

Chile's Competitiveness: Facing the Demands of a New Era

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Santiago, Chile
May 29, 2008

This presentation draws on ideas from Professor Porter's articles and books, in particular, [The Competitive Advantage of Nations](#) (The Free Press, 1990), "Building the Microeconomic Foundations of Competitiveness," in [The Global Competitiveness Report 2006](#) (World Economic Forum, 2006), "Clusters and the New Competitive Agenda for Companies and Governments" in [On Competition](#) (Harvard Business School Press, 1998), and ongoing research on clusters and competitiveness. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means - electronic, mechanical, photocopying, recording, or otherwise - without the permission of Michael E. Porter.

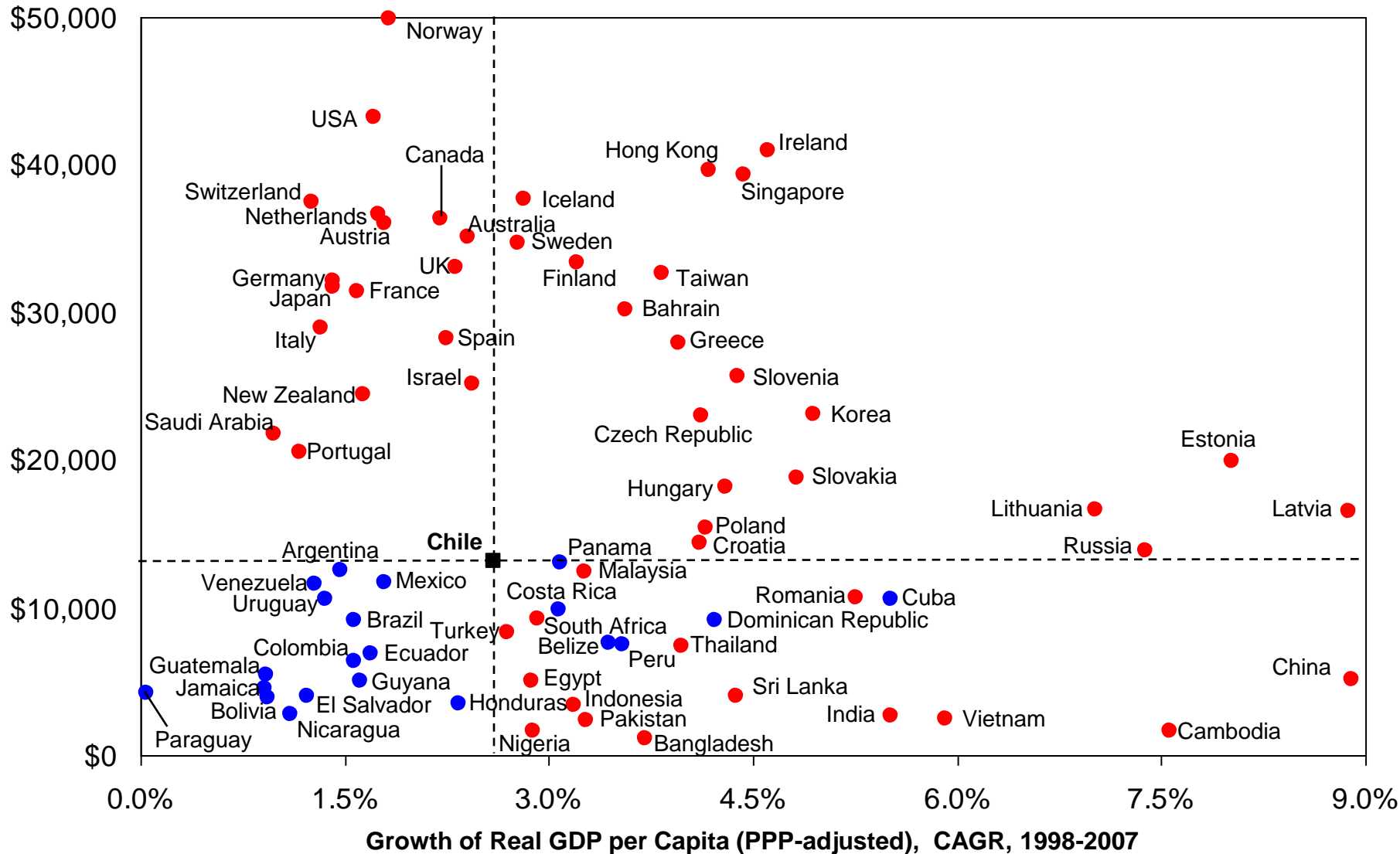
Further information on Professor Porter's work and the Institute for Strategy and Competitiveness is available at www.isc.hbs.edu

Version: May 27, 2008, 6pm

Prosperity Performance

Selected Countries

PPP-adjusted GDP
per Capita, 2007



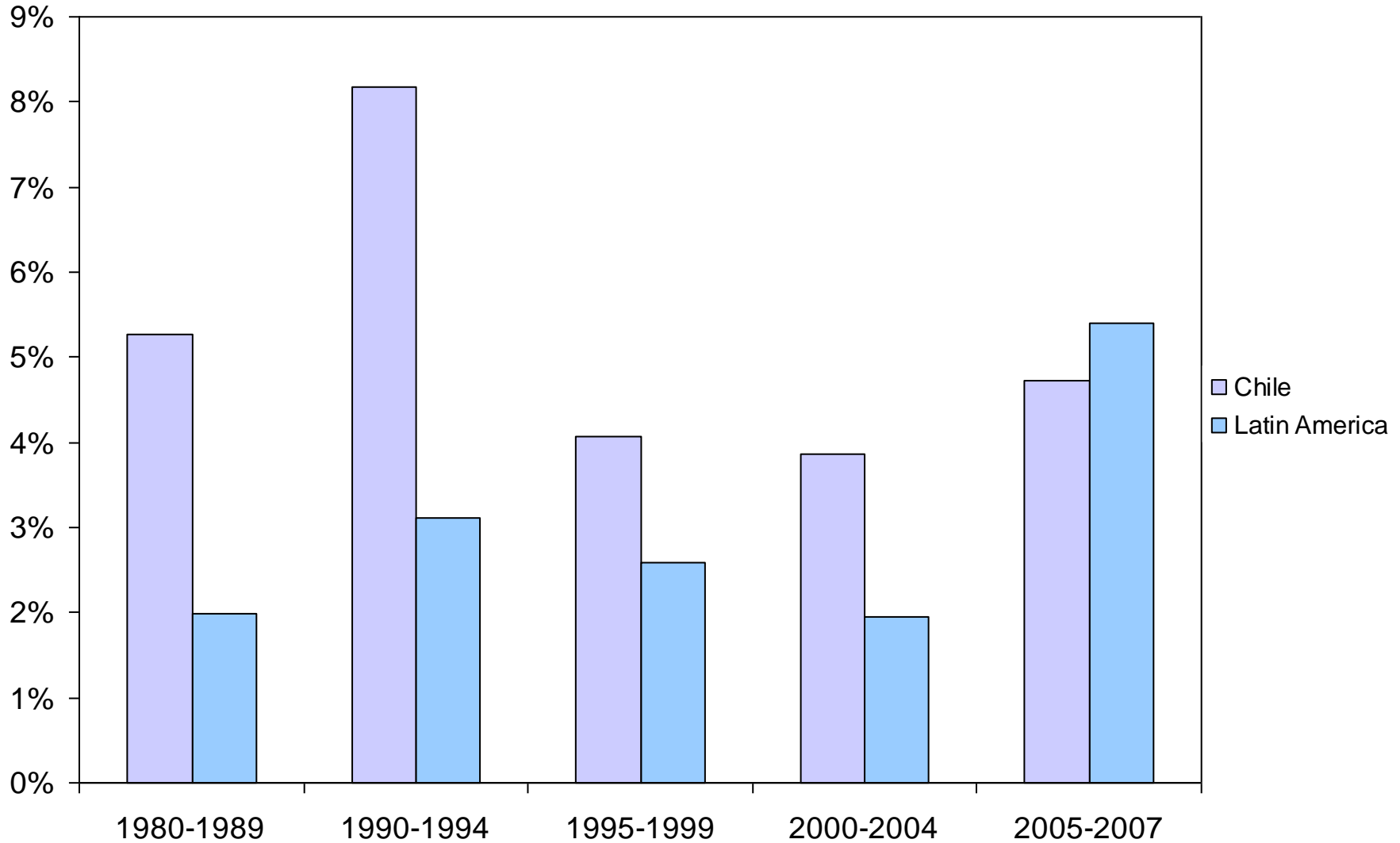
Source: EIU (2008), authors calculations

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Comparative Economic Performance

Real GDP Growth Rates Over Time

Compounded annual growth rate (CAGR) of real GDP



Source: EIU (2008), authors calculations

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Chile's Economy in 2008

- Chile remains the **Latin American success story** in competitiveness, though its relative progress has slipped

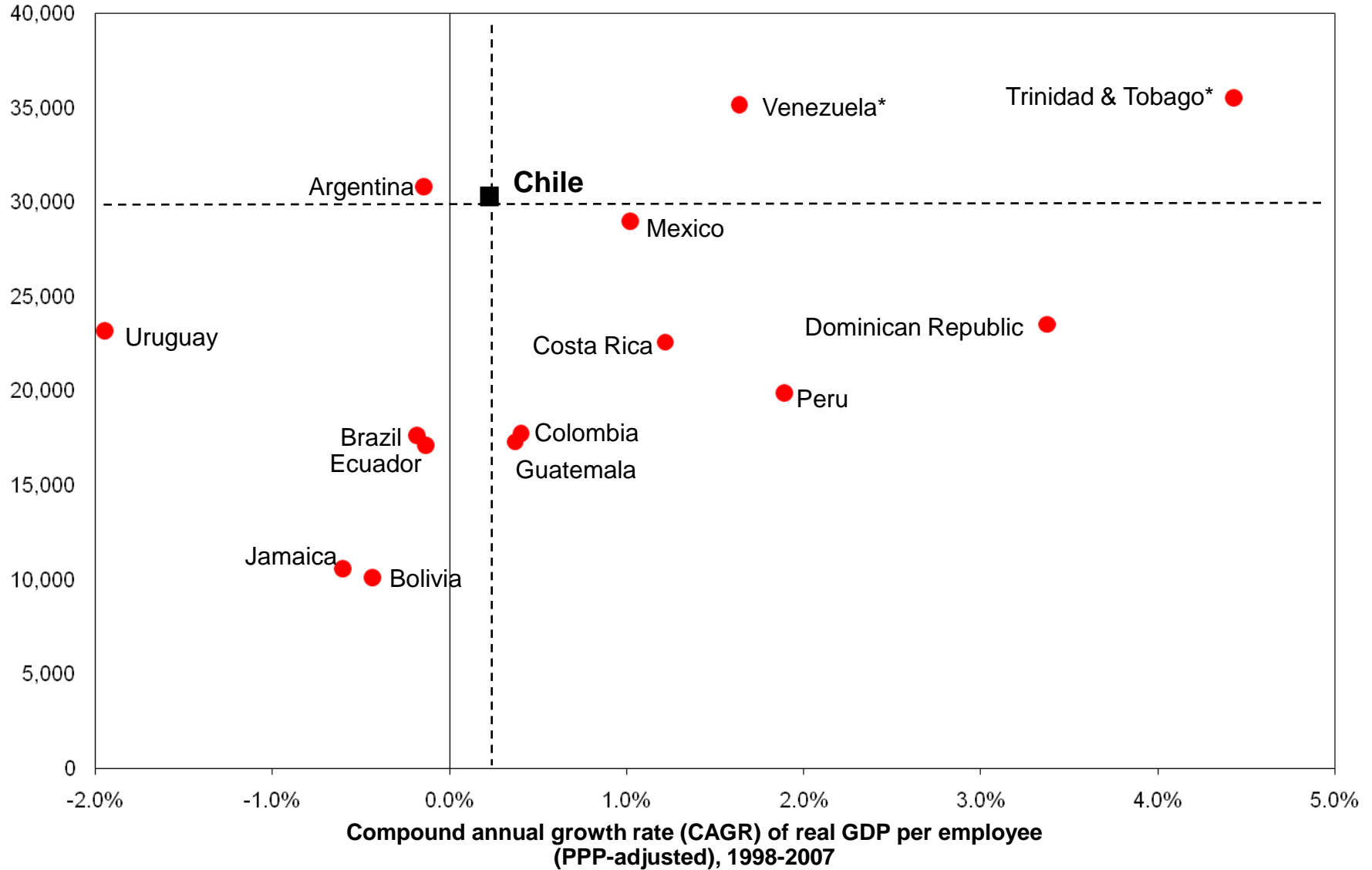
However

- Chile has many **global peers** that perform better
- Chile has benefited from a **beneficial global context**, especially the rise of copper demand. However, the tailwind is now **receding**
- Chile is strong on macroeconomic policy but fundamental business environment remain
- Political pressure is rising to shift from wealth creation to **wealth distribution**

