VOLVO PERSONVAGNAR AB | 49 |
| 20 | DELAVAL HOLDING AB | 48 |
| 21 | ALFA-LAVAL AB | 47 |
| 22 | AUTOLIV DEVELOPMENT AB | 43 |
| 22 | SECO TOOLS AB | 43 |
| 24 | PACESETTER AB | 39 |
| 25 | ERICSSON, Inc. | 38 |

Source: USPTO (2006), author’s analysis.

# Knowledge Creation

## Top Universities in the Baltic Sea Region

| Institution | Country | World Rank | BSR Rank |
|---|---|---|---|
| Karolinska Inst Stockholm | Sweden | 45 | 1 |
| Univ Copenhagen | Denmark | 57 | 2 |
| Uppsala Univ | Sweden | 60 | 3 |
| Univ Oslo | Norway | 69 | 4 |
| Univ Helsinki | Finland | 76 | 5 |
| Stockholm Univ | Sweden | 93 | 6 |
| Lund Univ | Sweden | 99 | 7 |
| Aarhus Univ | Denmark | 101-152 | 8 |
| Univ Hamburg | Germany | 101-152 | 8 |
| Gothenburg Univ | Sweden | 153-202 | 10 |
| Tech Univ Denmark | Denmark | 153-202 | 10 |
| Univ Kiel | Germany | 153-202 | 10 |
| Chalmers Univ Tech | Sweden | 203-300 | 13 |
| Norwegian Univ Sci & Tech | Norway | 203-300 | 13 |
| Royal Inst Tech | Sweden | 203-300 | 13 |
| Swedish Univ Agr Sci | Sweden | 203-300 | 13 |
| Umea Univ | Sweden | 203-300 | 13 |
| Univ Southern Denmark | Denmark | 203-300 | 13 |
| Univ Turku | Finland | 203-300 | 13 |

