



# Asian Economic Growth and Intellectual Capital

Carol Yeh-Yun Lin  
Dept. of Business Administration  
National Chengchi University, Taiwan  
Nov. 23, 2011

# Outlines

- Briefing of National Intellectual Capital
- Economic growth in Asia
- The impact of financial crisis
- National intellectual capital and GDP growth
- National intellectual capital growth model
- Policy implications



# Are you ready for the era of 'big data'?

- By **constantly** testing, **bundling**, **synthesizing**, and **making information instantly available** across the organization—from the store floor to the CFO's office—the rival company had become a different, far nimbler type of business.
- Over time, we believe **big data may well become a new type of corporate asset** that will cut across business units and function much **as a powerful brand does, representing a key basis for competition.**
- **This trend applies to nations as well.**

\*



OCTOBER 2011, McKinsey Quarterly,

Source: [McKinsey Global Institute](#)

Brad Brown, Michael Chui, and James Manyika

A scenic view of a large blue lake with a forested background and reeds in the foreground. The text "Briefing of National Intellectual Capital" is overlaid on the image.

# Briefing of National Intellectual Capital

## Variables in each type of capital

<b>Human Capital index</b>	<b>Market capital index</b>
<ul style="list-style-type: none"> <li>•Skilled labor*</li> <li>•Employee training*</li> <li>•Literacy rate</li> <li>•Higher education enrollment</li> <li>•Pupil-teacher ratio</li> <li>•Internet subscribers</li> </ul>	<ul style="list-style-type: none"> <li>•Corporate tax*</li> <li>•Cross-border venture*</li> <li>•Openness of culture*</li> <li>•Globalization*</li> <li>•Transparency*</li> <li>•Image of country*</li> </ul>
<ul style="list-style-type: none"> <li>•Public expenditure on education</li> </ul>	<ul style="list-style-type: none"> <li>•Exports of goods</li> </ul>
<b>Process capital index</b>	<b>Renewal capital index</b>
<ul style="list-style-type: none"> <li>•Business competition environment*</li> <li>•Government efficiency*</li> <li>•Intellectual property rights protection*</li> <li>•Capital availability*</li> <li>•Computers in use per capita</li> <li>•Convenience of establishing new firms*</li> </ul>	<ul style="list-style-type: none"> <li>•Business R&amp;D spending</li> <li>•Basic research*</li> <li>•R&amp;D spending/GDP</li> <li>•R&amp;D researchers</li> <li>•Cooperation between universities and enterprises*</li> <li>•Scientific articles</li> </ul>
<ul style="list-style-type: none"> <li>•Mobile phone subscribers</li> </ul>	<ul style="list-style-type: none"> <li>•Patents per capita (USPTO + EPO)</li> </ul>

Remarks:

Financial capital is the logarithm of GDP per capita adjusted by purchasing power parity.

Variables marked with an asterisk are rated qualitatively using a scale of 1–10.

# Top 5 out of 48 National Intellectual Capital Rankings 2005-2010

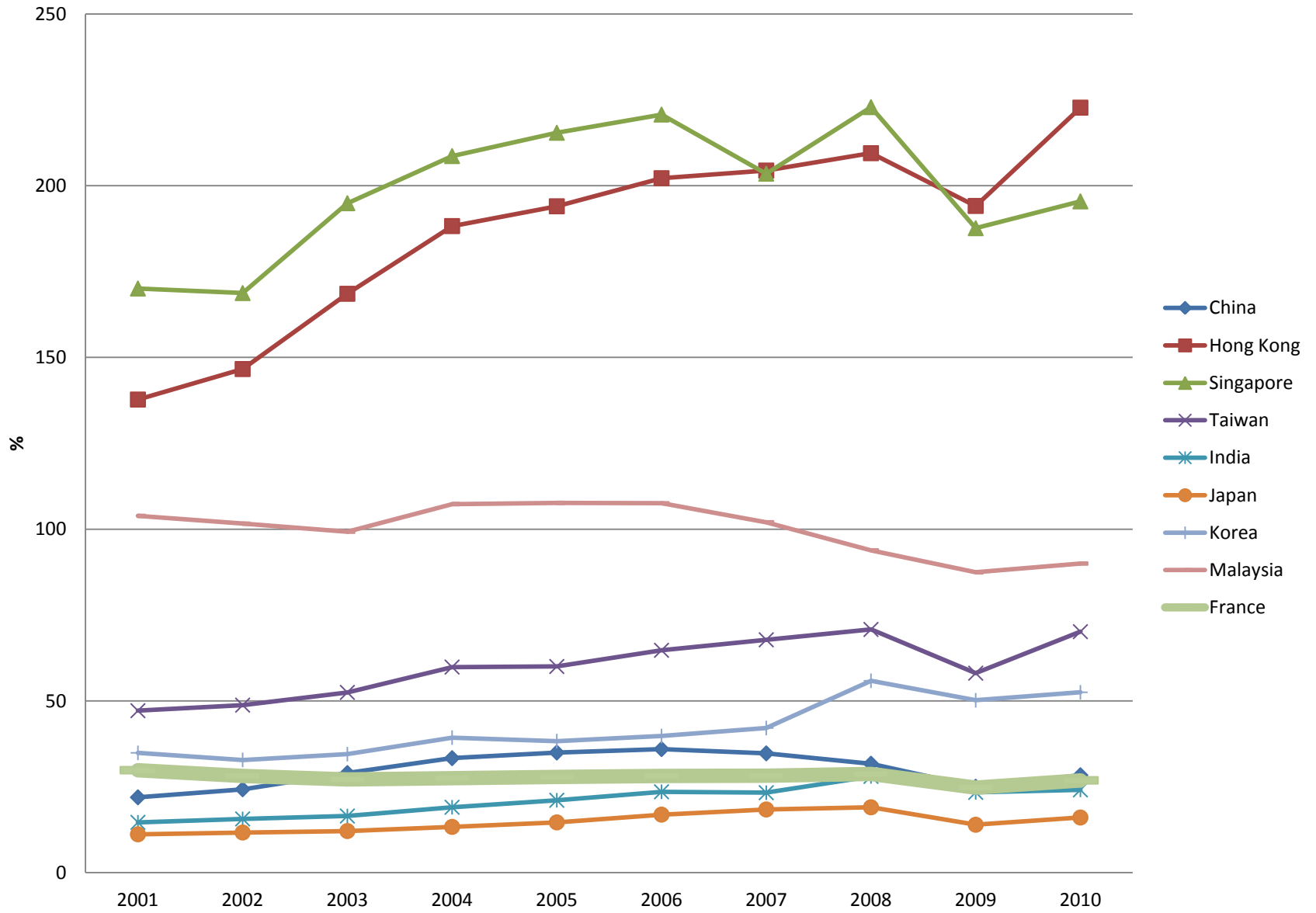
Ranking	Human capital	Market capital	Process capital	Renewal capital	Financial capital	Overall IC
1	Denmark	Singapore	Denmark	Switzerland	Norway	Sweden
2	Sweden	Hong Kong	Singapore	Sweden	Singapore	Switzerland
3	Iceland	Ireland	Finland	Finland	USA	Denmark
4	Israel	Netherlands	Switzerland	Israel	Hong Kong	Finland
5	Norway	Chile	Hong Kong	USA	Ireland	Singapore