Comparative Labor Productivity

Latin American Countries

GDP per employee (PPP adjusted US\$), 2007



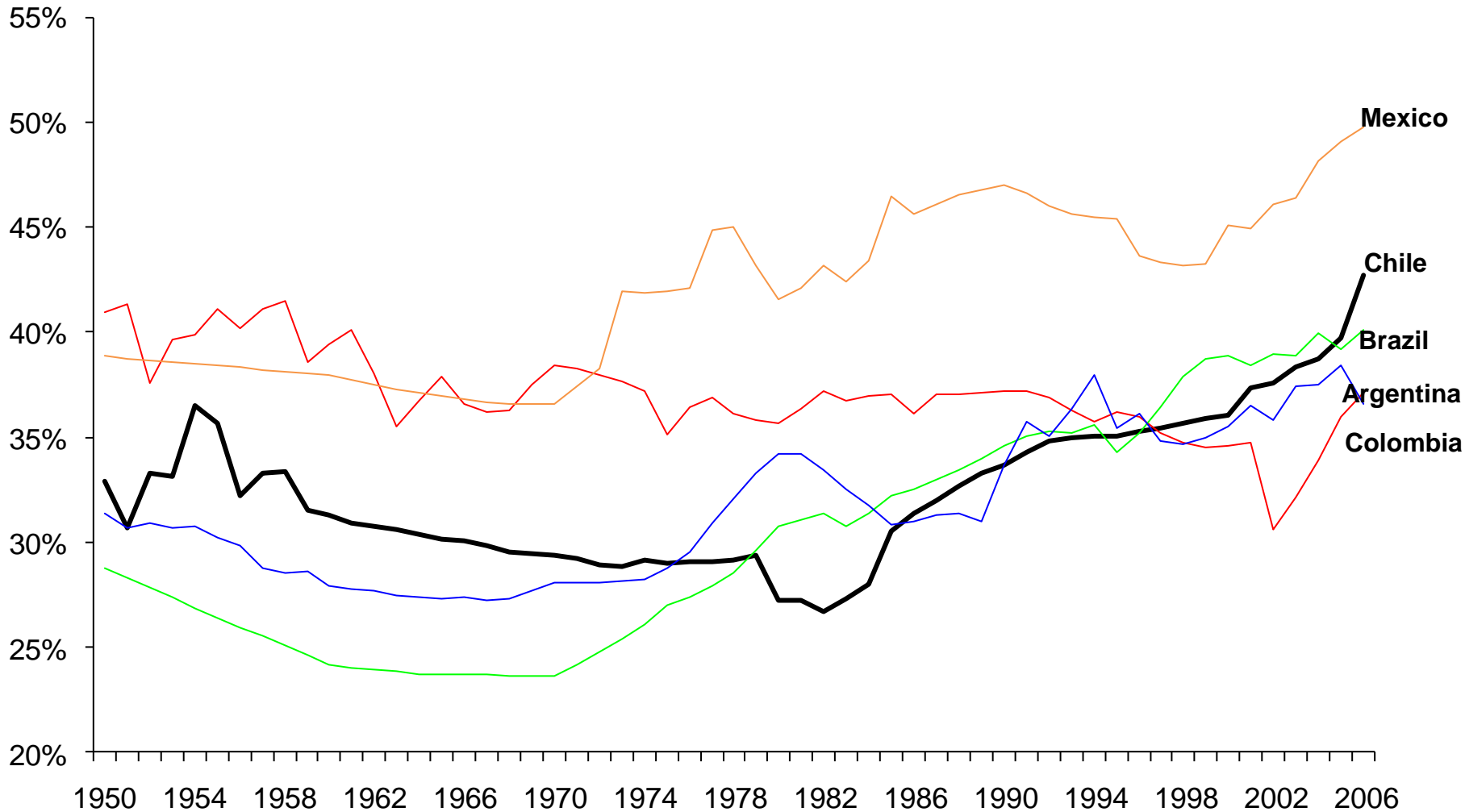
Note: Venezuela and Trinidad & Tobago's data is biased by the rise in oil and gas export prices

Source: authors calculation, EIU (2008), Groningen Growth and Development Centre (2008)

Labor Force Mobilization over Time

Selected Countries

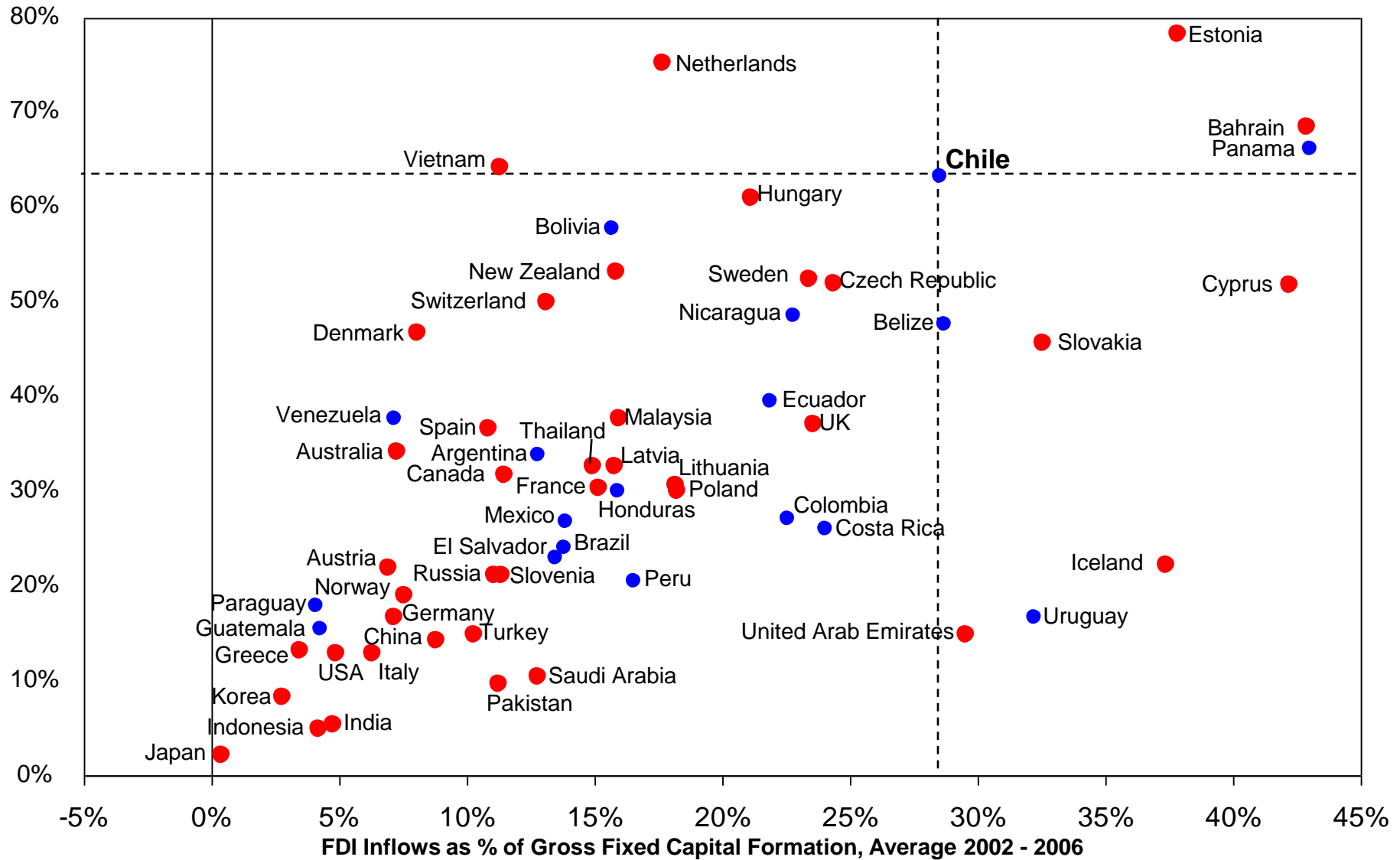
Employees as %
of Total Population,



Inbound Foreign Investment Performance

Stocks and Flows, Latin American Countries

Inward FDI Stocks as % of GDP, Average 2002 - 2006

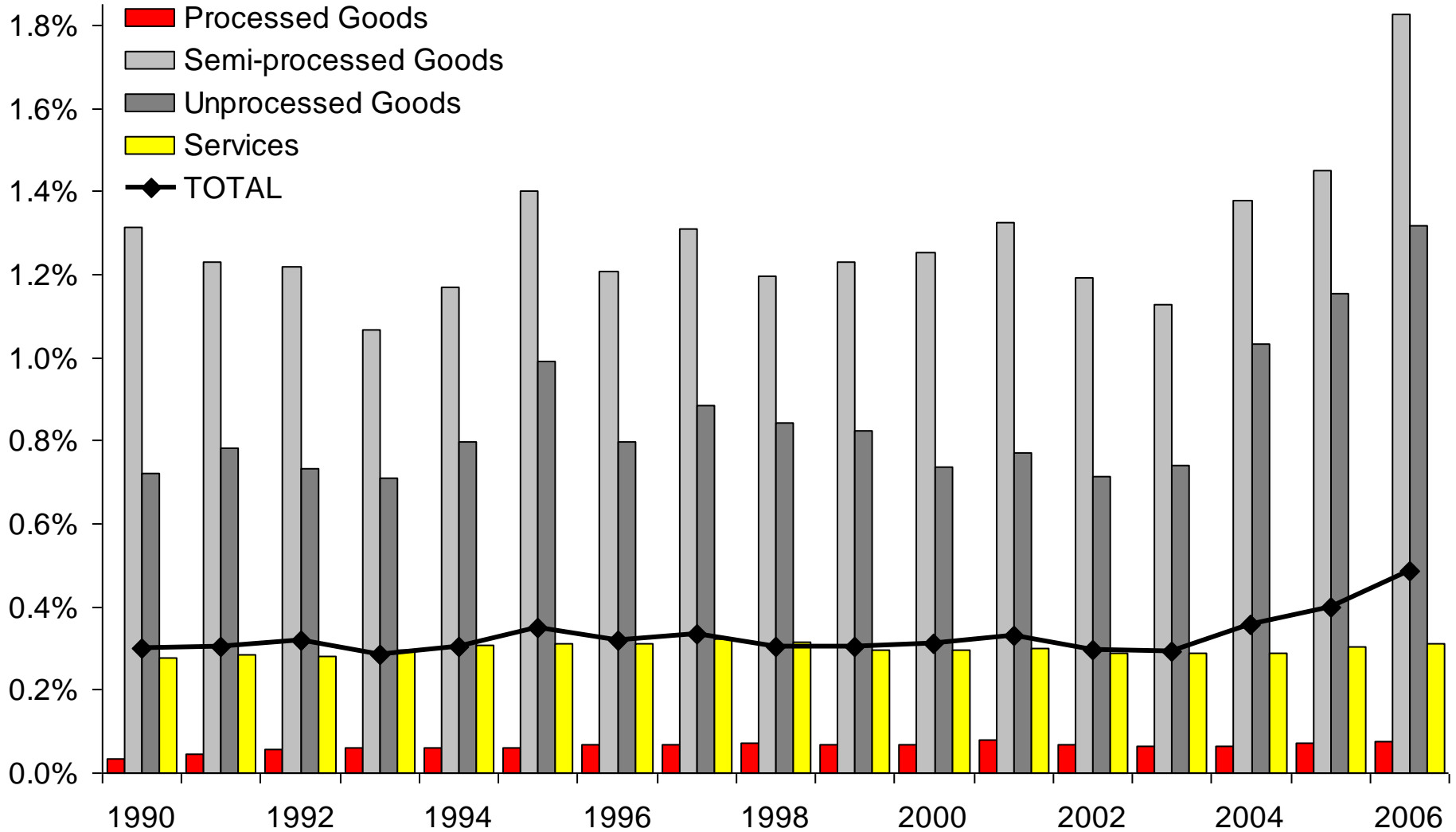


Source: UNCTAD, World Investment Report (2007)

20080529 - Chile CAON - ver5.ppt

Chile Export Share Trends

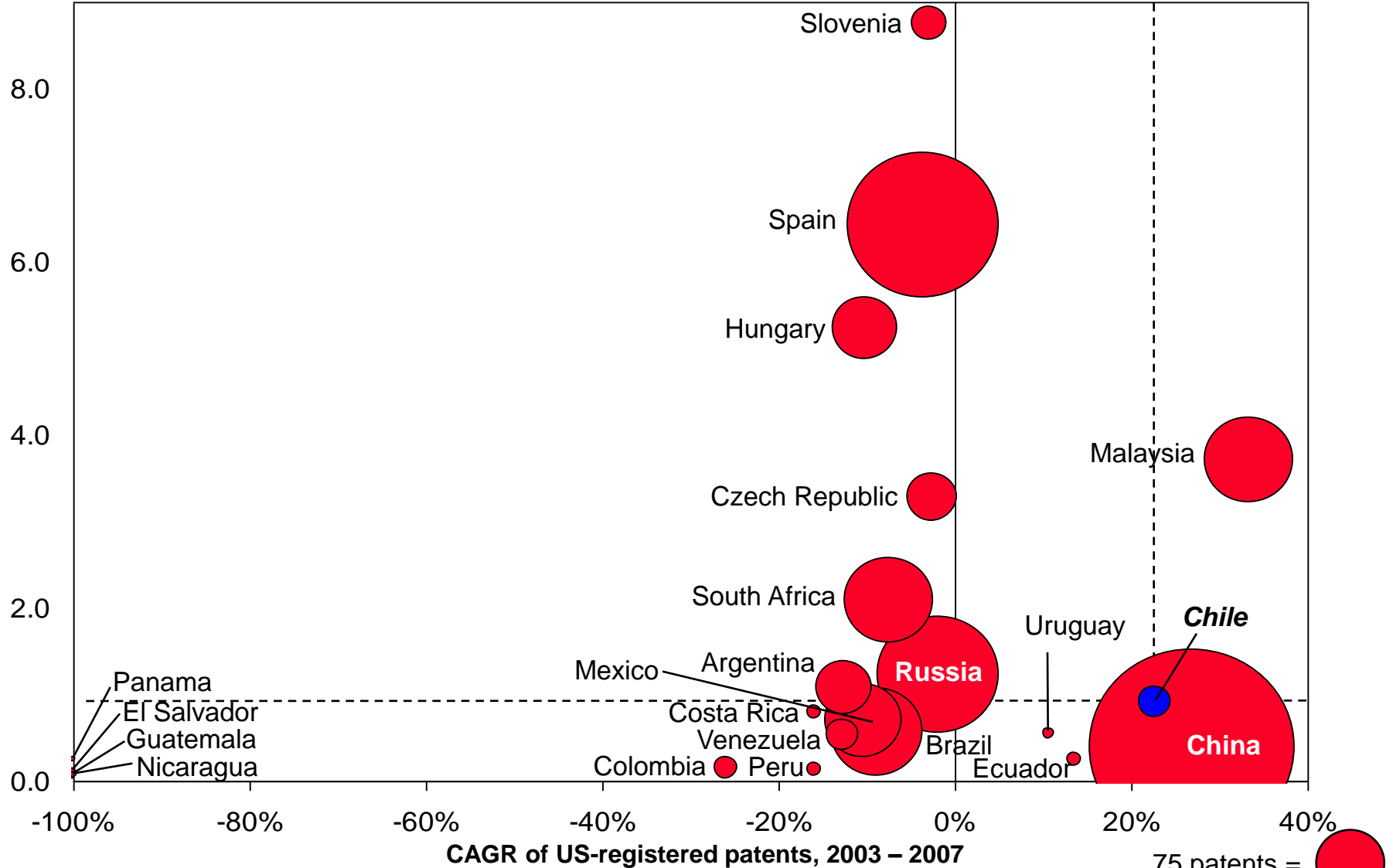
World Export Market Share (current USD)



Innovative Capacity

Innovation Output of Latin American Countries

Average U.S. patents per 1 million population, 2003-2007



What is Competitiveness?