Copyright © 2005 Institute of Higher Education, Shanghai Jiao Tong University

# Doing Business 2006 Ranking

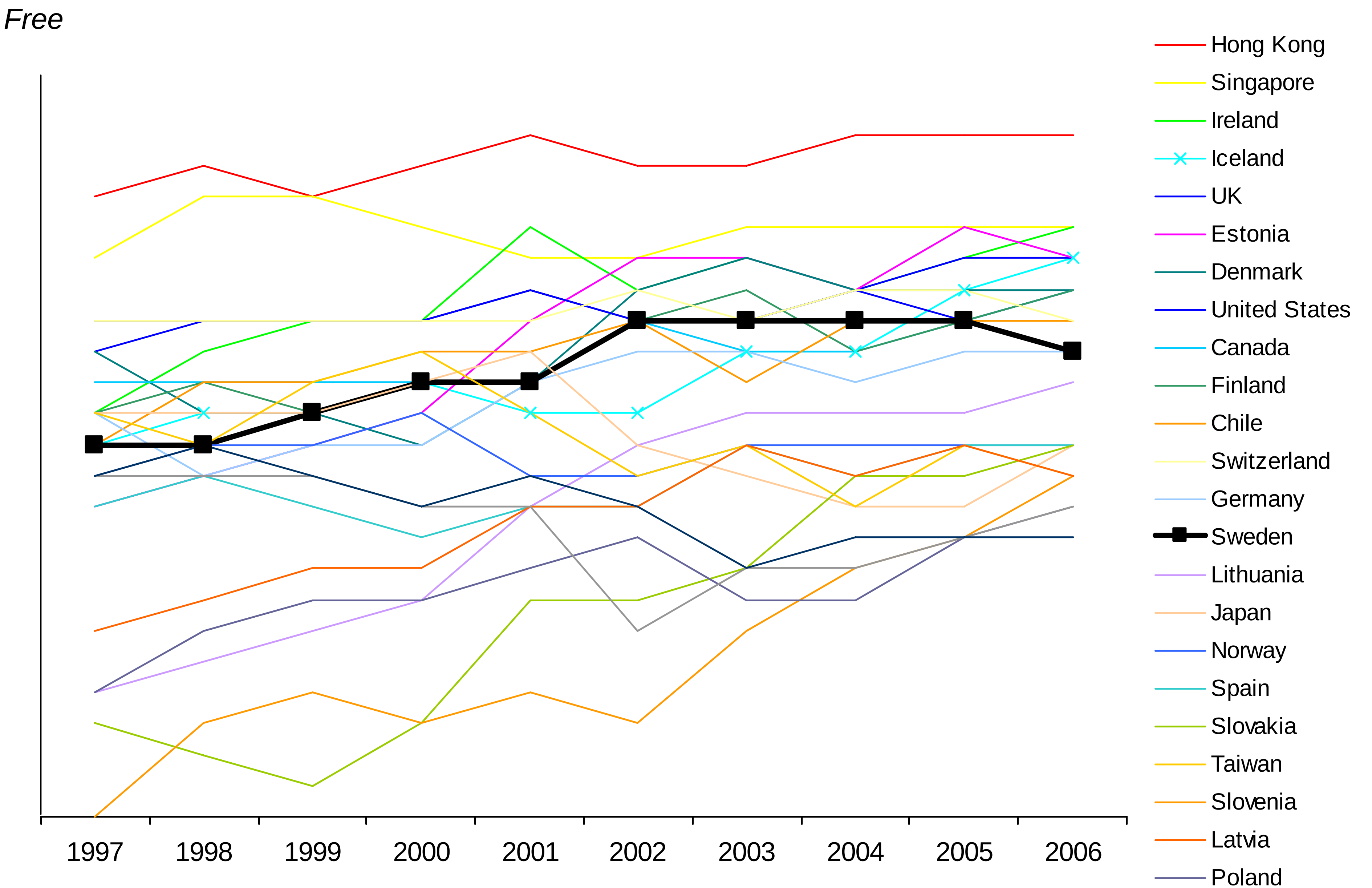
## Sweden

| Category | Rank |
|---|---|
| Enforcing Contracts | 2 |
| Registering Property | 7 |
| Trading Across Borders | 9 |
| **OVERALL** | **13** |
| Closing a Business | 17 |
| Dealing with Licenses | 17 |
| Starting a Business | 20 |
| Getting Credit | 33 |
| Paying Taxes | 39 |
| Protecting Investors | 46 |
| Employing Workers | 94 |

Source: World Bank – Doing Business (2007), author’s analysis.

# Index of Economic Freedom

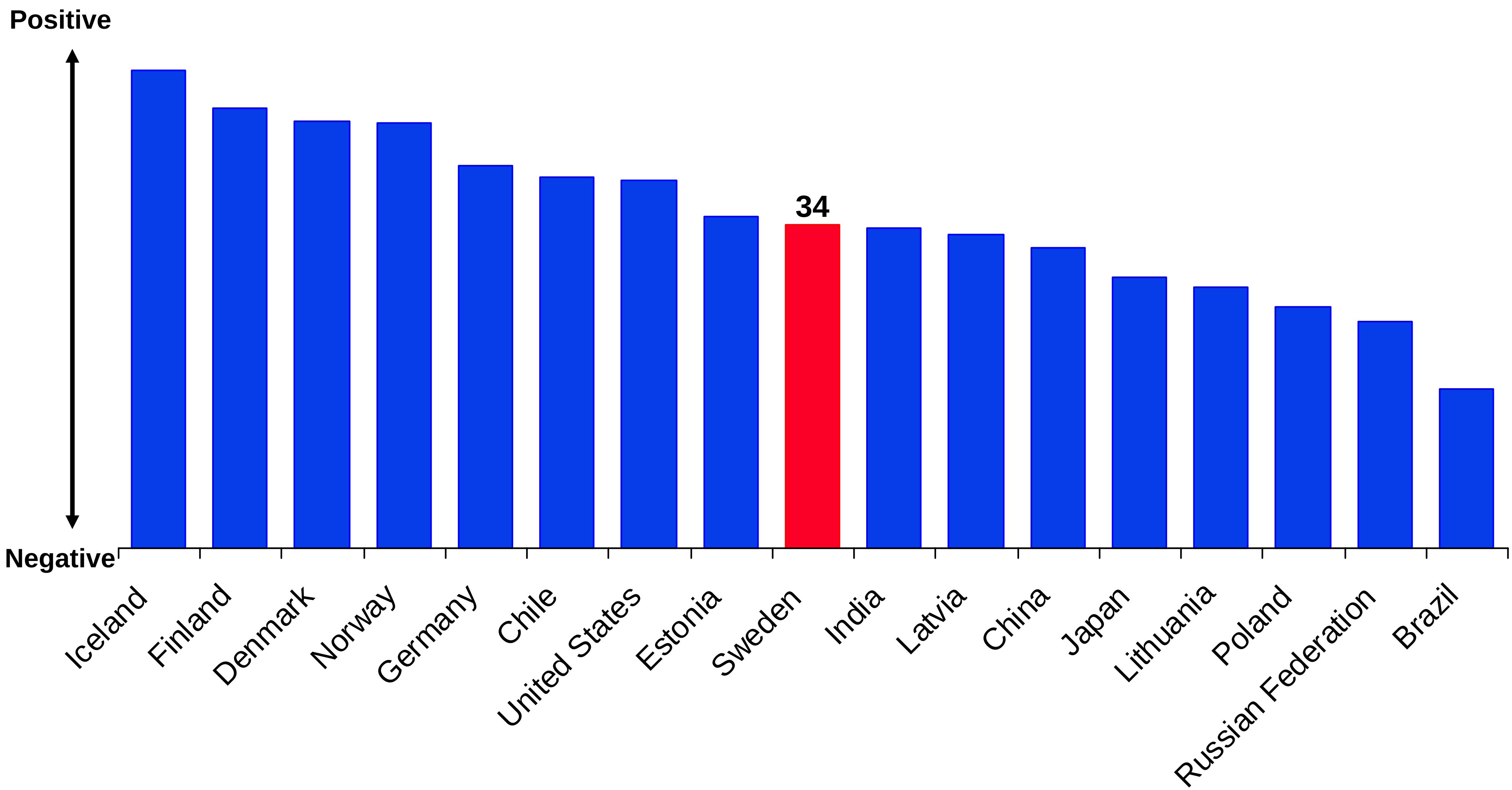
## 1996 - 2006




Source: Index of Economic Freedom (2006), author's analysis.