# Economic development in Asia

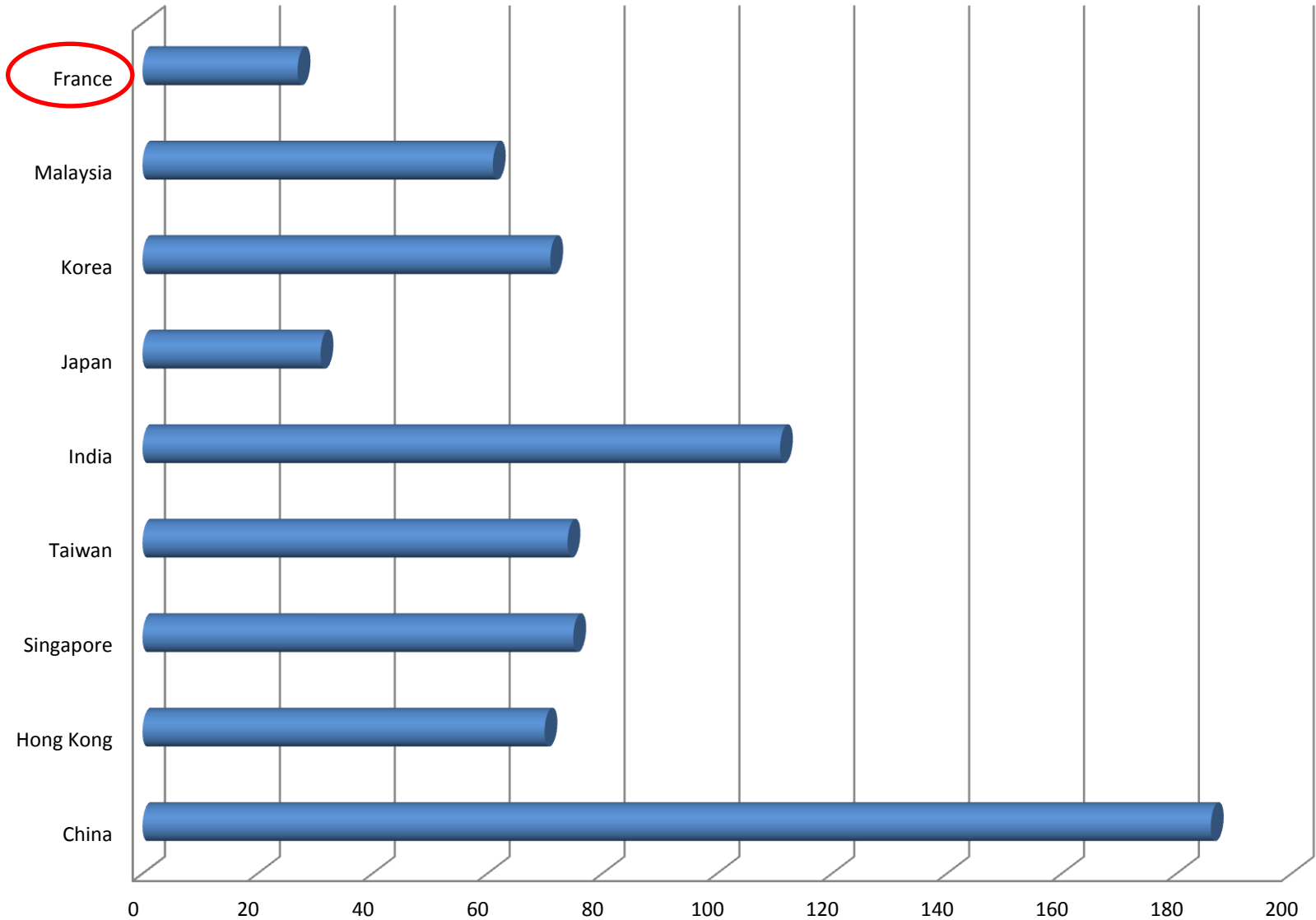
- China, Hong Kong, Singapore, Taiwan  
(The Greater China)
- Japan, India, Korea, Malaysia