- Competitiveness is determined by the **productivity** with which a nation uses its human, capital, and natural resources.
 - Productivity **sets the standard of living** (wages, returns on capital, returns on natural resources) that a country can sustain
 - It is not **what** industries a nation competes in that matters for prosperity, but **how** it competes in those industries
 - Productivity in a national economy arises from a **combination of domestic and foreign firms**
 - The productivity of **“local” or domestic industries** is fundamental to competitiveness, not just that of export industries



- Nations compete in offering the **most productive environment for business**
- The public and private sectors play **different but interrelated roles** in creating a productive economy

Determinants of Productivity

Microeconomic Competitiveness

Sophistication
of Company
Operations and
Strategy

State of Cluster
Development

Quality of the
National
Business
Environment

Macroeconomic Competitiveness

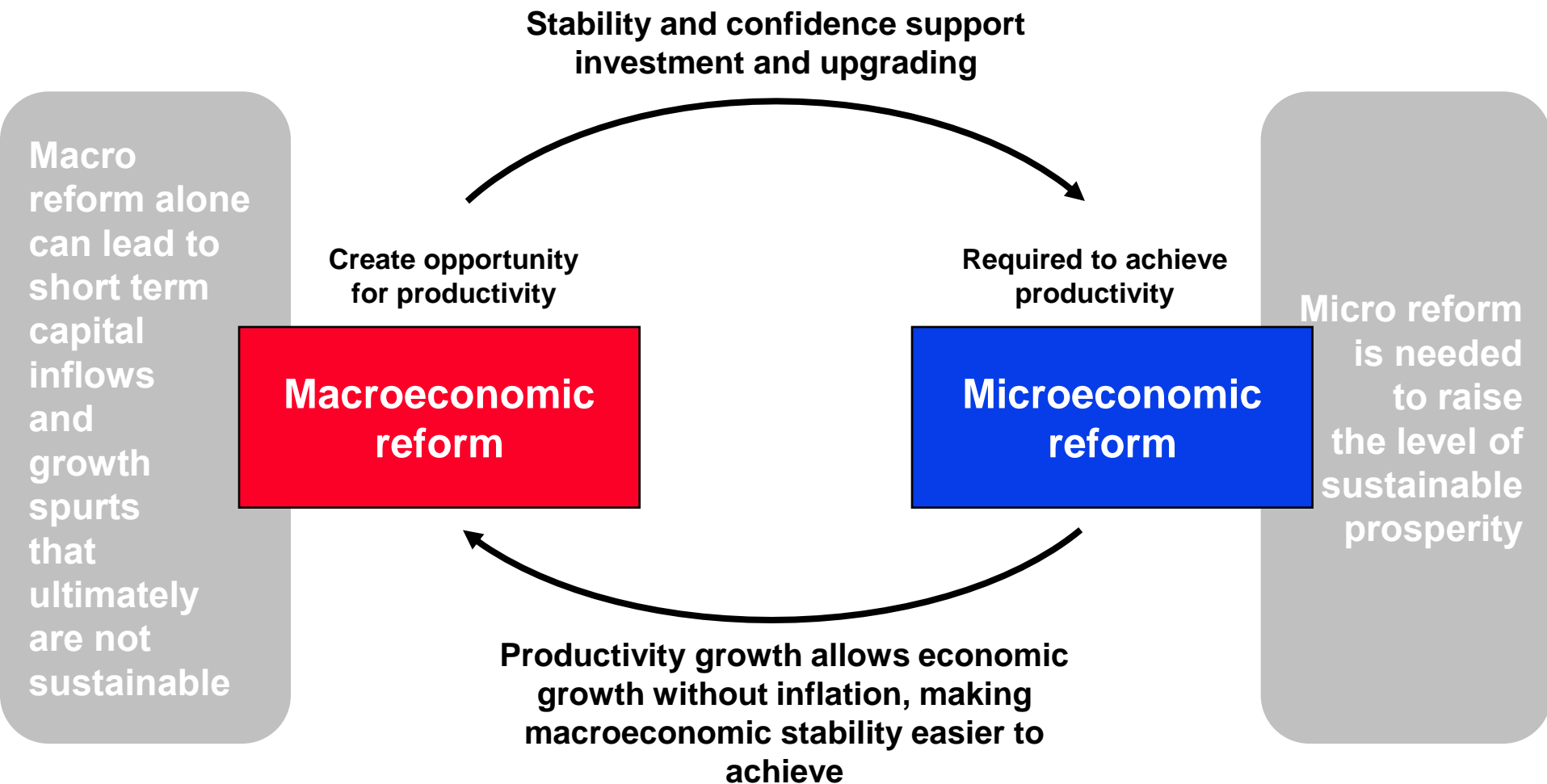
Social
Infrastructure
and Political
Institutions

Macroeconomic
Context

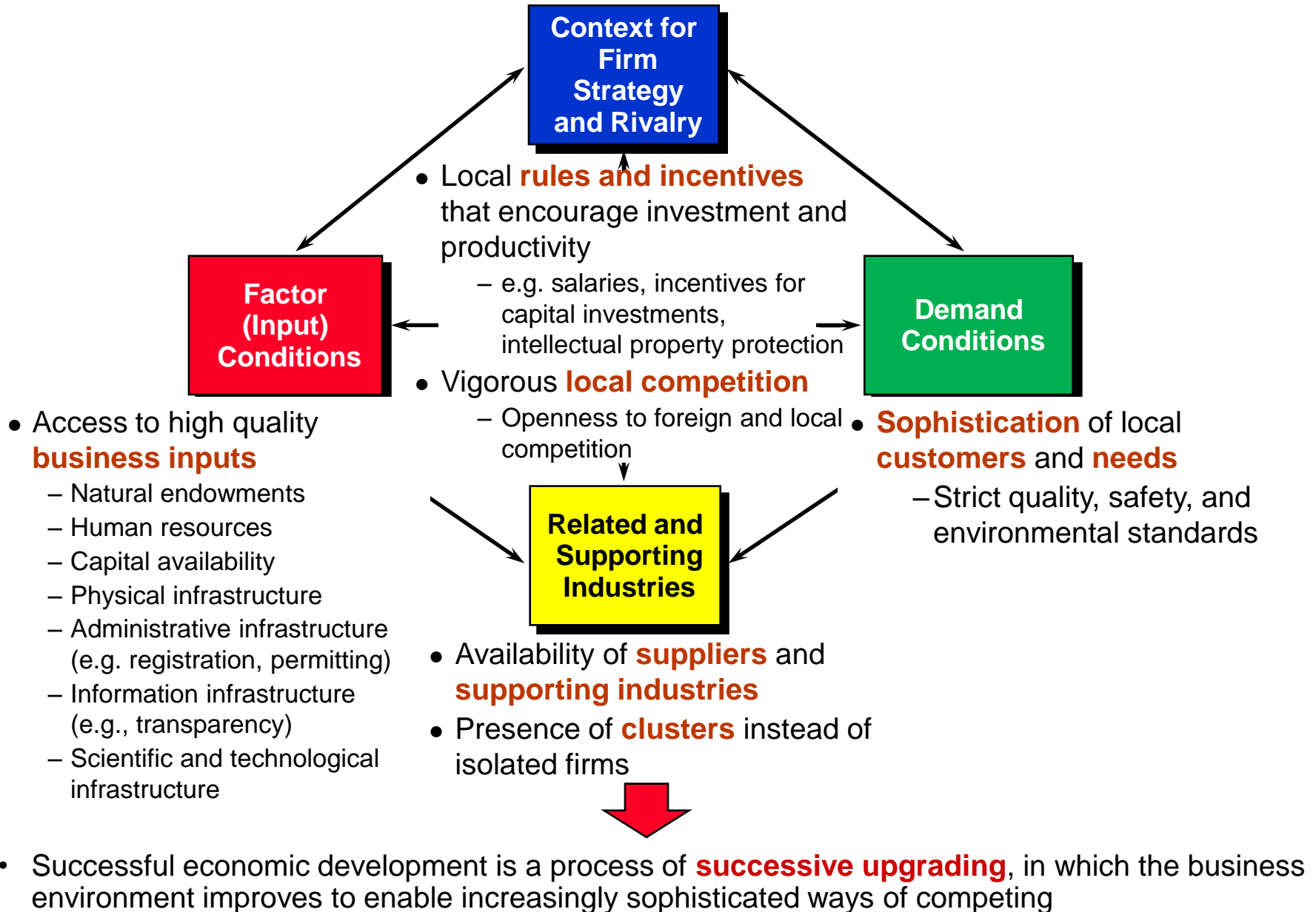


- Macroeconomic competitiveness creates the potential for high productivity, but is **not sufficient**
- Productivity ultimately depends on improving the **microeconomic capability** of the economy and the **sophistication of local competition**

Integration of Macro- and Microeconomic Reforms



Improving the Business Environment: The Diamond



Factor (Input) Conditions


Chile's Relative Position 2007

Competitive Advantages Relative to GDP per Capita

Local equity market access	13	▲
Quality of management schools	19	
Telephone/fax infrastructure quality	20	▼
Reliability of police services	20	
Laws relating to ICT	22	▲
Ease of access to loans	24	
Air transport infrastructure quality	25	
Business costs of corruption	25	▲
Financial market sophistication	25	
Overall infrastructure quality	26	▲
Efficiency of legal framework	26	
Cooperation in labor-employer relations	26	▲
Availability of scientists and engineers	27	▼
Port infrastructure quality	29	▲

Competitive Disadvantages Relative to GDP per Capita

Quality of public schools	63	▼
Quality of math and science education	59	▼
Railroad infrastructure development	49	▲
Centralization of economic policymaking	46	▼
Quality of scientific research institutions	42	
Judicial independence	38	
University/industry research collaboration	37	▲
Quality of electricity supply	33	▼
Venture capital availability	30	▲


 Change up/down of more than 5/10 ranks since 2002

Note: Rank versus 74 countries; overall, Chile ranks 39th in 2007 PPP adjusted GDP per capita and 27th in Business Competitiveness.

Source: Institute for Strategy and Competitiveness, Harvard University (2007)

Context for Strategy and Rivalry

Chile's Relative Position 2007

Competitive Advantages Relative to GDP per Capita

Prevalence of trade barriers	12	▲
Efficacy of corporate boards	17	
Intensity of local competition	18	▼
Property rights	19	
Effectiveness of antitrust policy	23	
Favoritism in decisions of government officials	27	◄



Change up/down of more than 5/10 ranks since 2002

Competitive Disadvantages Relative to GDP per Capita

Decentralization of corporate activity	49
Intellectual property protection	38

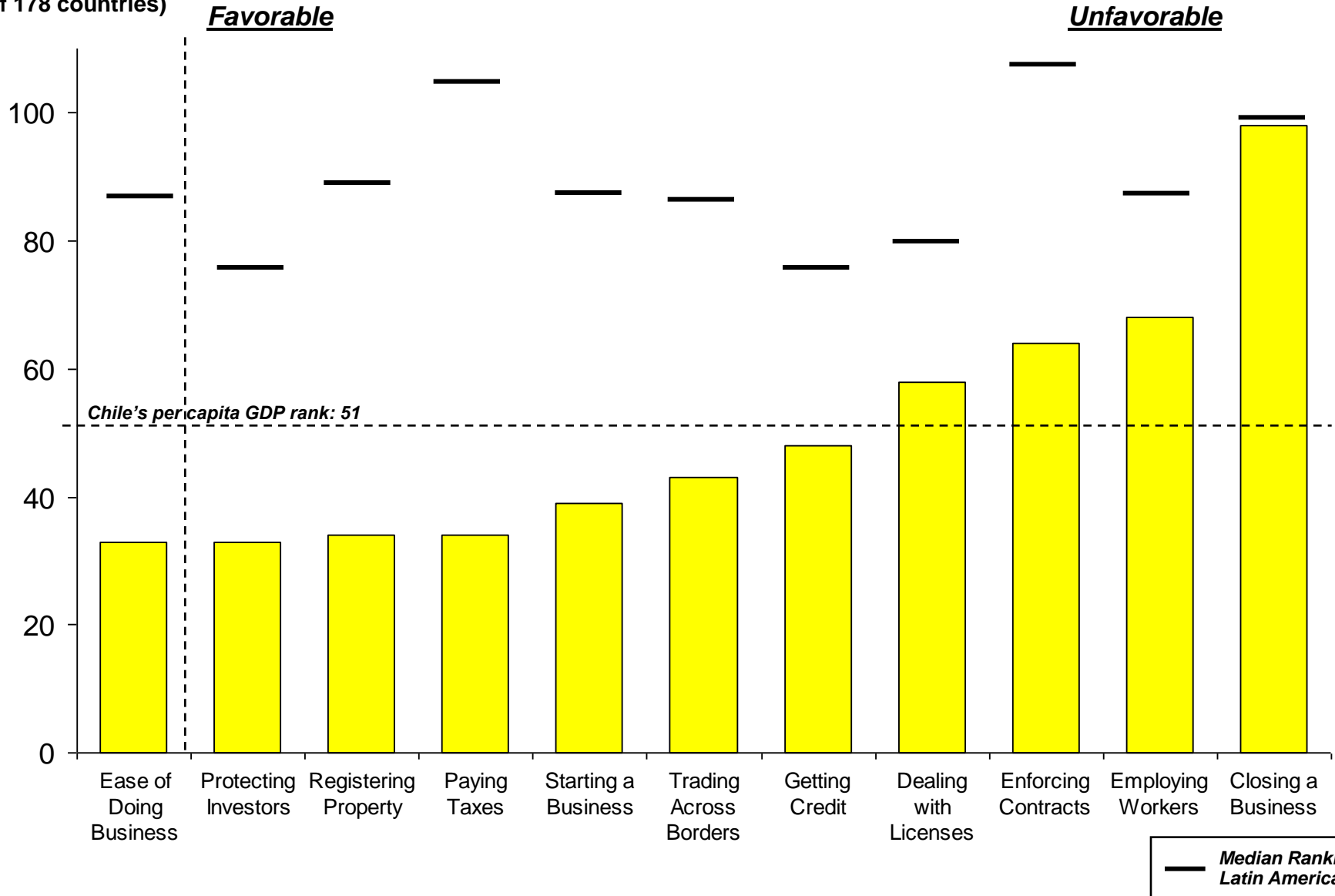
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Ease of Doing Business