# Business Competitiveness

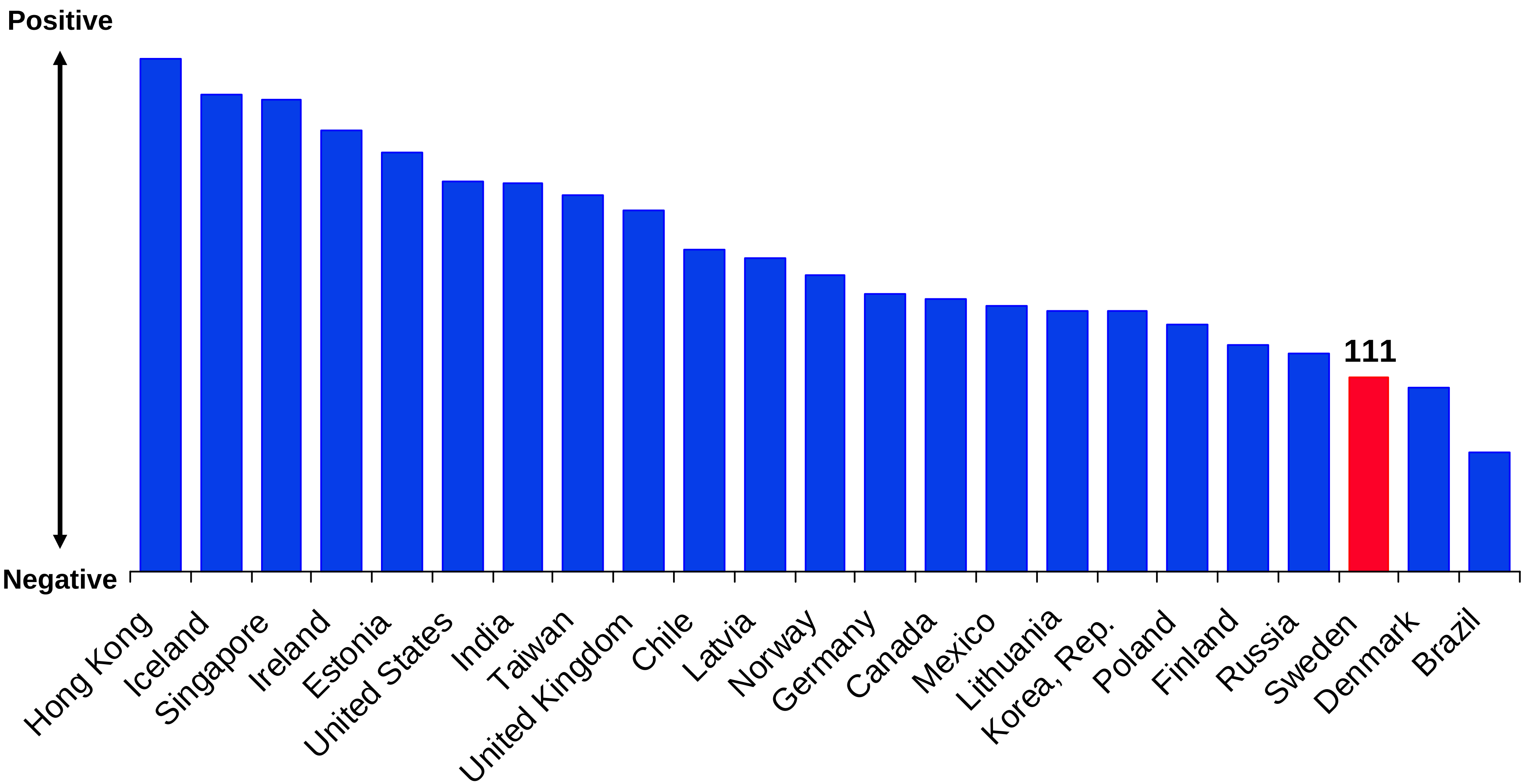
## Effectiveness of Public Spending, Selected Countries




Note: Number refers to rank among 124 countries
Source: Global Competitiveness Report (2006), author's analysis.

# Business Competitiveness

## Incentive Effect of Taxation, Selected Countries




Note: Number refers to rank among 124 countries
Source: Global Competitiveness Report (2006), author's analysis.