# Trade to GDP %

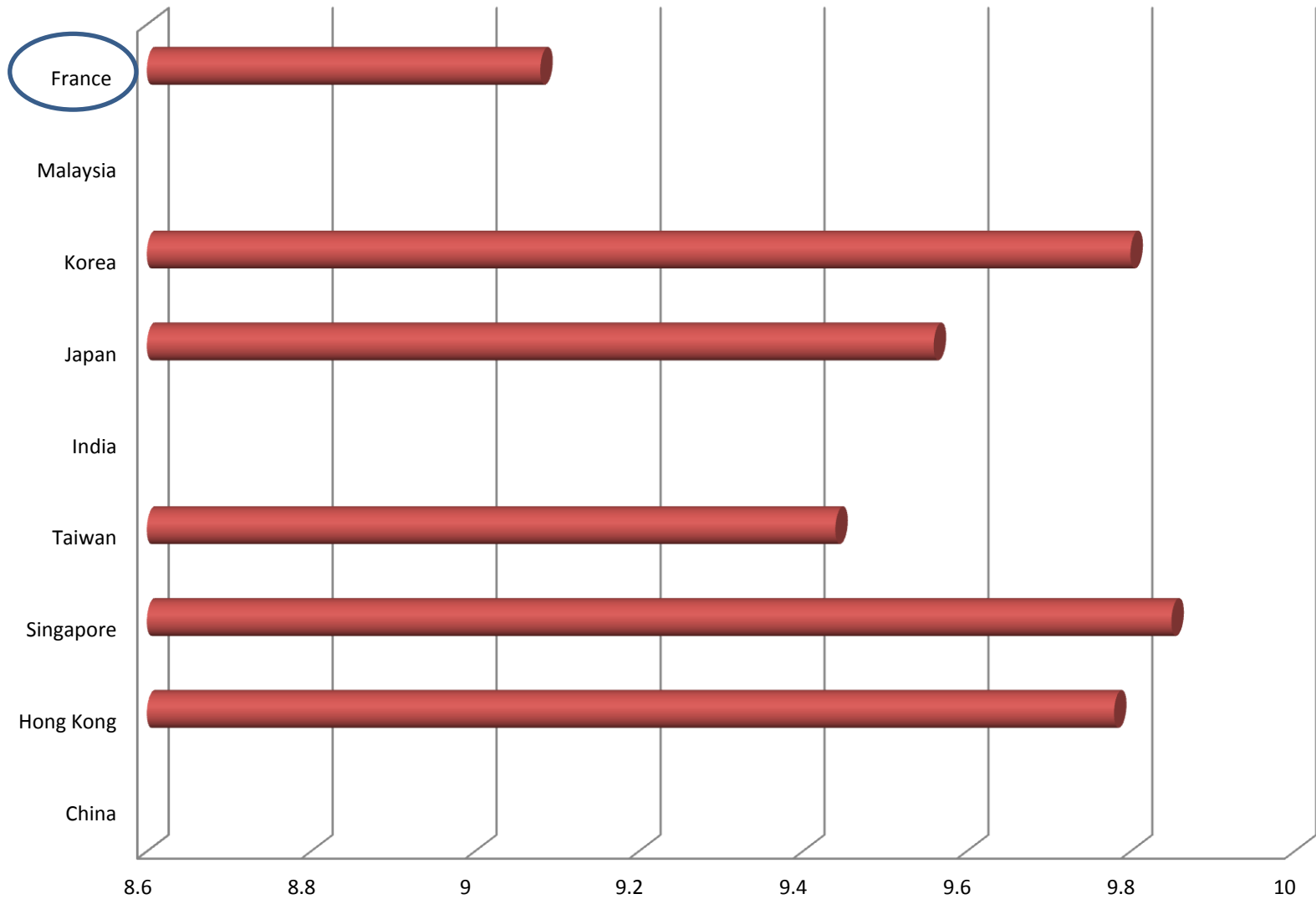




## % GDP per capita (ppp) growth 2001 vs. 2010



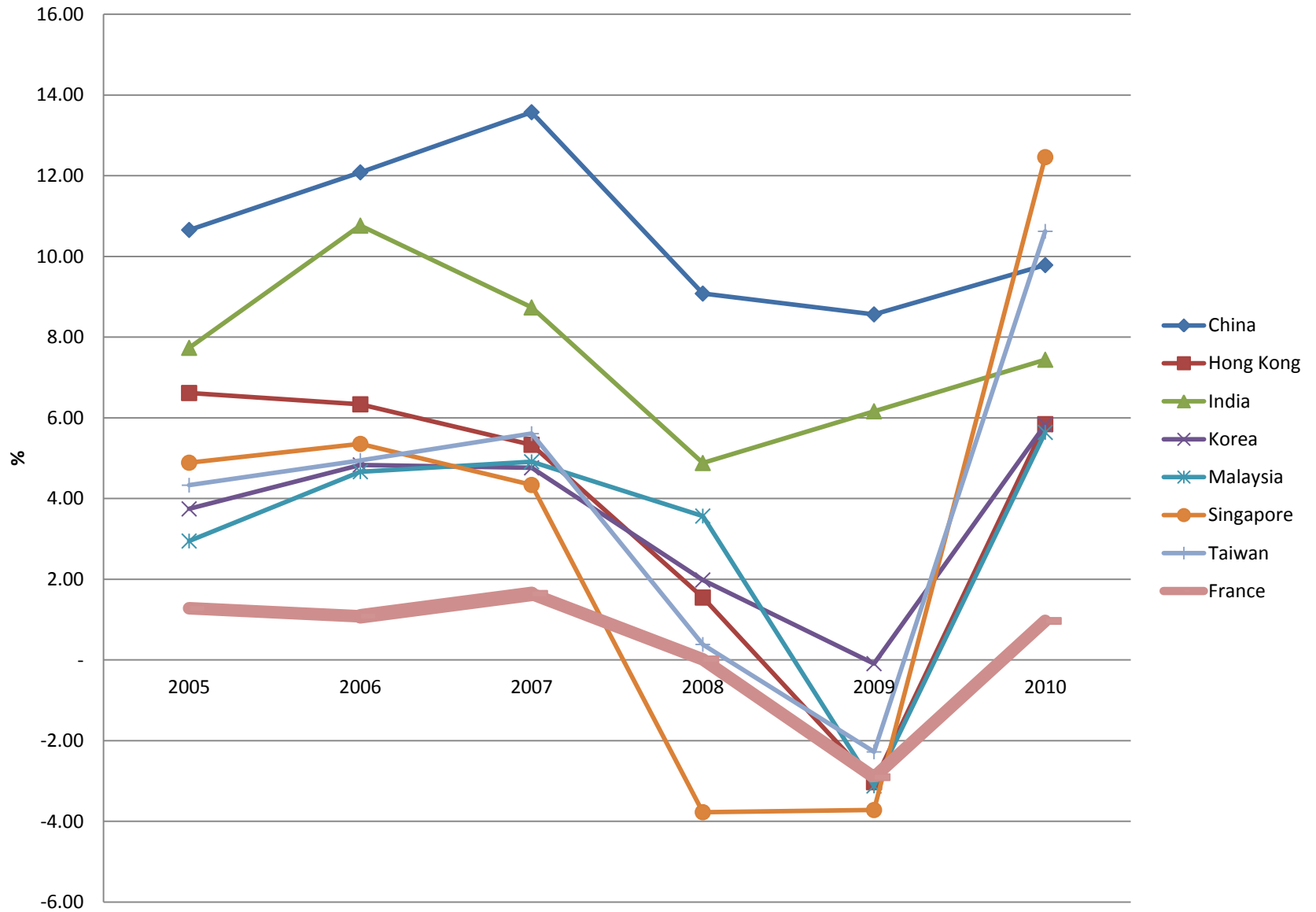
## Students PISA Performance on 1-10 scale 2001-2010 Average



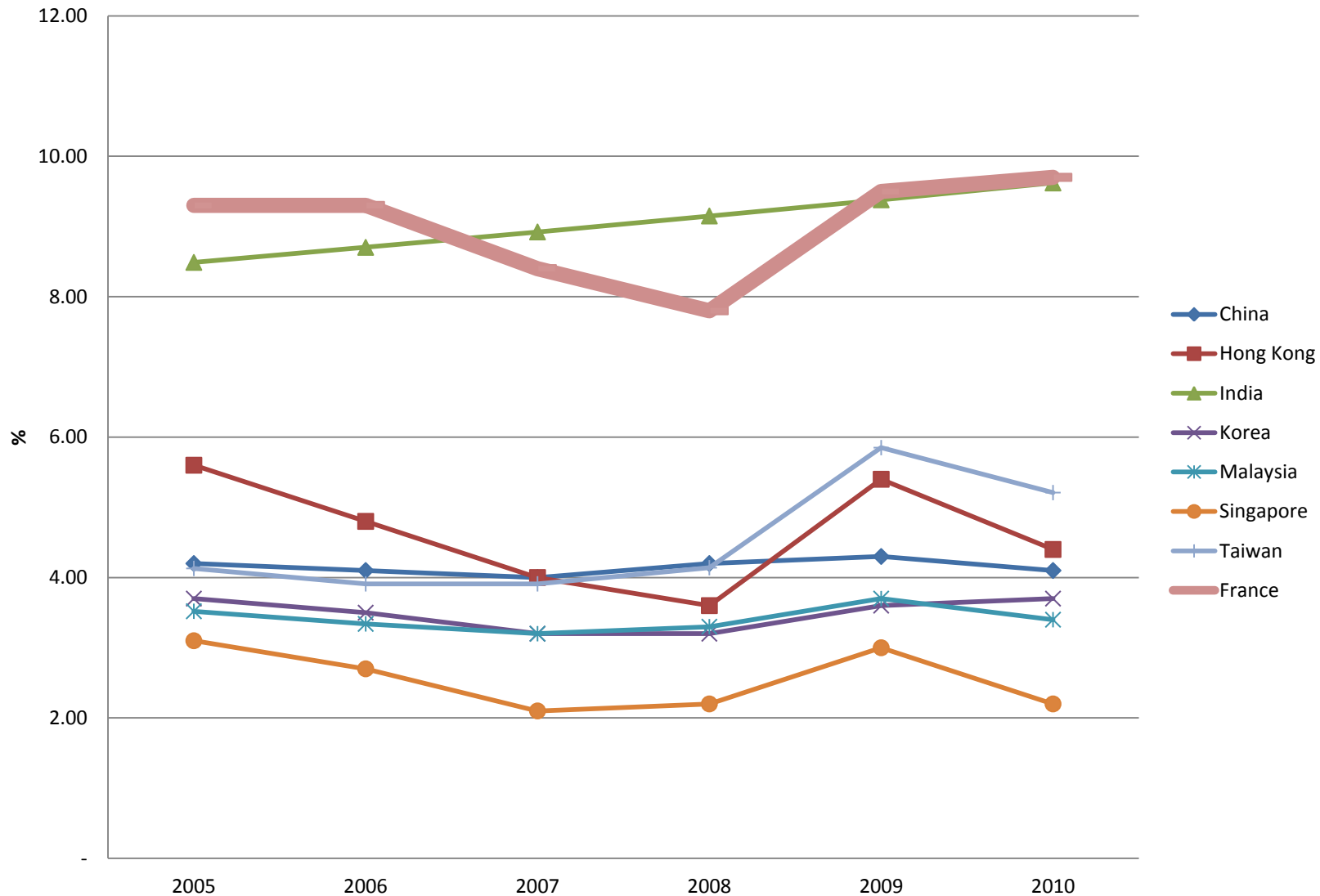
A scenic view of a large blue lake with reeds and a forest in the background. The water is a deep blue, and the reeds are a mix of green and yellow. The forest in the background is dense and colorful, suggesting autumn. The sky is a pale, clear blue.