Chile, 2007

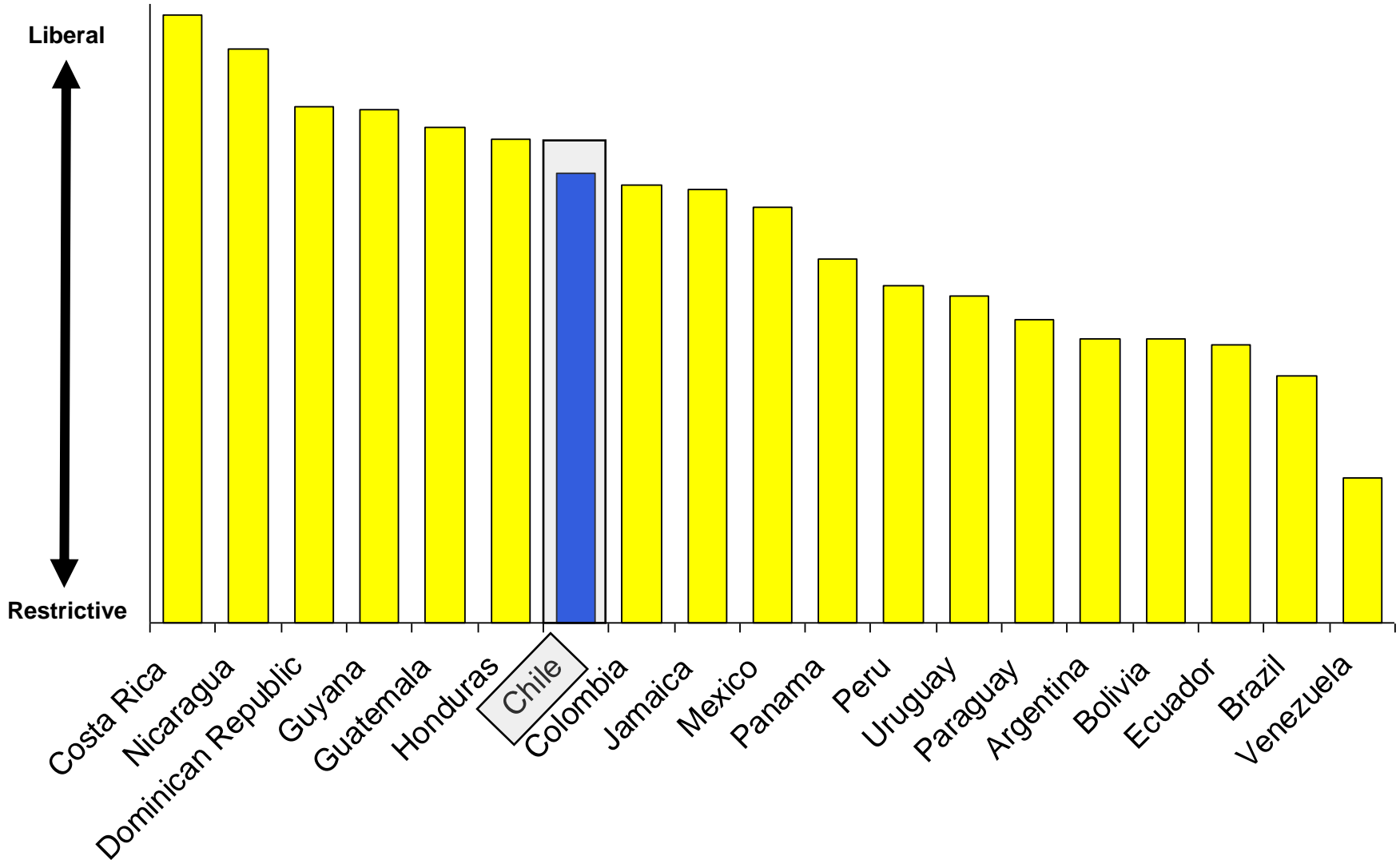
Ranking, 2007
(of 178 countries)



Labor Market Regulation

Selected Countries

Hiring and Firing Practices

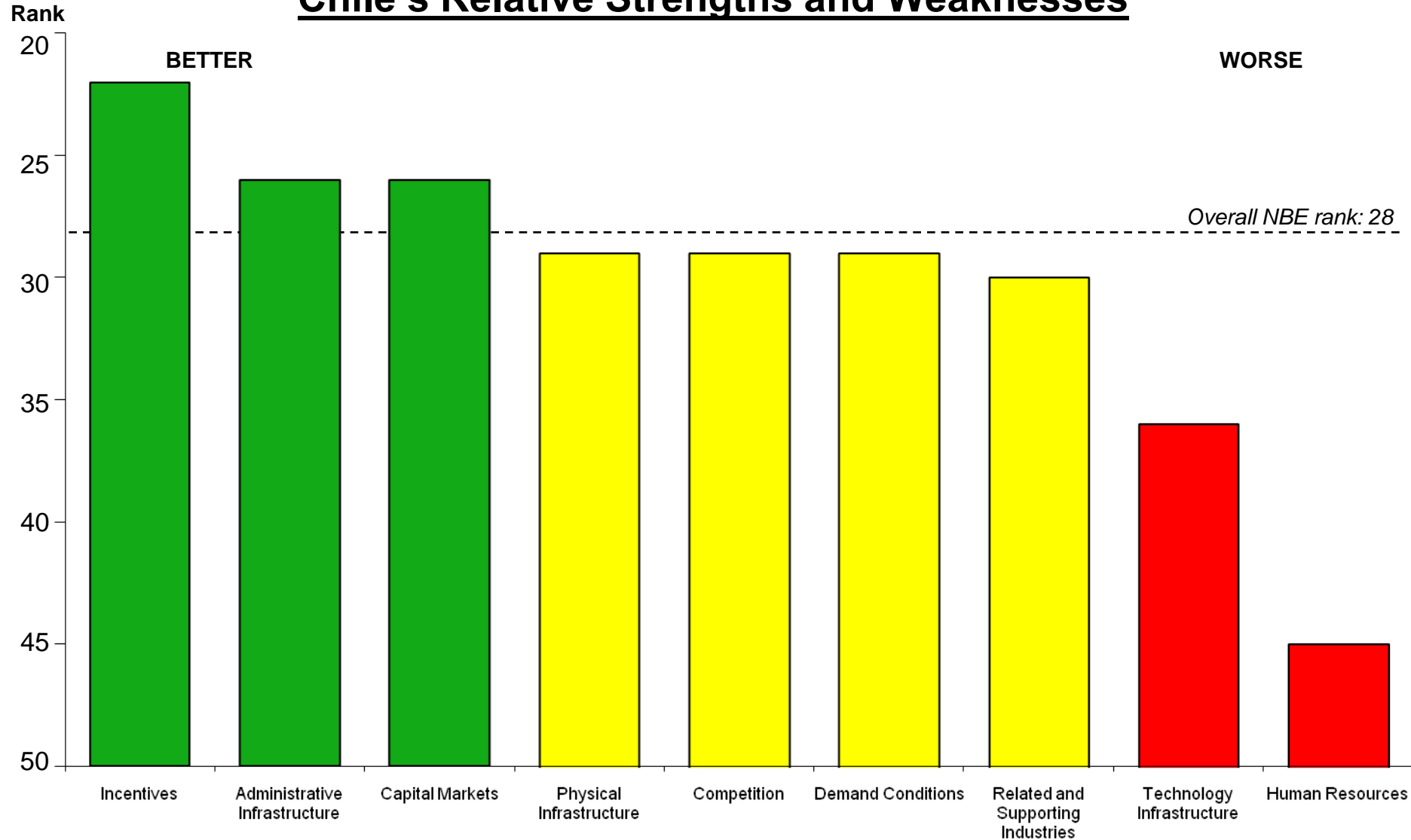


Note: Determined by whether hiring / firing decisions are impeded by regulations or determined by the employer

Source: Global Competitiveness Report (2008)

National Business Environment Overview

Chile's Relative Strengths and Weaknesses





Note: Rank versus 74 countries; overall, Chile ranks 39th in 2007 PPP adjusted GDP per capita and 27th in Business Competitiveness.

Source: Institute for Strategy and Competitiveness, Harvard University (2007)

Improving Company Sophistication

Relative Position of Chile Companies, 2007

Competitive Advantages Relative to GDP per Capita

Breadth of international markets	16
Extent of marketing	20 
Extent of incentive compensation	21 
Control of international distribution	24 
Reliance on professional management	24
Production process sophistication	27



Change up/down of more
than 5/10 ranks since 2002

Competitive Disadvantages Relative to GDP per Capita

Company spending on research and development	46 
Capacity for innovation	45
Nature of competitive advantage	41 
Degree of customer orientation	39 
Value chain presence	38 
Extent of regional sales	36 
Extent of staff training	36
Prevalence of foreign technology licensing	34 
Willingness to delegate authority	34

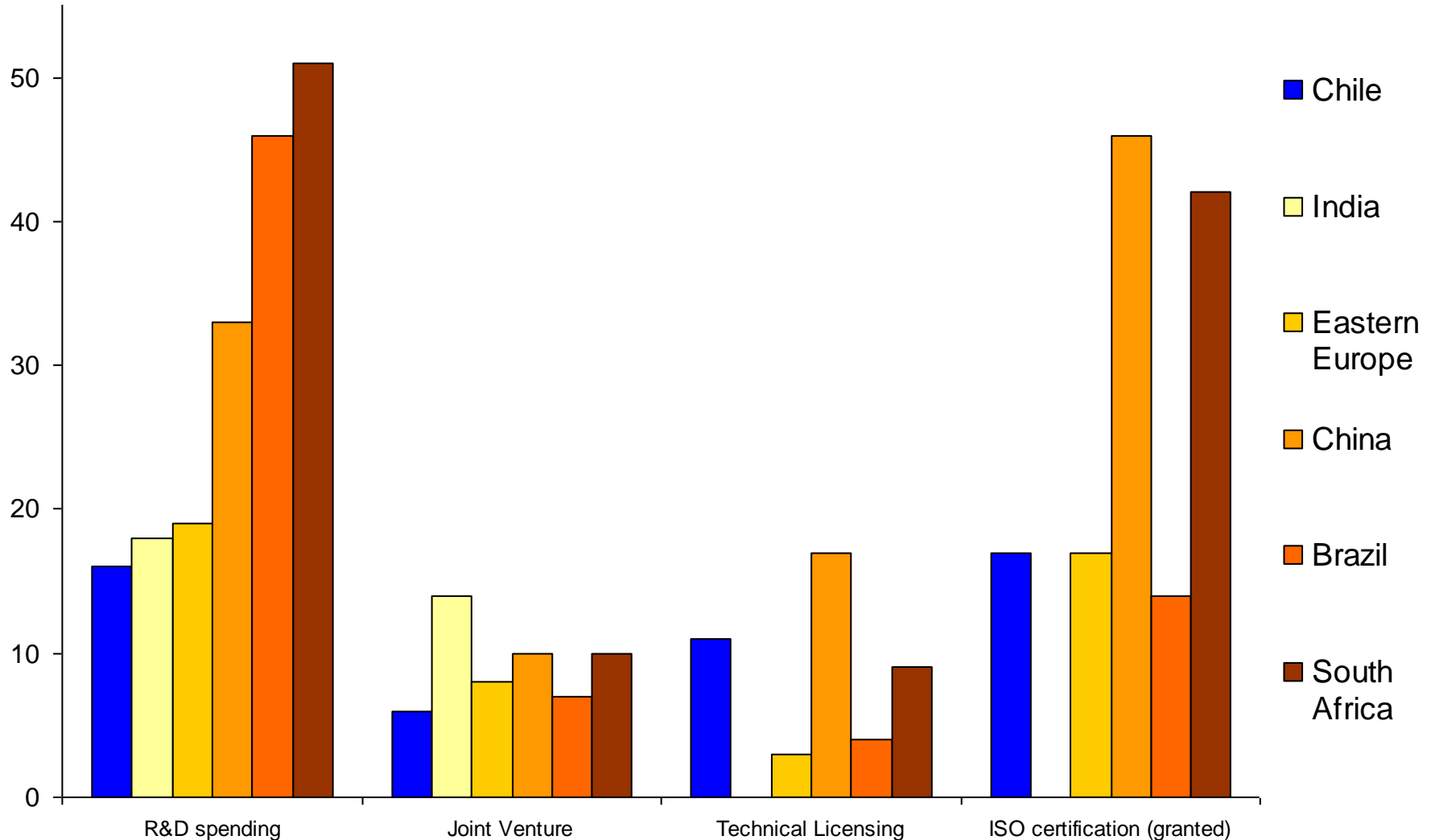
Note: Rank versus 74 countries; overall, Chile ranks 39th in 2007 PPP adjusted GDP per capita and 27th in Business Competitiveness.