# The impact of financial crisis

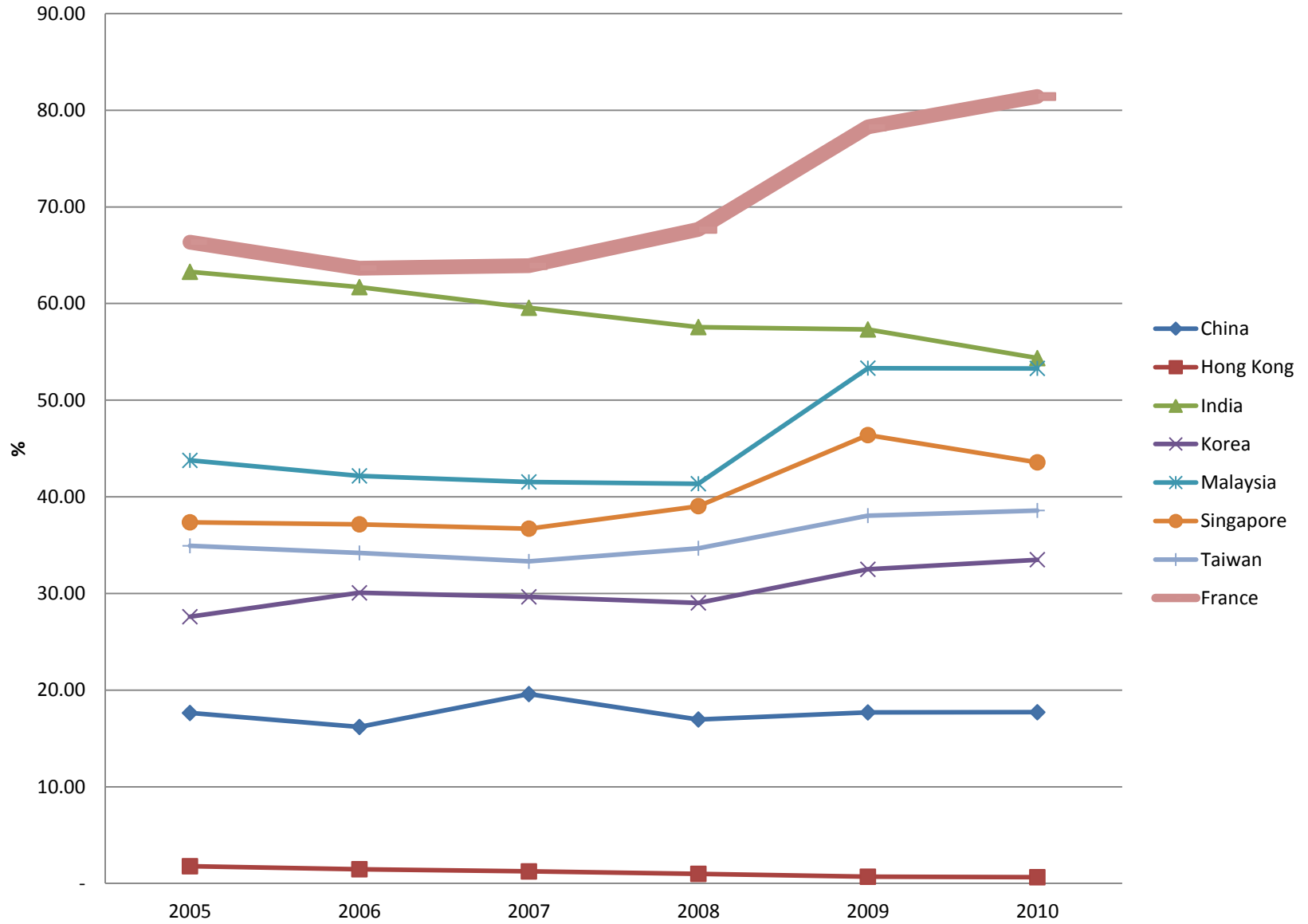
# Real GDP growth per capita %



# Unemployment Rate of Labor Force



# Total general government debt (%GDP)

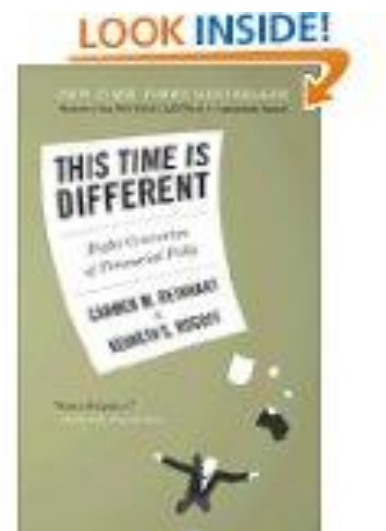


# The problem of government debt

- The historical experience gives a very clear view that **the aftermath of a financial crisis brings slow and halting growth, sustained high unemployment, and surging public debt**—with the overhang of **public and private debt being the most important impediment to a normal recovery from recession.**

([This Time Is Different: Eight Centuries of Financial Folly](#))

by [Carmen M. Reinhart](#) and Kenneth Rogoff)

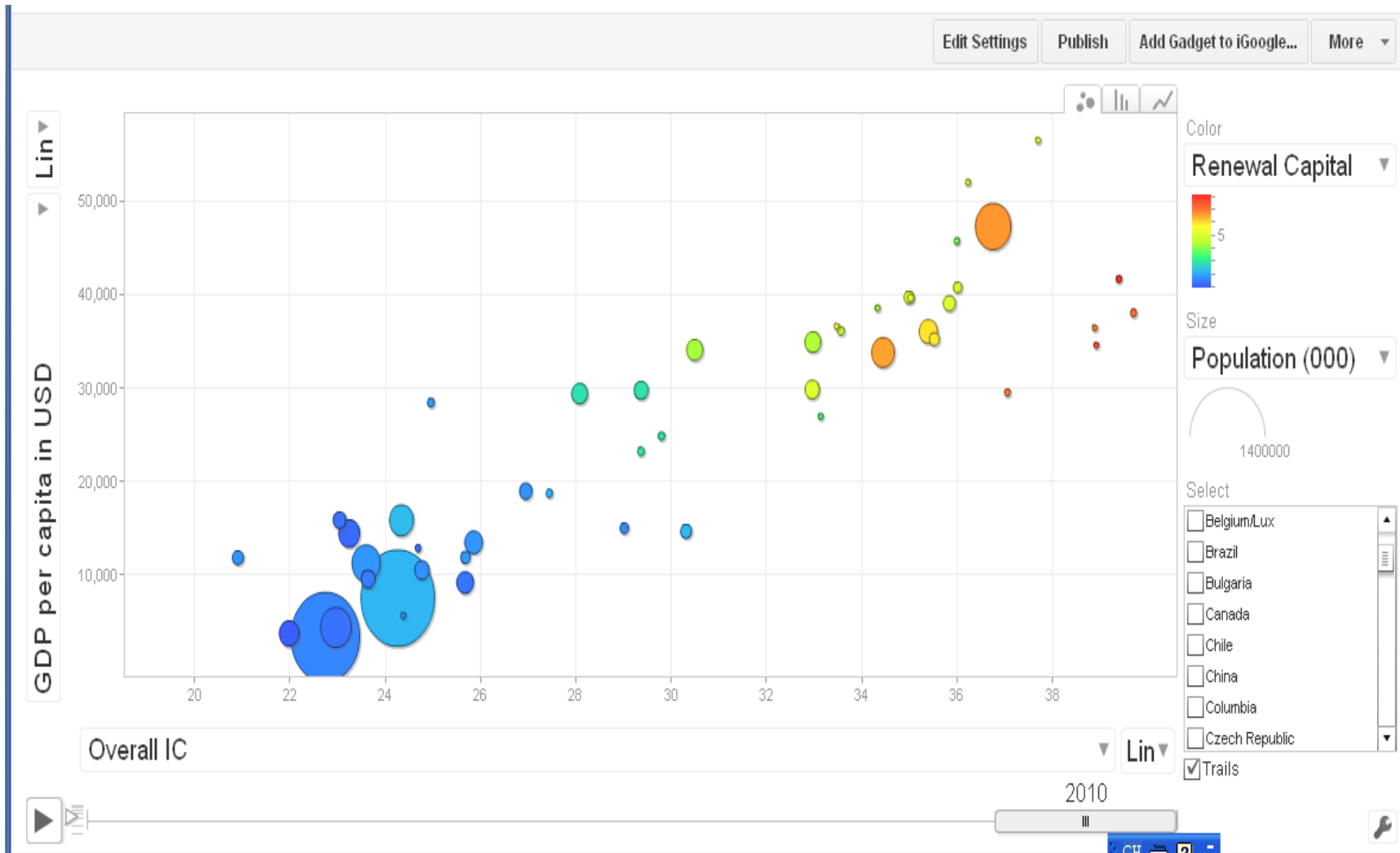


A scenic view of a large blue lake with reeds and a forest in the background. The water is a deep blue, and the reeds are a mix of green and yellow. The forest in the background is dense and colorful, suggesting autumn. The sky is a pale, clear blue.

# National intellectual capital and GDP growth



# Overall Intellectual Capital vs. GDP per capita (ppp) for 48 countries in 2010

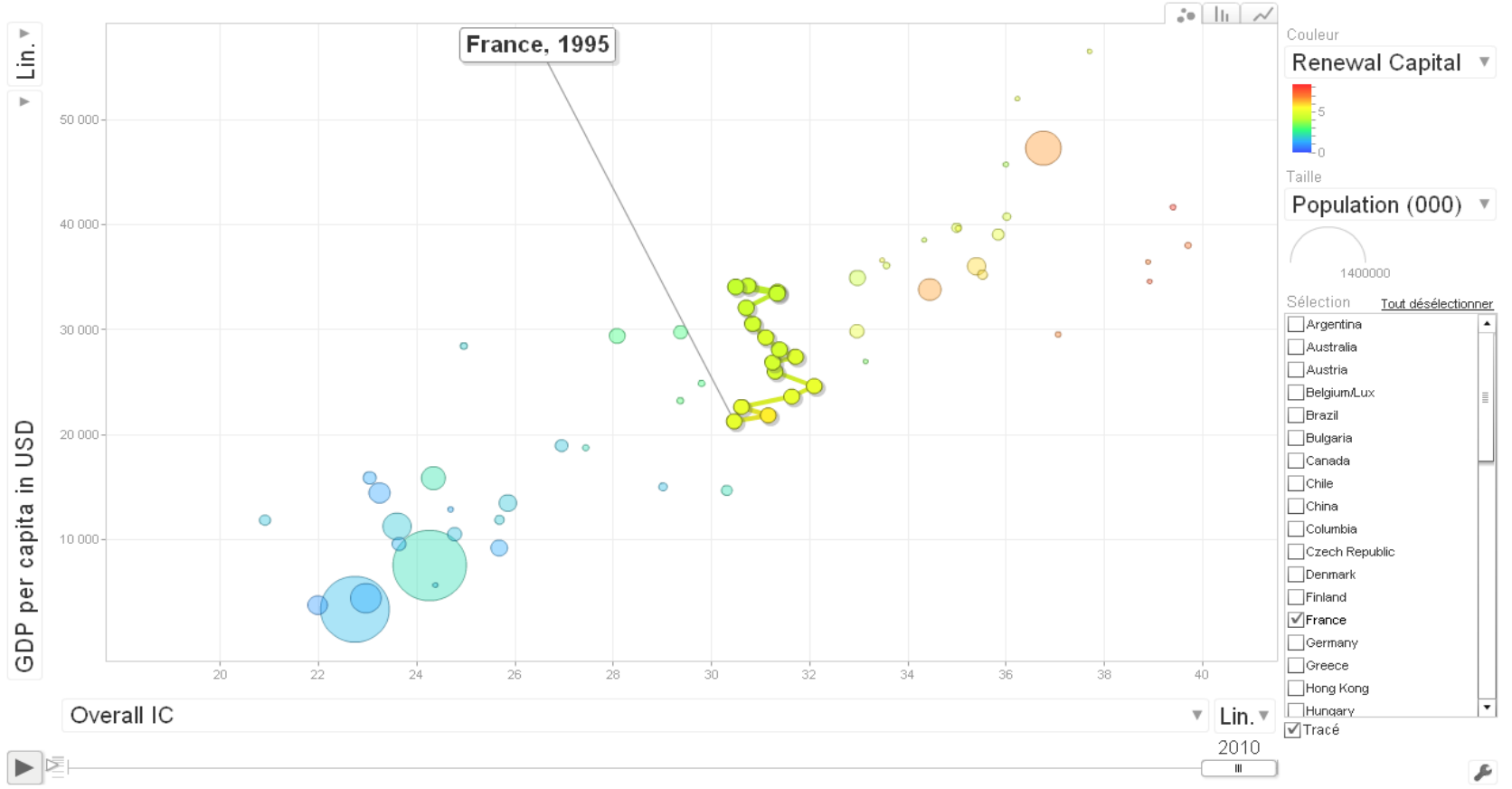


### nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More

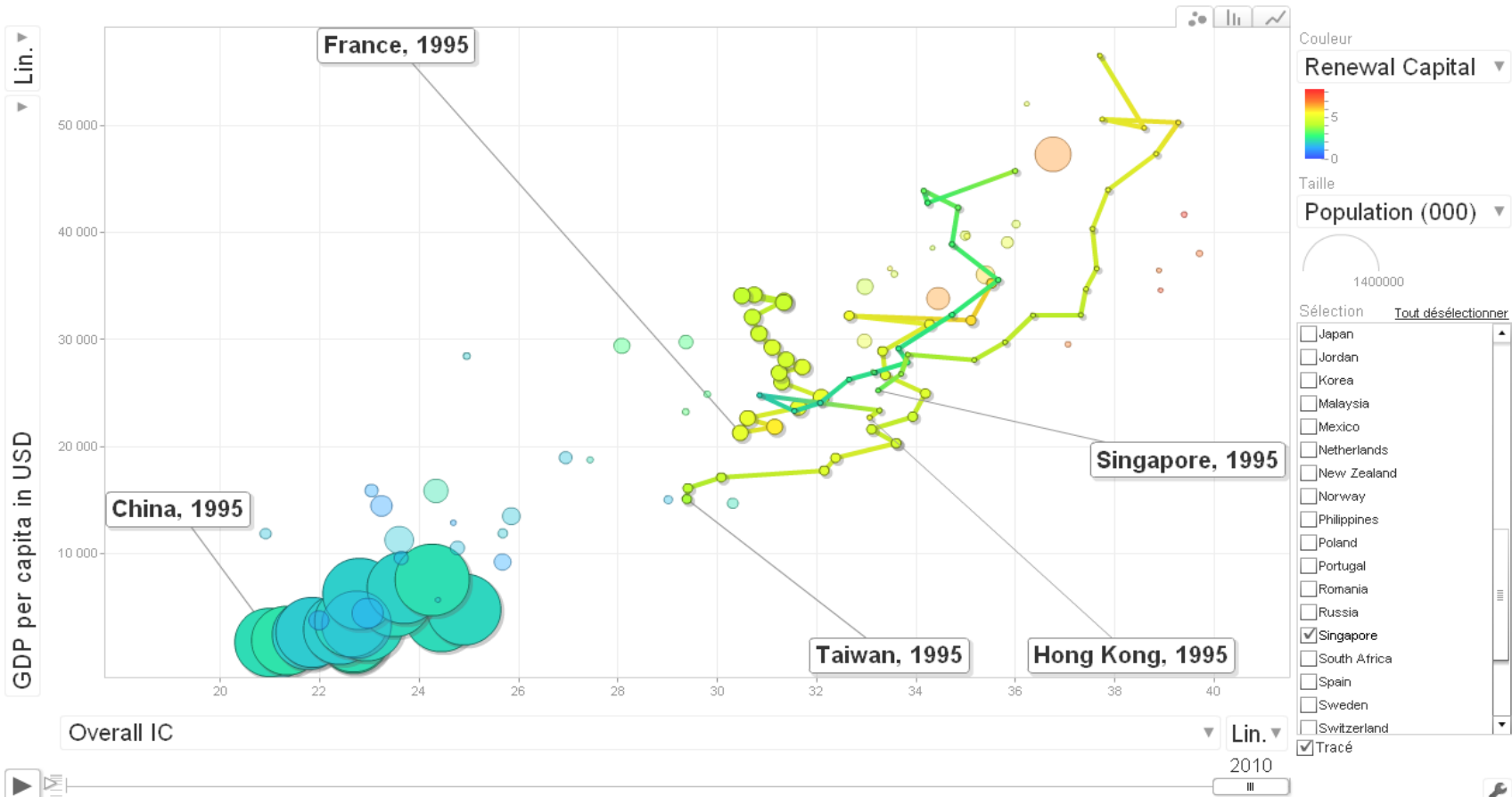


# nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More

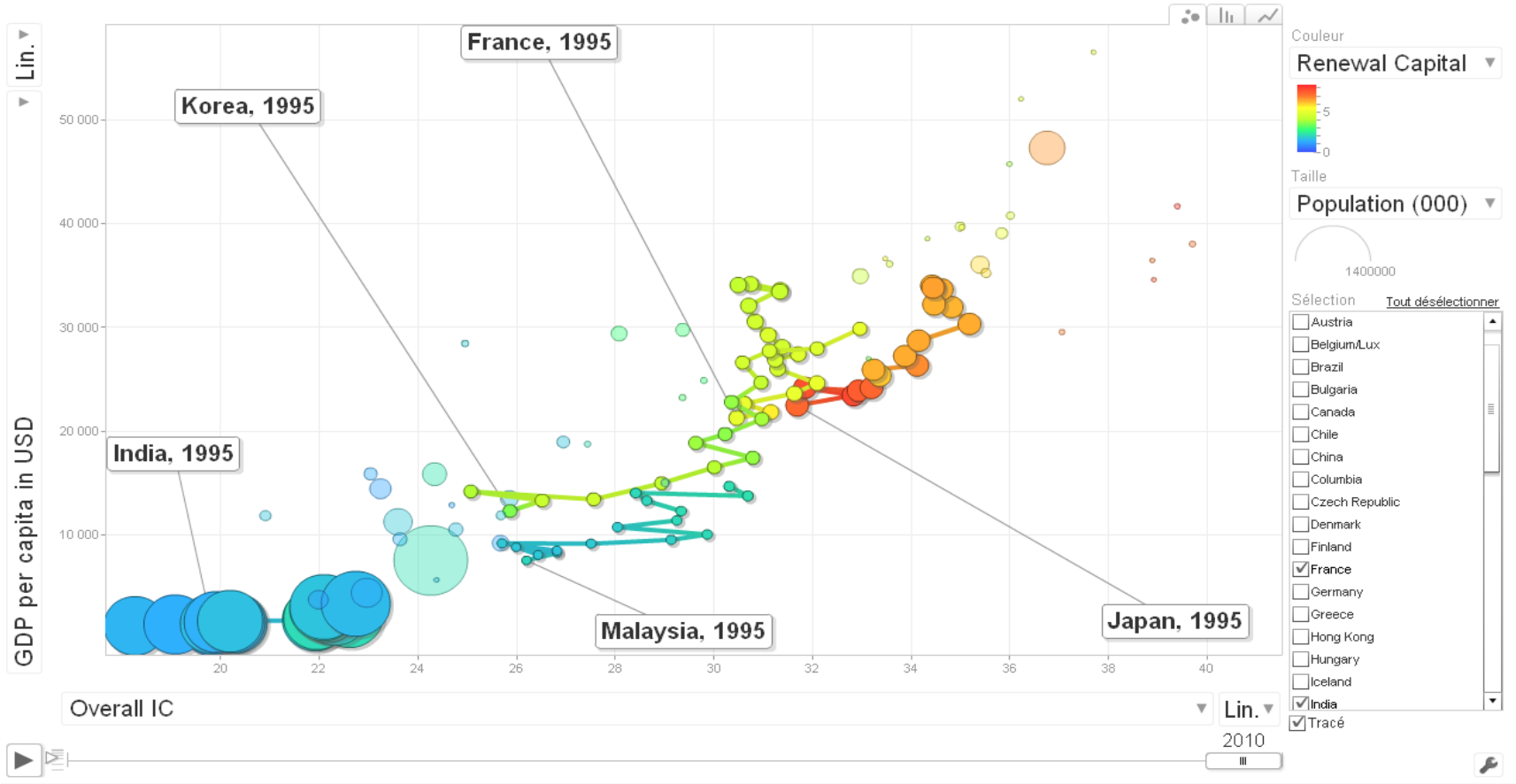


# nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More

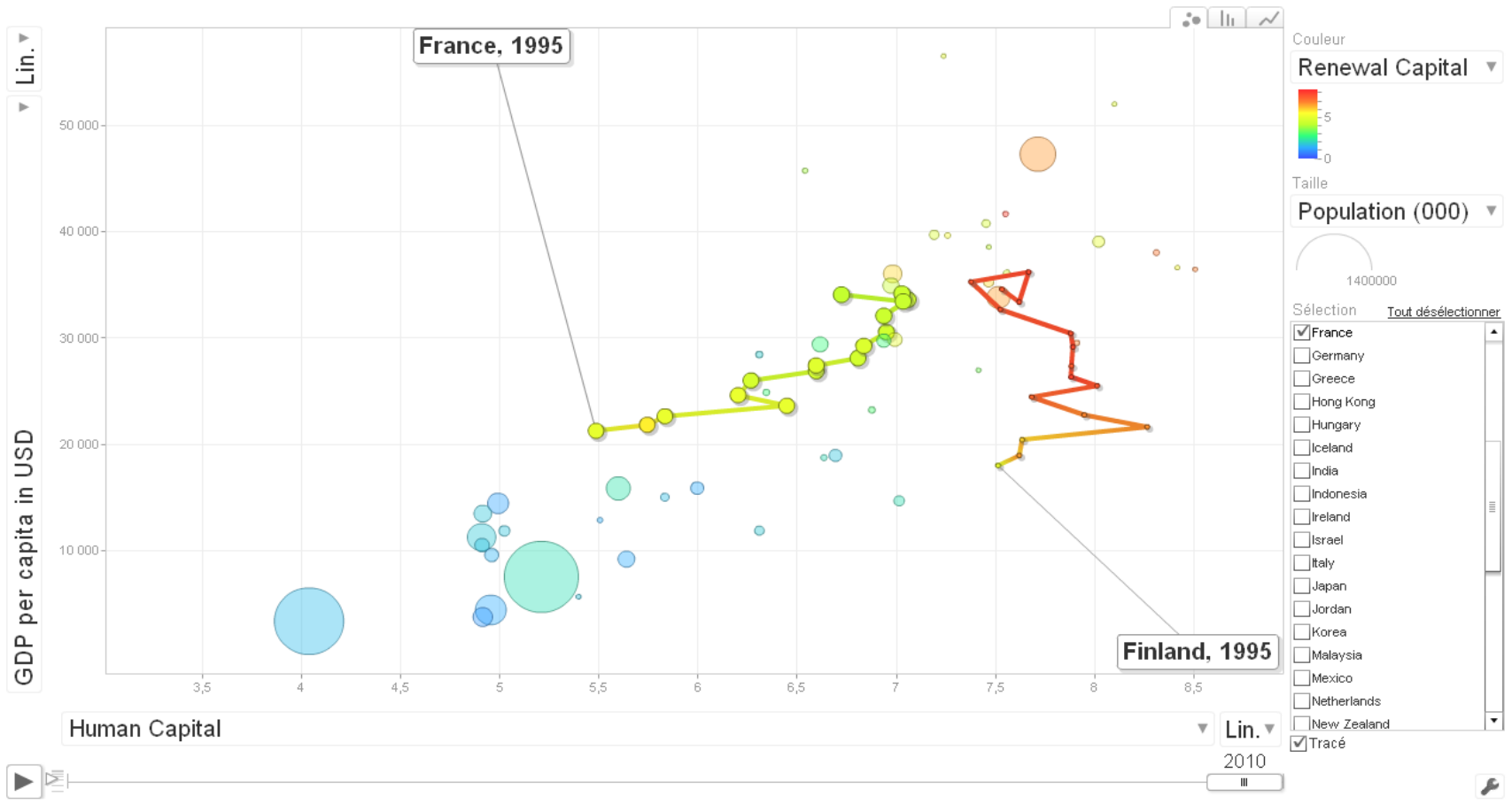


# nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More