Source: Institute for Strategy and Competitiveness, Harvard University (2007)

Chile Manufacturing Lagging Behind

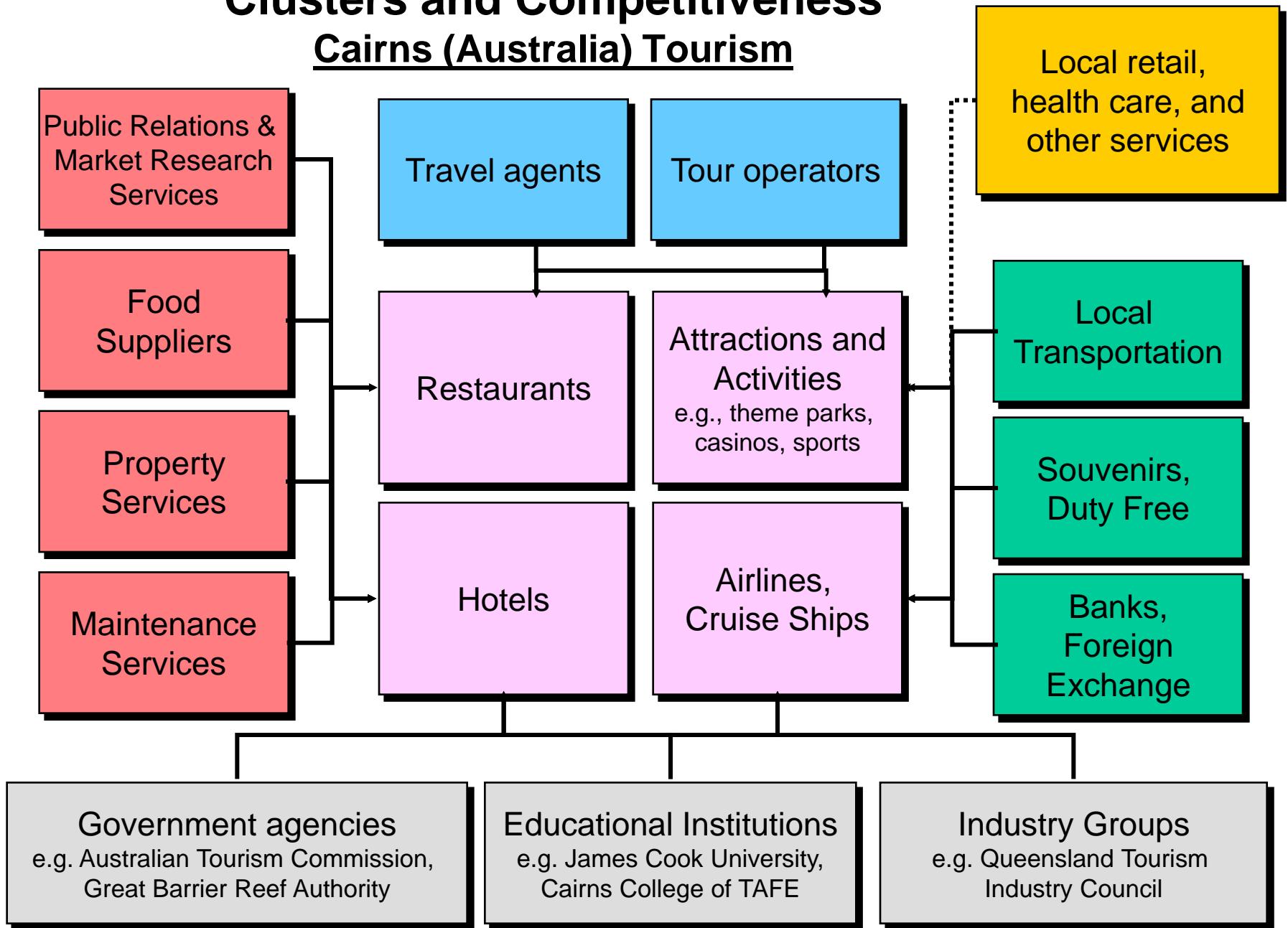
Share of Manufacturing Firms

% of Manufacturing Firms engaged in...

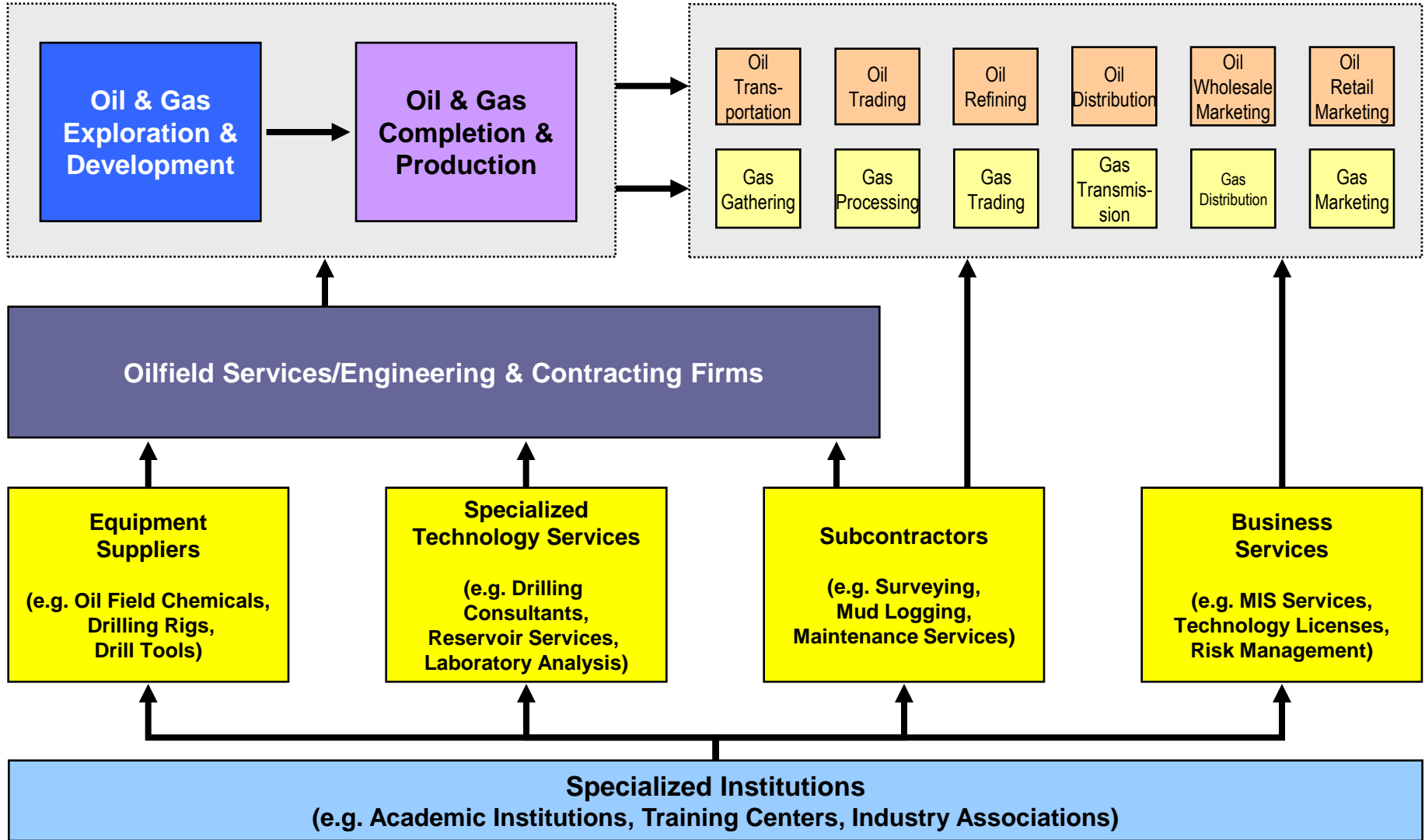


Clusters and Competitiveness

Cairns (Australia) Tourism



The Houston Oil and Gas Cluster



- Houston exports technology, knowledge, and management, not just resources

Clusters and Competitiveness

- **Clusters Increase Productivity / Operational Efficiency**
 - **Efficient access** to specialized inputs, services, employees, information, institutions, training programs, and other “public goods” (local outsourcing)
 - Ease of **coordination** and transactions across firms
 - Rapid **diffusion** of best practices
 - Ongoing, visible **performance comparisons** and strong incentives to improve vs. local rivals
 - Proximity of rivals encourages strategic differentiation
- **Clusters Stimulate and Enable Innovations**
 - Density enables recognition of **innovation opportunities** (e.g., unmet needs, sophisticated customers, new combinations of services, or better technologies)
 - Presence of multiple suppliers and institutions to assist in **knowledge creation**
 - Ease of **experimentation** given locally available resources
- **Clusters Facilitate Commercialization and New Business Formation**
 - Opportunities for **new companies** and **new lines of established business** are apparent
 - **Spinoffs and startups** are encouraged by the presence of other companies, commercial relationships, and concentrated demand
 - **Commercializing** new products and starting new companies is easier because of available skills, suppliers, etc.



- Clusters reflect the fundamental influence of **linkages and spill-overs** across firms and associated institutions in competition

Institutions for Collaboration

Selected Massachusetts Organizations, Life Sciences

Life Sciences Industry Associations

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

General Industry Associations

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

Economic Development Initiatives

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

University Initiatives

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

Informal networks

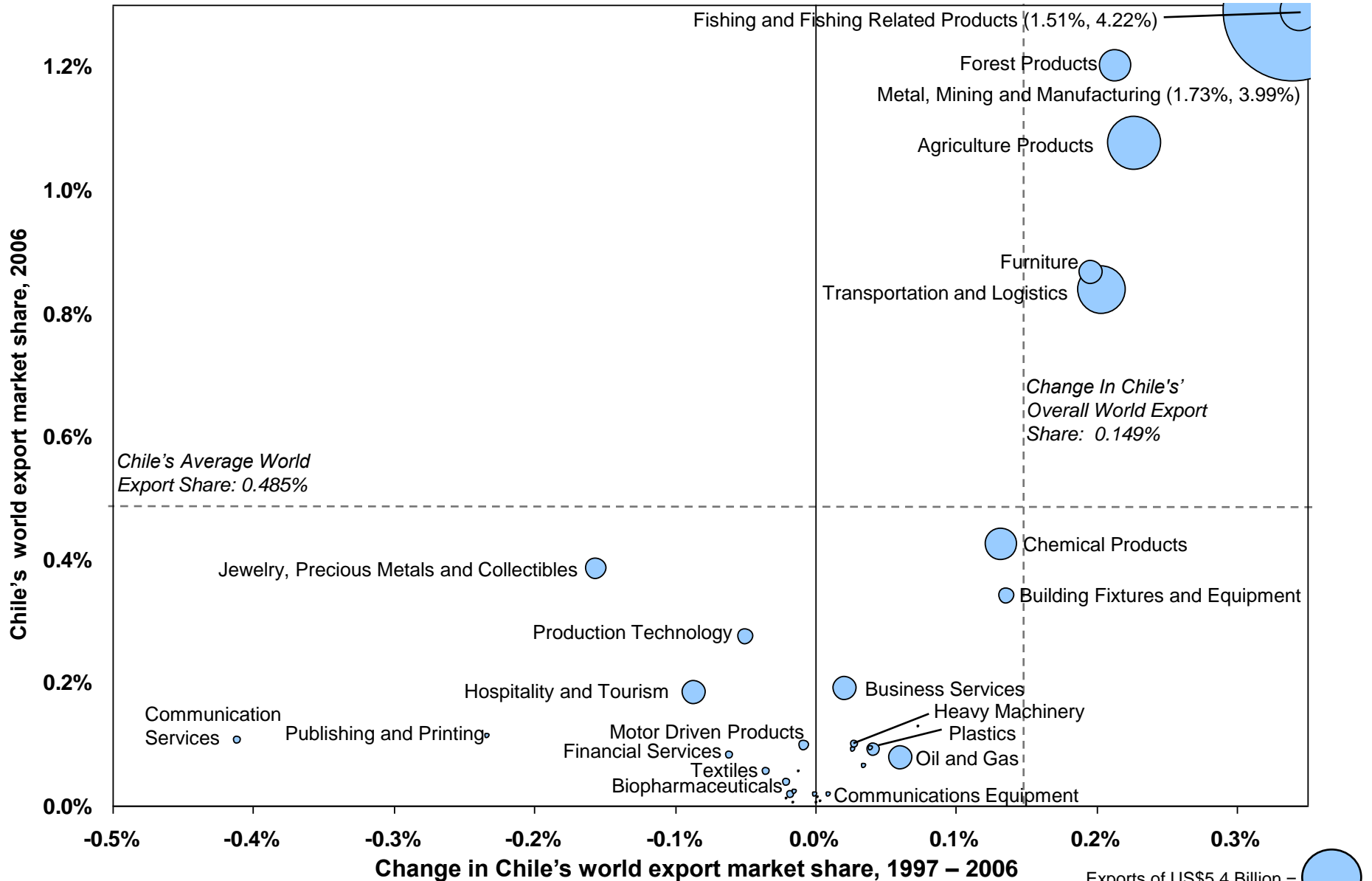
- Company alumni groups
- Venture capital community
- University alumni groups

Joint Research Initiatives

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

National Cluster Export Portfolio

Chile, 1997-2006



Exports of US\$5.4 Billion =

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.

Key Issues for Chile

- Maintain macroeconomic **stability**
- Address weaknesses in the **business environment**
- Pursue **cluster-driven diversification** of the Chilean economy
- Leverage the role of **sub-national regions**
- Create a new phase of Chile's **economic strategy**



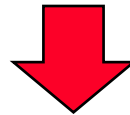
- These goals are well within reach, if Chile manages to move towards a more effective **collaboration between the public and the private sector**

Key Challenges in the Business Environment

- Education system
- Labor market reform
- Energy supply

Labor Market and Wages

- Remains a **central issue** for the country and the number one complaint of business
- Labor market flexibility gets **mixed up** with discussions about wage levels



- Flexibility is critical for **productivity**
- Wage levels that are low relative to competitiveness support fast growth but might not push companies to pursue **productivity growth**
- Aim should be to **decouple** these to issues politically

Clusters as a Tool For Economic Policy

Overview

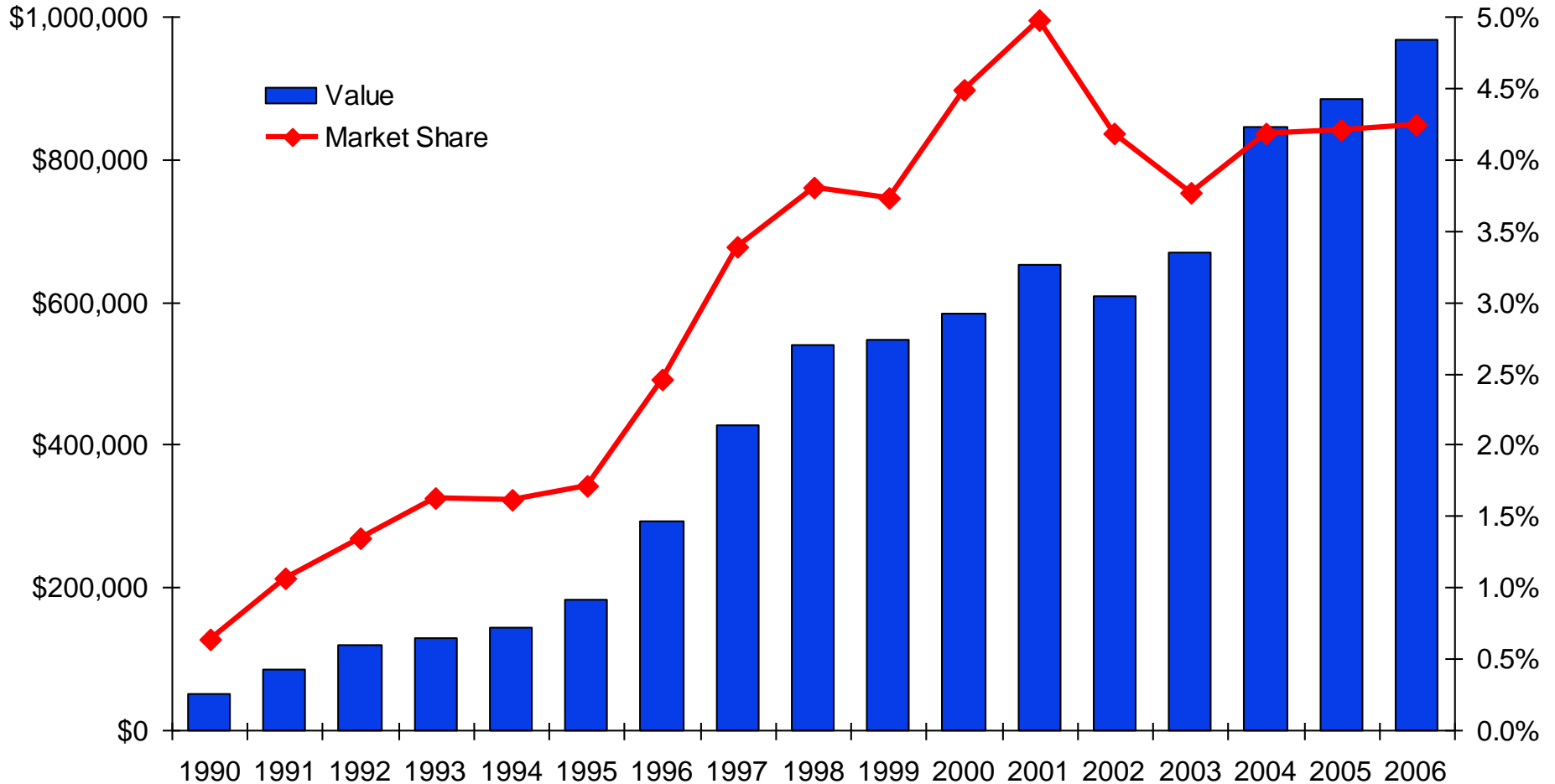
- A **new way of thinking** about an economy and organizing economic development efforts
- Better aligned with the **nature of competition and sources of competitive advantage**. Clusters capture important **linkages** in terms of technology, skills, information, marketing and customer needs that cut across firms and industries. Such linkages are fundamental to competition and, especially, to the **direction and pace of innovation**
- **Recast the role** of the private sector, government, trade associations and educational or research institutions
- Brings together **firms of all sizes**
- Creates a **forum** for constructive business-government dialog
- A means to identify **common opportunities, not just common problems**
- Provides guidance for both **economic and social policies**

The Chilean Wine Cluster

Trade Performance

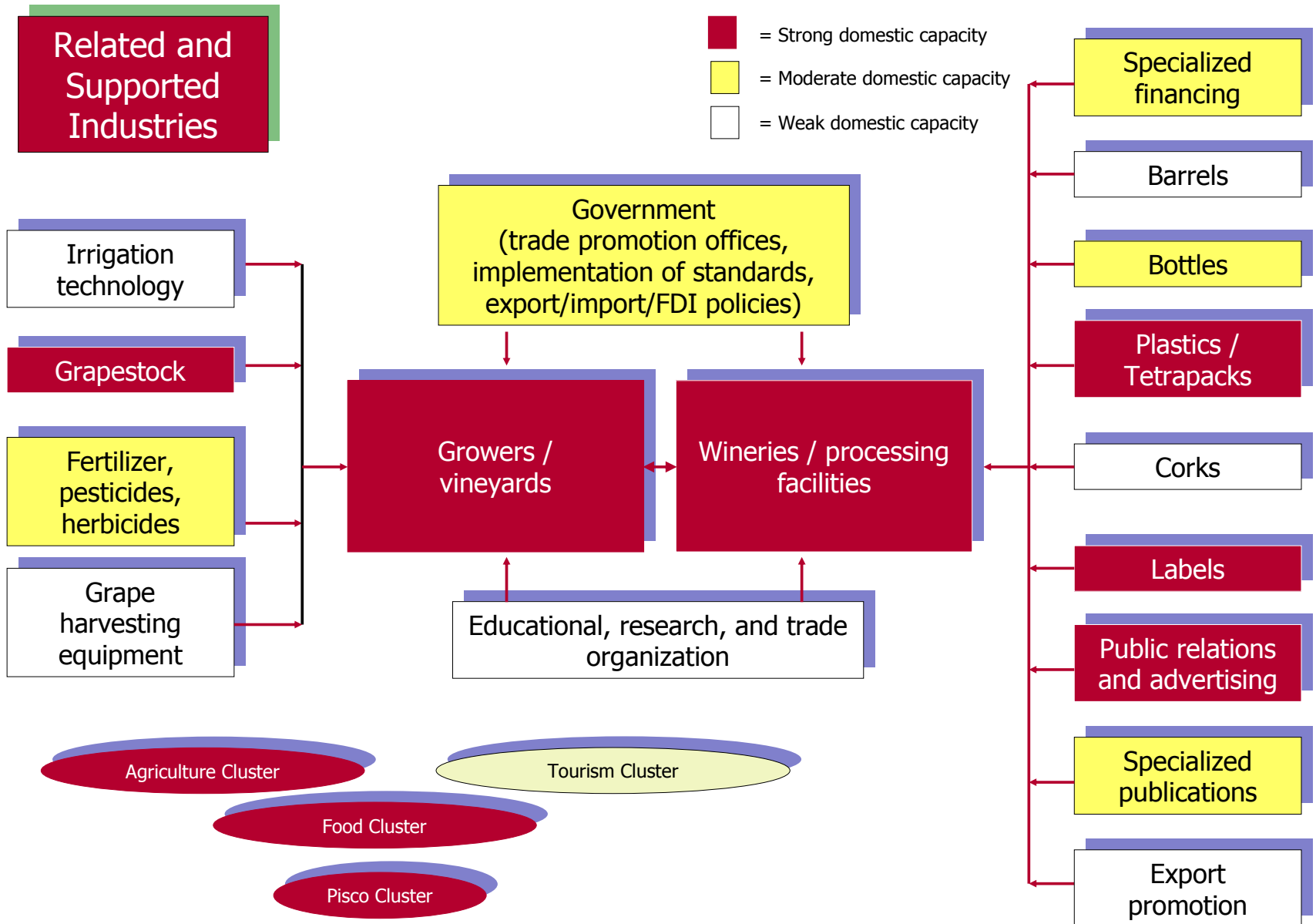
Chilean Wine Exports in thousand US \$

Chilean Wine World Export Market Share



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.

Chilean Wine Cluster



Source: Research by HBS student team (Asier Alea, Judd Belstock, Don Lambert, Jacqueline O'Neill, Noah Sawyer), 2005

Cluster-Driven Diversification of the Chilean Economy

Grow exports
in **related clusters**

Build clusters around
existing niche positions

Expand into new **industries within
existing clusters**

Upgrade quality and sophistication of
existing export products

Upgrading Established Export Products

Leading Chilean Export Industries, 2006

	Industry	Subcluster	World Export Share	Change in Share (1997-2006)	Export Value (in \$thousands)
1	Copper, copper anodes and alloys	Copper	35.92%	3.53%	\$ 19,824,329
2	Fish, fresh, chilled, or frozen	Fishing	7.21%	2.57%	\$ 2,451,121
3	Chemical wood pulp, soda, bleached	Pulp and Waste Paper	6.36%	1.50%	\$ 1,180,153
4	Petroleum Oils	Petroleum Processing	0.24%	0.20%	\$ 1,002,648
5	Wine of fresh grapes	Wine	4.24%	0.85%	\$ 967,619
6	Acyclic monohydric alcohols	Organic Chemicals	5.34%	1.69%	\$ 770,956
7	Pig iron, spiegeleisen, sponge iron or steel granules	Iron and Steel	2.23%	1.80%	\$ 548,326
8	Gold, non-monetary, excluding ores	Precious Metals	1.02%	-0.47%	\$ 520,410
9	Flours, meals of meat, fish for animal feeds	Meat and Related Products	15.16%	-3.18%	\$ 514,632
10	Copper wire	Wire and Springs	2.17%	0.51%	\$ 414,970
11	Wood of conifer, worked, shaped	Sawn and Shaped Wood	17.83%	6.04%	\$ 324,373
12	Miscellaneous prepared or preserved fish, crustaceans	Fishing	1.96%	-0.47%	\$ 319,251
13	Fruit, preserved or prepared	Vegetables and Fruits	2.76%	0.66%	\$ 299,627
14	Other chemical elements	Inorganic Chemicals	3.95%	-0.36%	\$ 280,307
15	Fiberboard	Wood Building Materials	3.13%	-0.05%	\$ 264,279
16	Other inorganic bases and metallic oxides	Inorganic Chemicals	2.17%	1.73%	\$ 262,134
17	Silver, platinum and other metals of the platinum group	Precious Metals	0.82%	-1.00%	\$ 248,782
18	Plywood, solely of wood	Wood Building Materials	2.36%	2.31%	\$ 224,523
19	Miscellaneous paper and paperboard, coated	Paper Mills	0.80%	0.75%	\$ 173,227
20	Newsprint, rolls, sheets	Paper Mills	1.61%	0.77%	\$ 160,458
21	Chemical wood pulp, soda, unbleached	Pulp and Waste Paper	22.18%	3.15%	\$ 159,747
22	Nitrites; nitrates	Inorganic Chemicals	23.31%	2.93%	\$ 155,865
23	Fertilizer, except crude (group272)	Fertilizers	0.67%	0.37%	\$ 154,361
24	Fruit, vegetable juices	Vegetables and Fruits	1.46%	-0.07%	\$ 154,344
25	Miscellaneous food preparations	Specialty Foods and Ingredien	0.59%	-0.13%	\$ 151,567

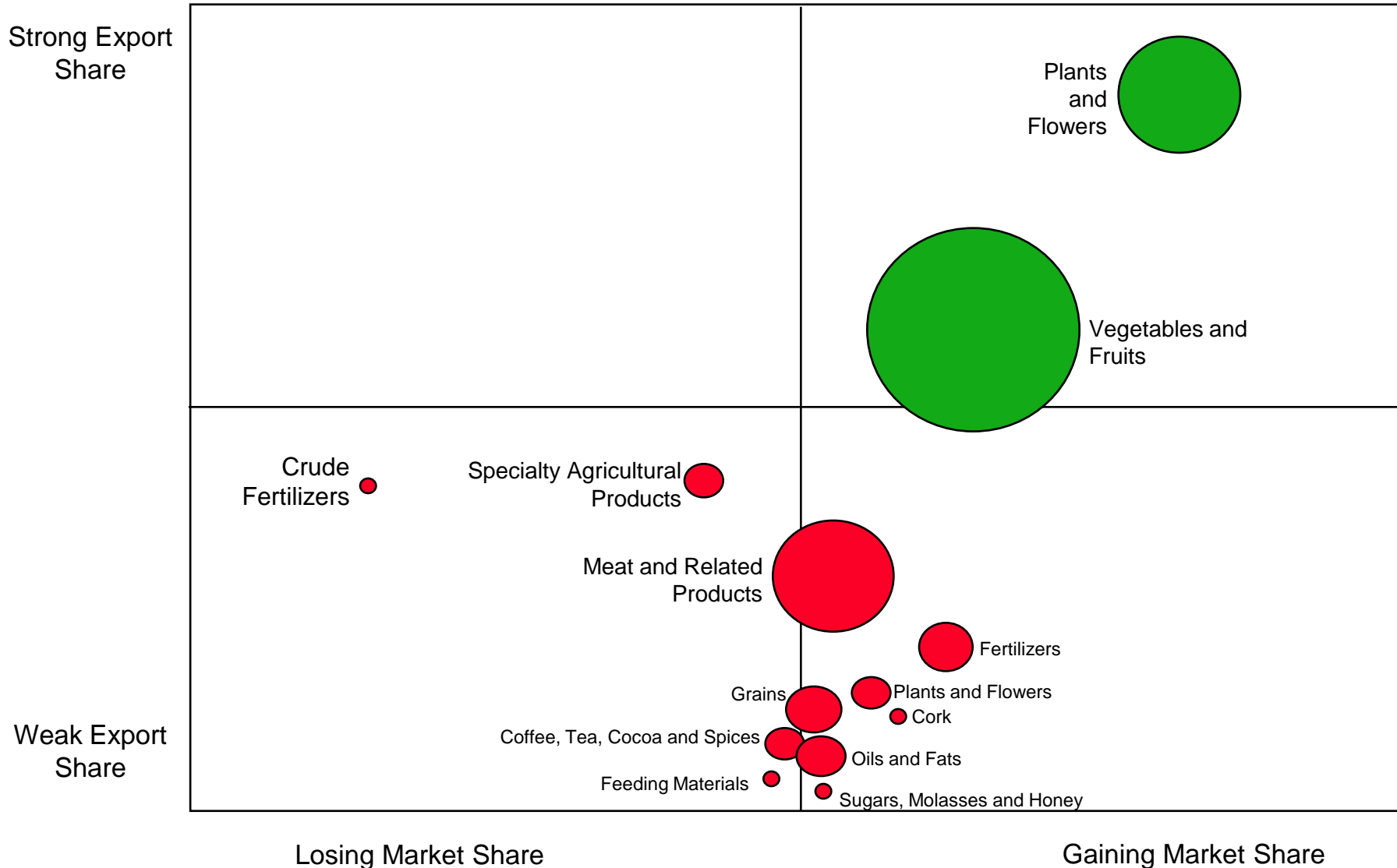
Top 25 Industries (Processed & Semi-Processed) as % of Chile's total goods exports: 57.6%

 **Processed**
 **Semi-Processed**

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.