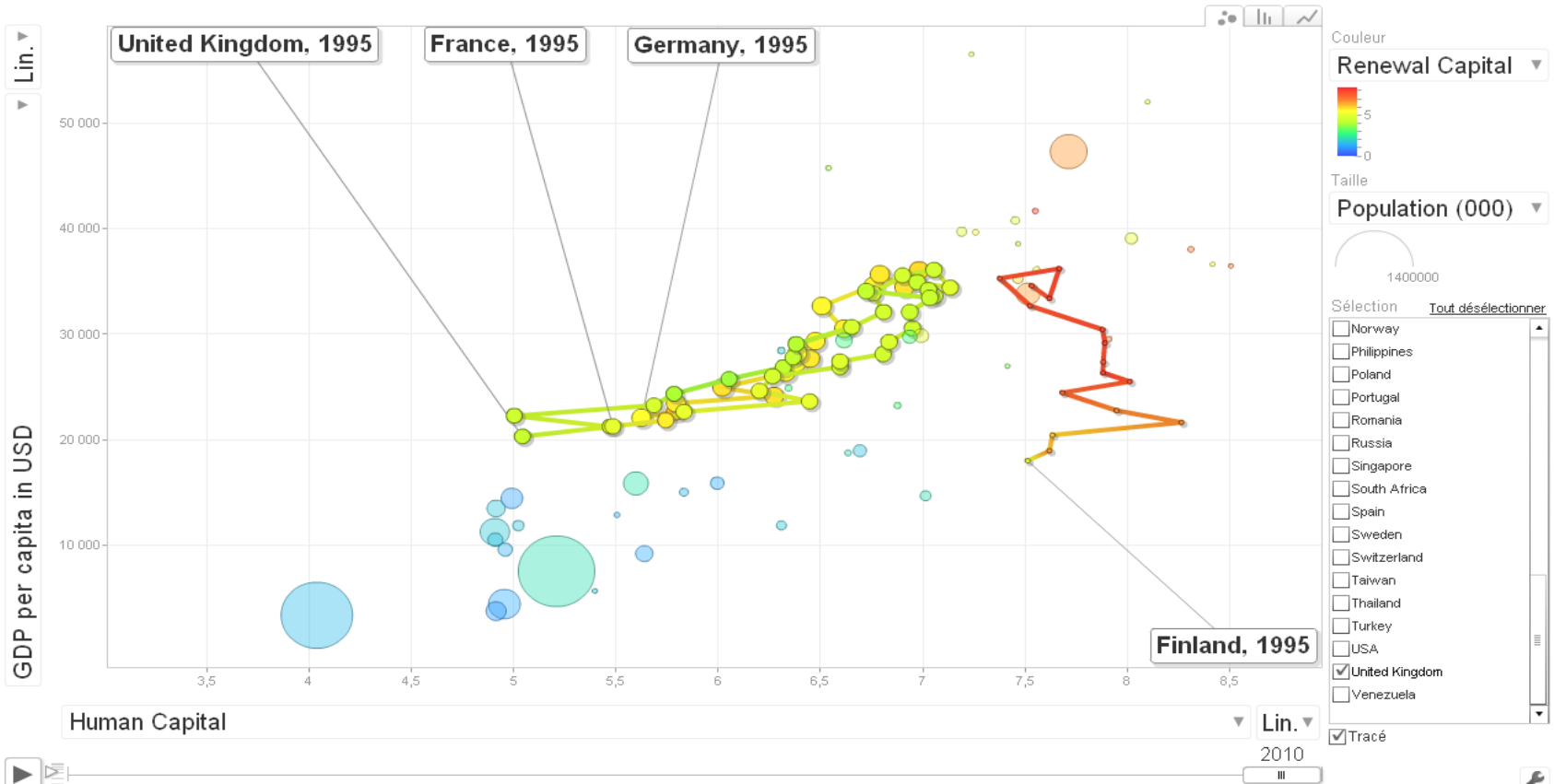


# nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More

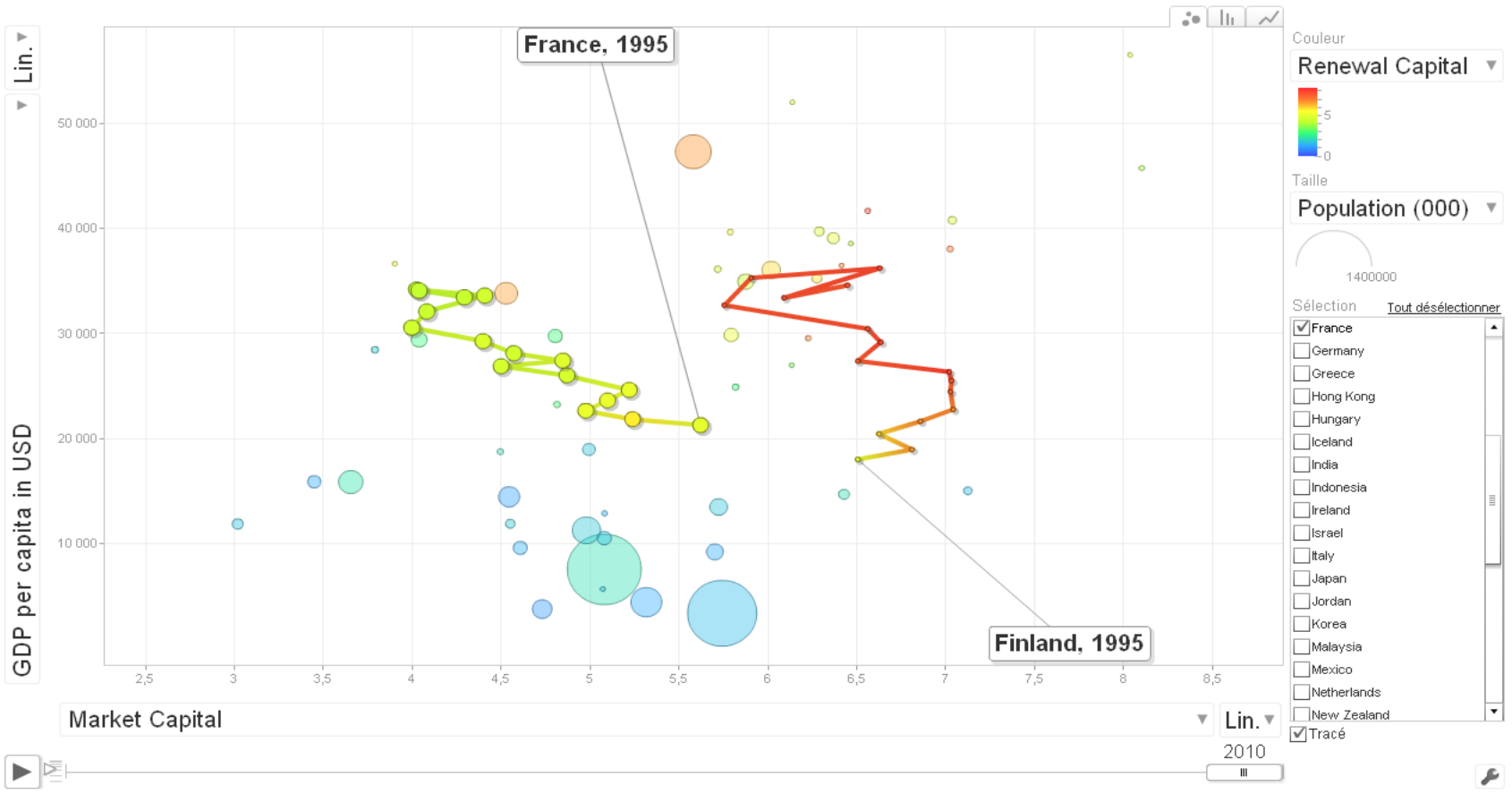


# nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More

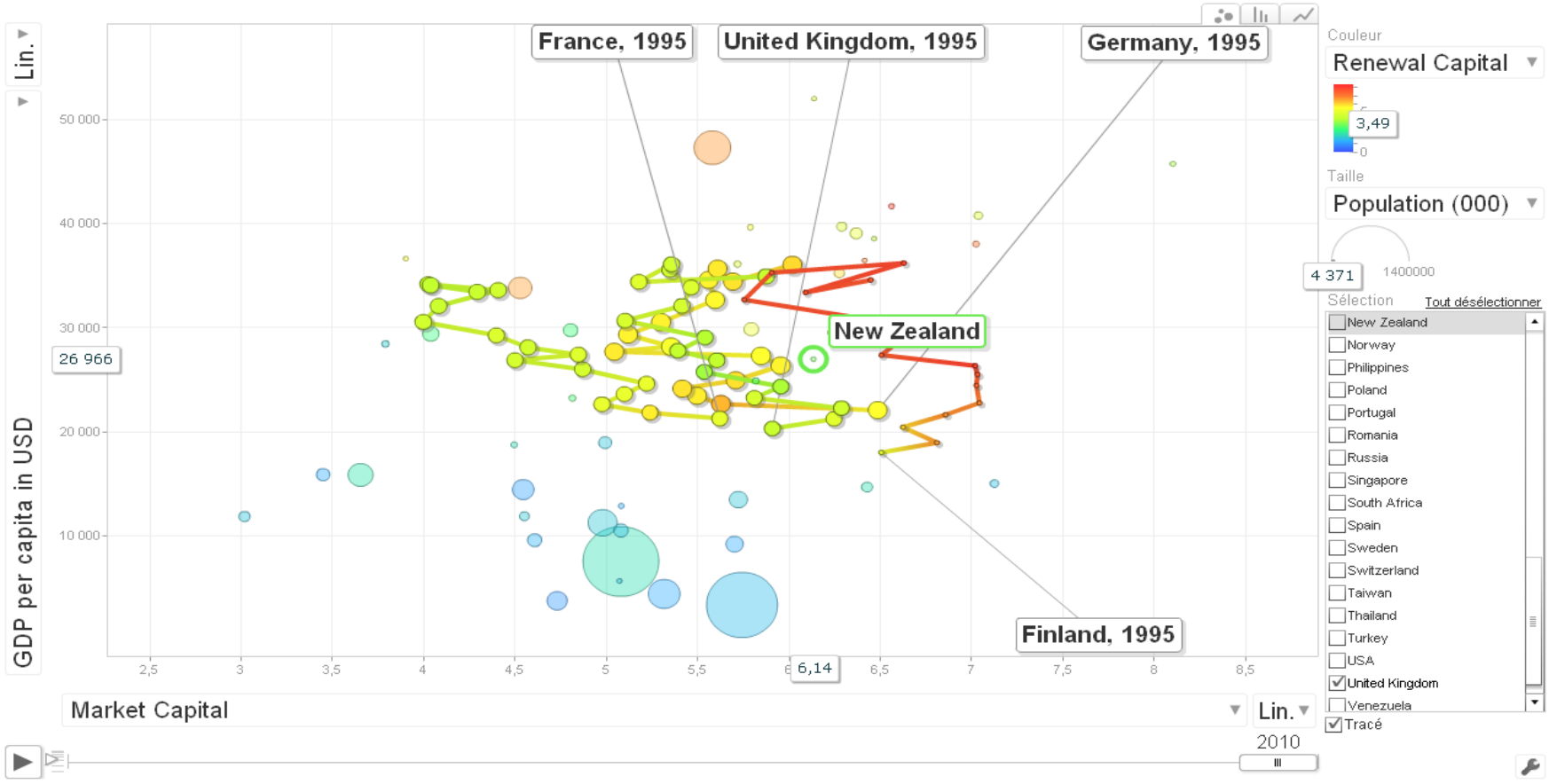