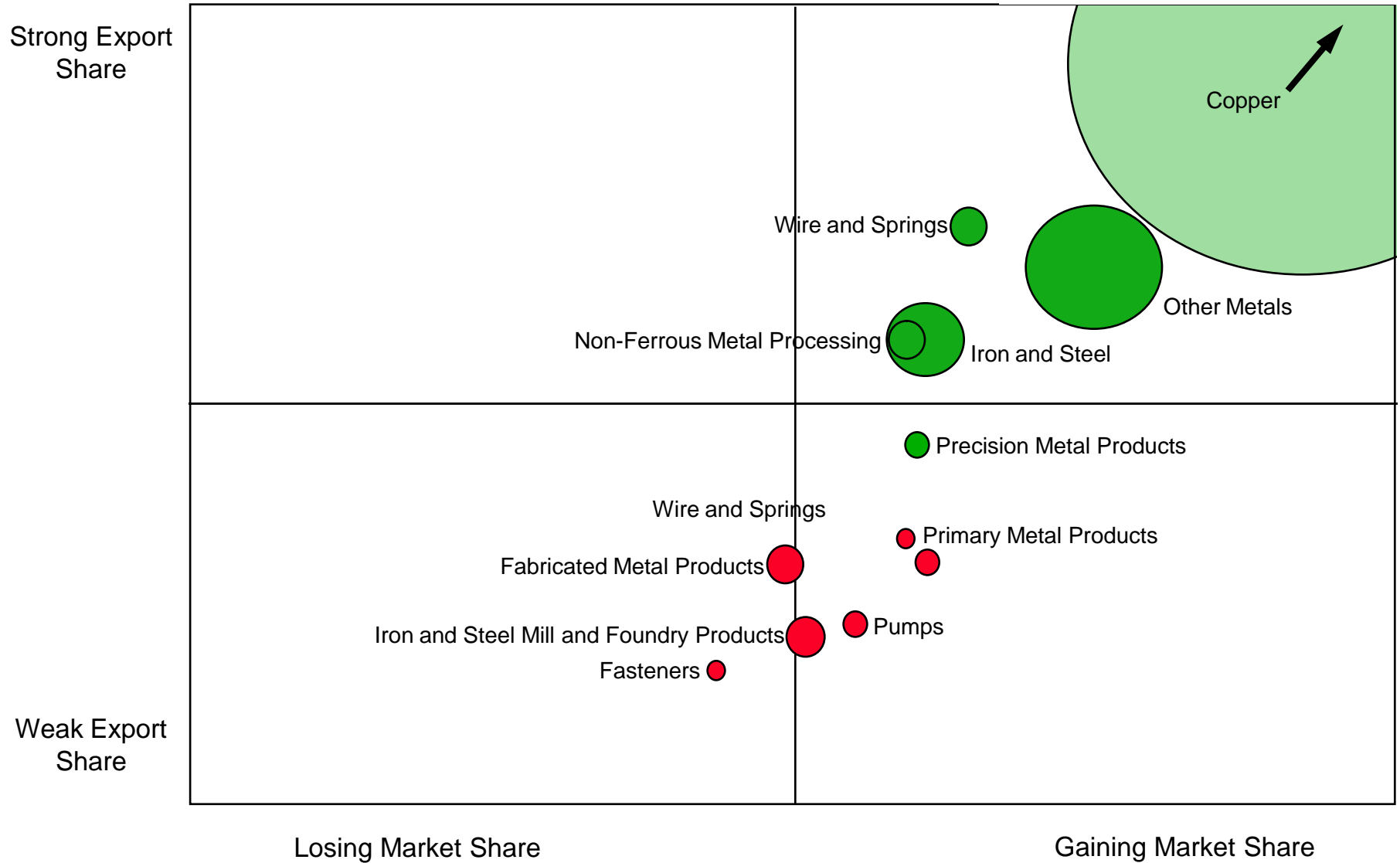
Growth Opportunities within Clusters

Chilean Agricultural Products



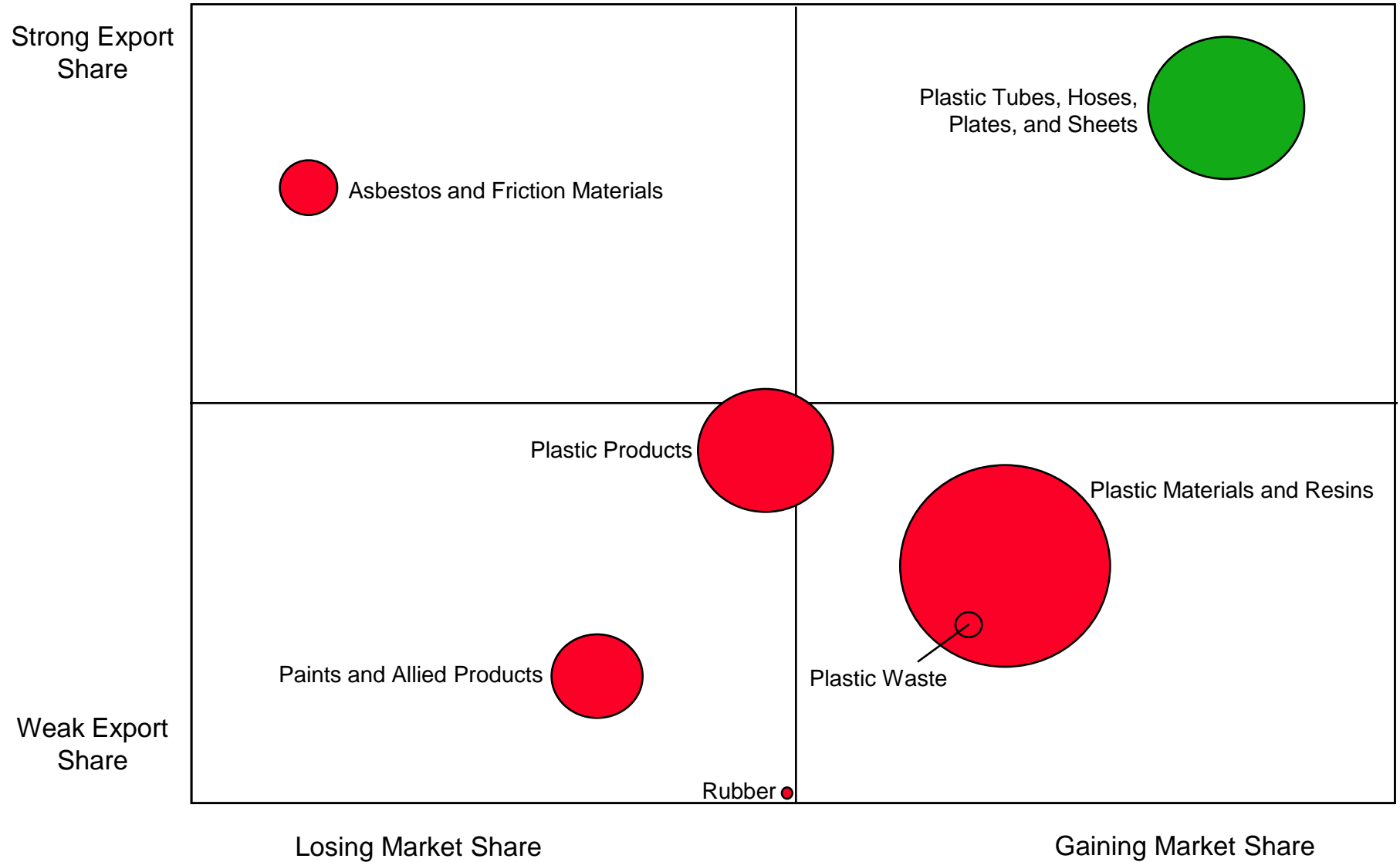
Growth Opportunities within Clusters

Chilean Metal Mining and Manufacturing Products



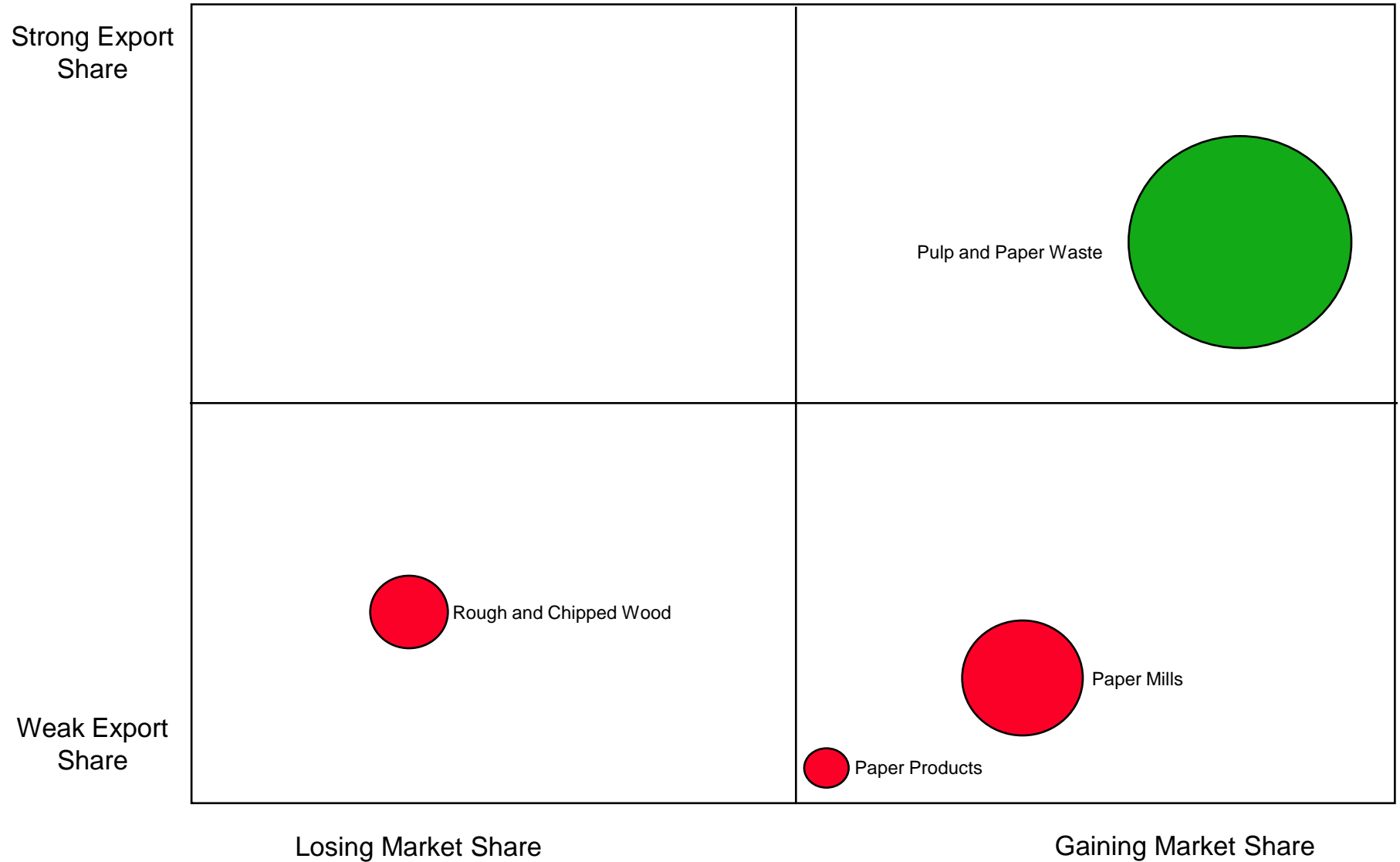
Growth Opportunities within Clusters

Chilean Chemical Products



Growth Opportunities within Clusters

Chilean Forest Products



Growth Opportunities within Clusters


Chilean Furniture Products



Upgrading Chile's Export Portfolio

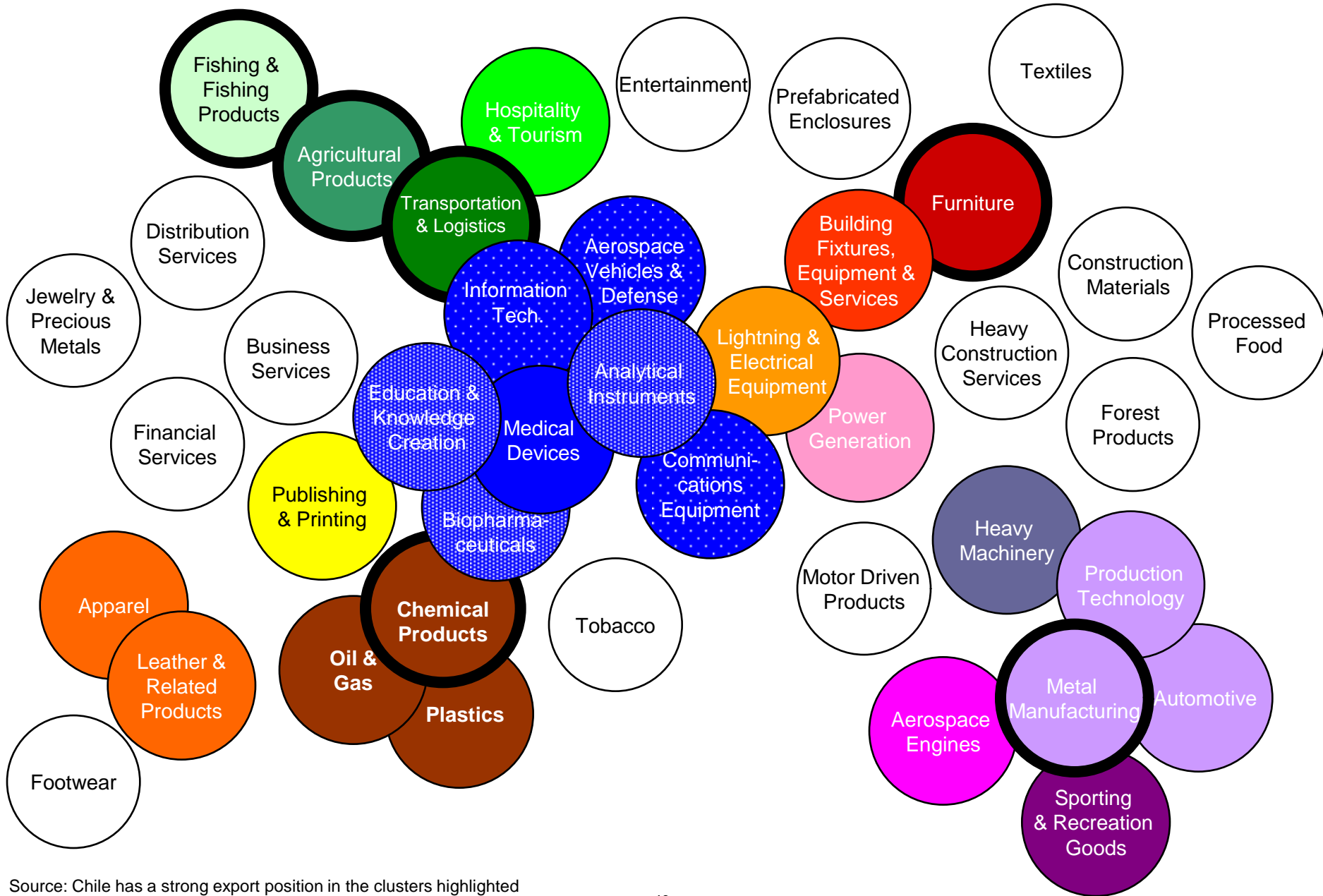
Niche Positions Outside of Clusters

Cluster	Cluster Share of World Exports	Subcluster	Industry	Industry Share of World Exports	Change in Share (1997-2006)	Export Value (in \$thousands)
Jewelry, Precious Metals and Collectibles	0.36%	Precious Metals	Precious metal ores and concentrates	6.27%	-5.91%	\$ 84,869
		Precious Metals	Gold, non-monetary, excluding ores	1.02%	-0.47%	\$ 520,410
		Precious Metals	Silver, platinum and other platinum metals	0.82%	-1.00%	\$ 248,782
Building Fixtures and Equipment	0.34%	Wood Building Materials	Fiberboard	3.13%	-0.05%	\$ 264,279
		Wood Building Materials	Plywood, solely of wood	2.36%	2.31%	\$ 224,523
Chemical Products	0.34%	Inorganic Chemicals	Nitrites; nitrates	23.31%	2.93%	\$ 155,865
		Organic Chemicals	Acyclic monohydric alcohols	5.34%	1.69%	\$ 770,956
		Inorganic Chemicals	Other chemical elements	3.95%	-0.36%	\$ 280,307
		Inorganic Chemicals	Carbonates, percarbonates	3.19%	1.06%	\$ 121,150
		Inorganic Chemicals	Other inorganic bases and metallic oxides	2.17%	1.73%	\$ 262,134
Processed Food	0.27%	Specialty Foods and Ingredients	Mucilages and thickeners	5.84%	-2.37%	\$ 80,038
		Dairy and Related Products	Milk, concentrated or sweetened	0.66%	0.39%	\$ 70,235
		Specialty Foods and Ingredients	Miscellaneous food preparations	0.59%	-0.13%	\$ 151,567

	Processed
	Semi-Processed
	Unprocessed

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.

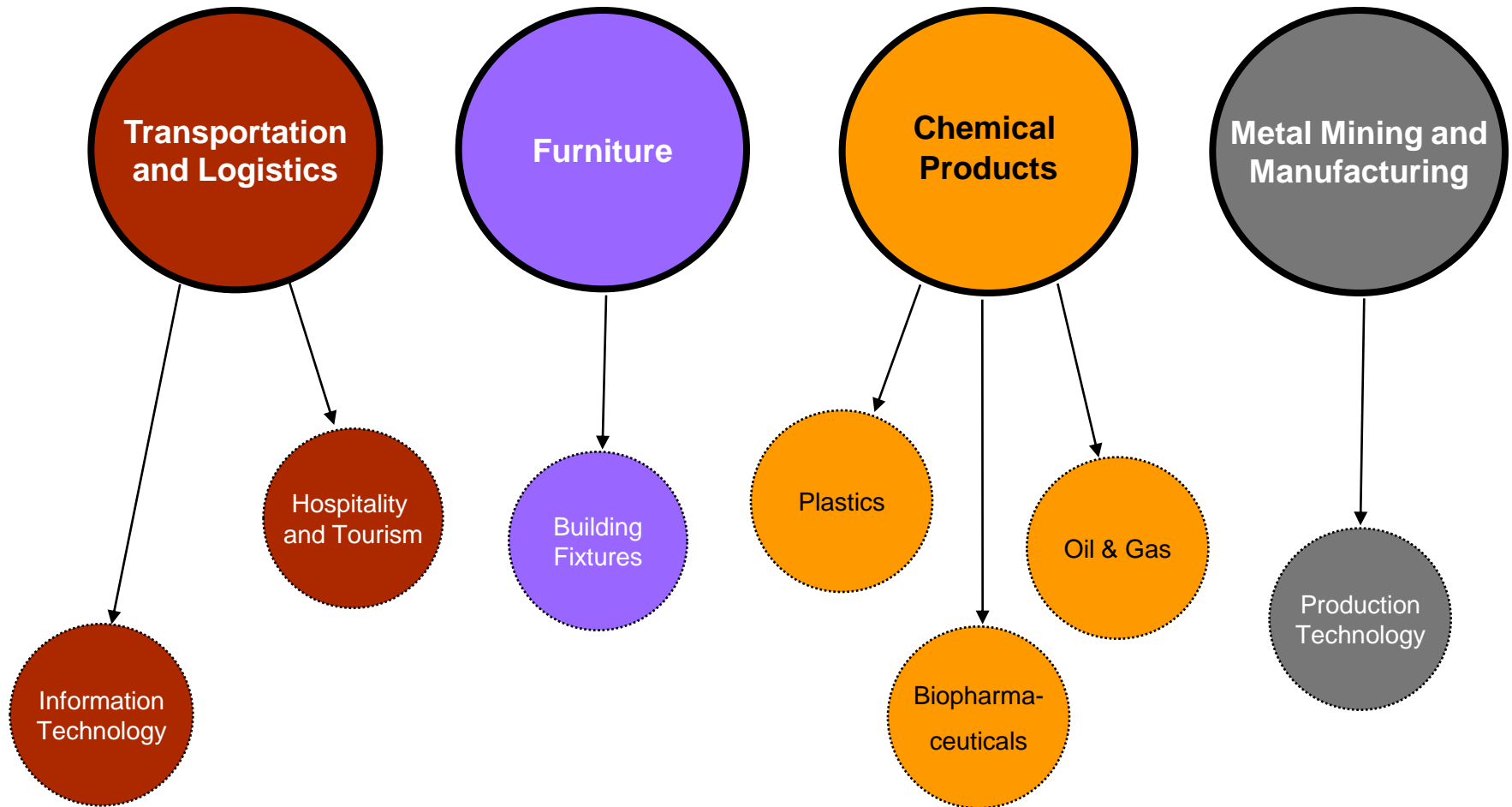
Linkages Across Clusters



Source: Chile has a strong export position in the clusters highlighted

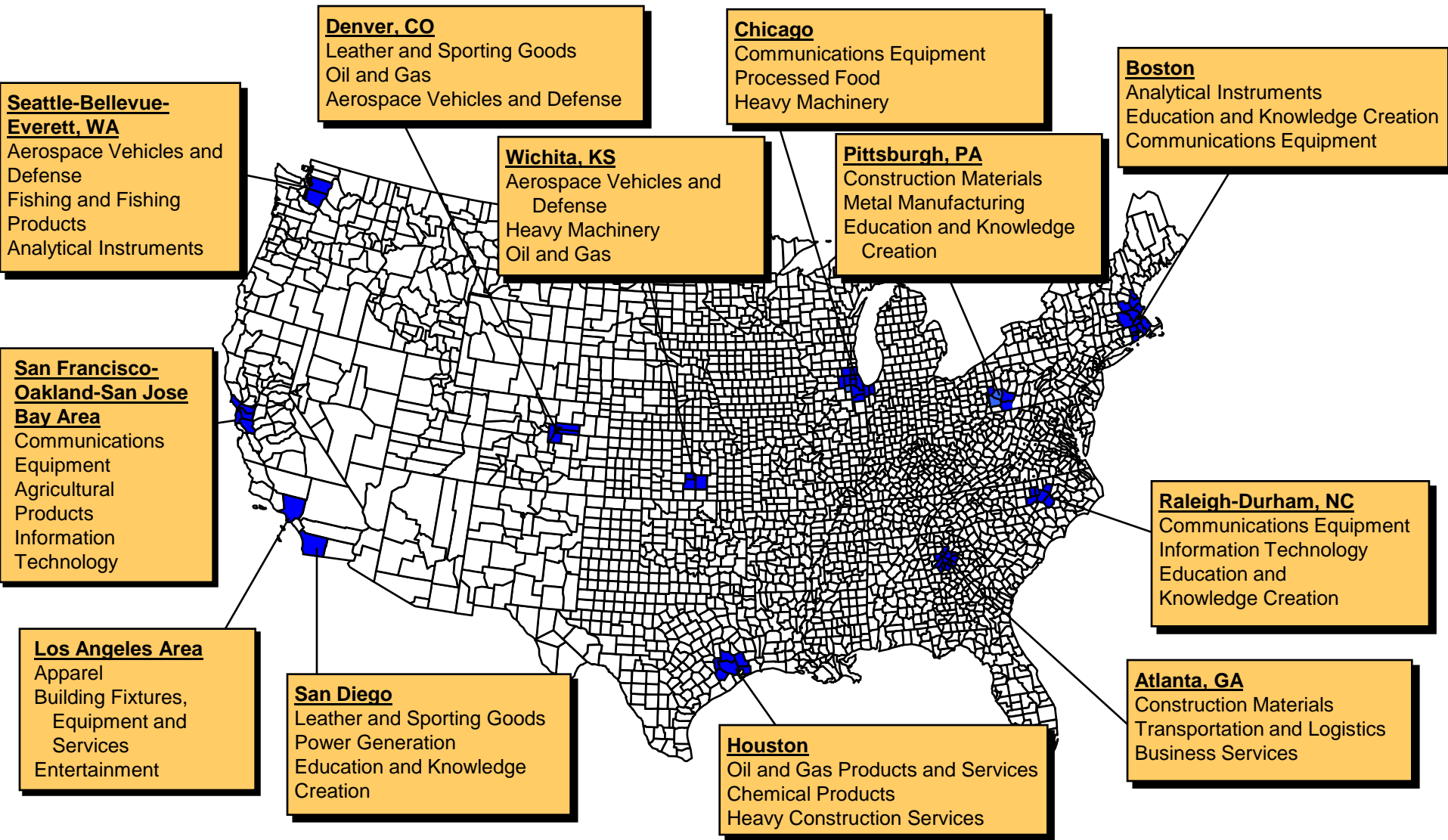
Growth Opportunities in Related Clusters

Chile's leading Export Clusters



Specialization of Regional Economies

Selected 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, 11/2006.

Defining an Economic Strategy

Value Proposition

- What is the **unique competitive position of the** nation or region given its location, legacy, and existing and potential strengths?
 - What roles in the world, the region, and the neighborhood?
 - What unique value as a business location?
 - For what range and types of businesses, activities in the value chain, and clusters can the nation or region be competitive?

Developing Unique Strengths

- What **elements of the business environment** are essential strengths in the national or regional value proposition?
- What areas of **macroeconomic / political / legal / social context** can be strengths versus neighbors or peers?
- What **existing and emerging clusters** must be activated?

Achieving and Maintaining Parity with Peers

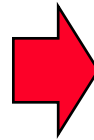
- What areas of the **general business environment** must improve to maintain parity with peer countries or regions?
- What **macro / political / legal / social context improvements** are necessary to maintain parity with peer countries or regions?

The Process of Economic Development

Shifting Roles and Responsibilities

Old Model

- **Government** drives economic development through policy decisions and incentives



New Model

- Economic development is a **collaborative process** involving government at multiple levels, companies, teaching and research institutions, and private sector organizations

- Competitiveness must become a **bottoms-up process** in which many individuals, companies, and institutions take responsibility
- **Every** community and cluster can take steps to enhance competitiveness
- The **private sector** must become more engaged in competitiveness to improve rapidly

Role of the Private Sector in Economic Development

- A company's competitive advantage depends partly on the **quality of the business environment**
- A company gains advantages from being part of a **cluster**
- Companies have a strong **role to play** in upgrading their business environment



- Take an **active role** in upgrading the local infrastructure
- Nurture **local suppliers** and attract foreign suppliers
- Work closely with local **educational and research institutions**, to upgrade their **quality and create specialized programs addressing the cluster's needs**
- Inform government on **regulatory issues and constraints** bearing on cluster development
- Focus **corporate philanthropy** on enhancing the local business environment



- An important role for **trade associations**
 - Greater influence if many companies are united
 - Cost sharing between members




Back-Up

Upgrading Established Export Products

Leading Chilean Export Industries, 2006

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2	Copper ores and concentrates	Copper	38.91%	2.84%	\$ 11,430,027
3	Fish, fresh, chilled, or frozen	Fishing	7.21%	2.57%	\$ 2,451,121
4	Ores and concentrates of molybdenum, titanium, zirconium	Other Metals	23.79%	11.16%	\$ 2,223,036
5	Fruit, nuts excluding oil nuts	Vegetables and Fruits	4.53%	0.91%	\$ 2,103,330
6	Chemical wood pulp, soda, bleached	Pulp and Waste Paper	6.36%	1.50%	\$ 1,180,153
7	Petroleum Oils	Petroleum Processing	0.24%	0.20%	\$ 1,002,648
8	Wine of fresh grapes	Wine	4.24%	0.85%	\$ 967,619
9	Acyclic monohydric alcohols	Organic Chemicals	5.34%	1.69%	\$ 770,956
10	Wood of conifer, sawn	Sawn and Shaped Wood	3.10%	1.56%	\$ 740,249
11	Pig iron, spiegeleisen, sponge iron or steel granules	Iron and Steel	2.23%	1.80%	\$ 548,326
12	Gold, non-monetary, excluding ores	Precious Metals	1.02%	-0.47%	\$ 520,410
13	Flours, meals of meat, fish for animal feeds	Meat and Related Products	15.16%	-3.18%	\$ 514,632
14	Other meat, meat offal	Meat and Related Products	1.29%	1.08%	\$ 509,079
15	Copper wire	Wire and Springs	2.17%	0.51%	\$ 414,970
16	Other non-ferrous metal waste	Other Metals	1.40%	1.30%	\$ 370,738
17	Iron Ore and Concentrates	Iron and Steel	1.00%	-0.58%	\$ 324,886
18	Wood of conifer, worked, shaped	Sawn and Shaped Wood	17.83%	6.04%	\$ 324,373
19	Miscellaneous prepared or preserved fish, crustaceans	Fishing	1.96%	-0.47%	\$ 319,251
20	Fruit, preserved or prepared	Vegetables and Fruits	2.76%	0.66%	\$ 299,627
21	Other chemical elements	Inorganic Chemicals	3.95%	-0.36%	\$ 280,307
22	Fiberboard	Wood Building Materials	3.13%	-0.05%	\$ 264,279
23	Other inorganic bases and metallic oxides	Inorganic Chemicals	2.17%	1.73%	\$ 262,134
24	Silver, platinum and other metals of the platinum group	Precious Metals	0.82%	-1.00%	\$ 248,782
25	Plywood, solely of wood	Wood Building Materials	2.36%	2.31%	\$ 224,523

Top 25 Industries as % of Chile's total goods exports: 87.9%

	Processed
	Semi-Processed
	Unprocessed

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.