nic 48\_gapminder data of 1995~2010 ☆

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Share

Edit Settings Publish Add Gadget to iGoogle... More



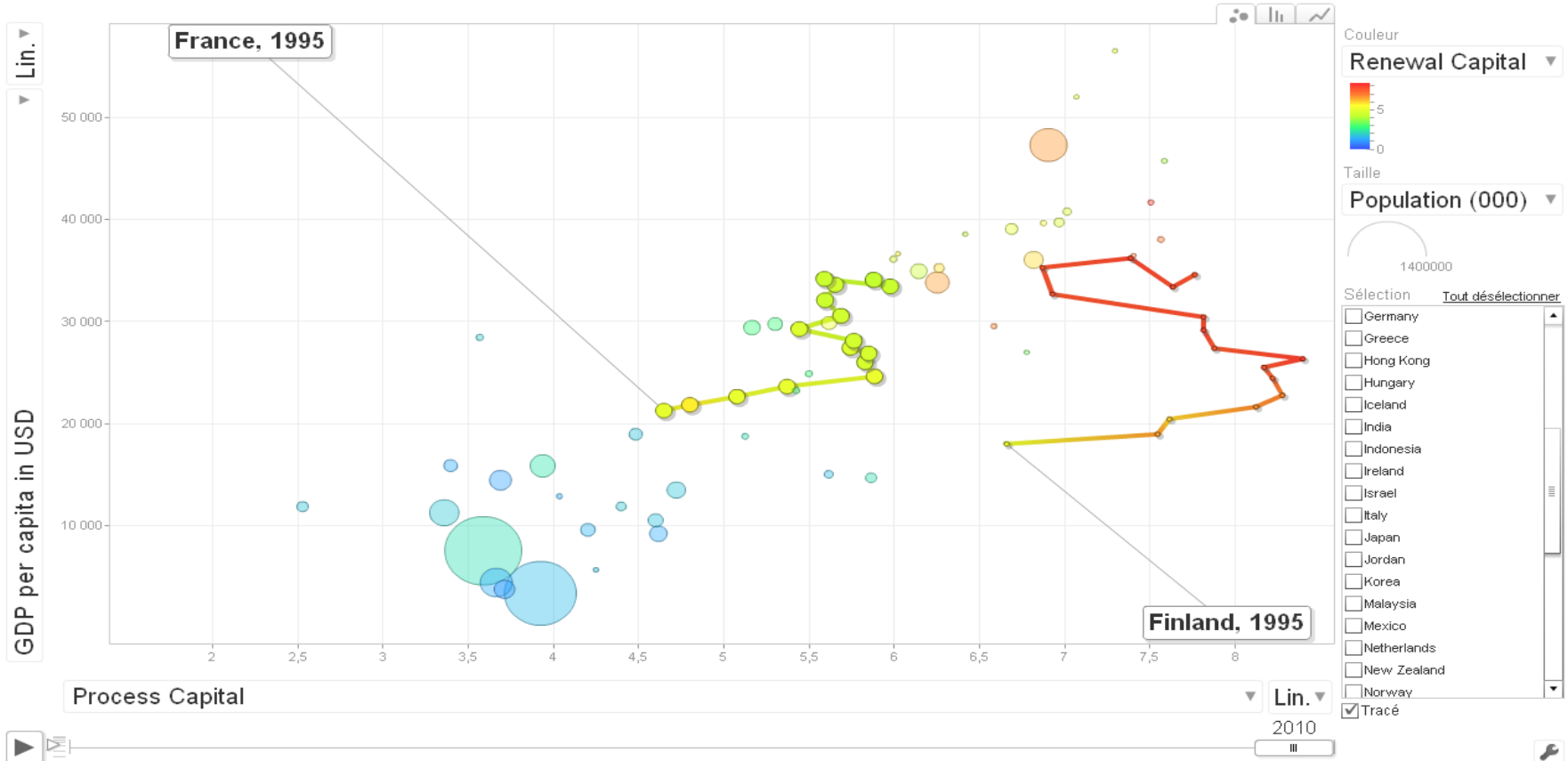


nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More

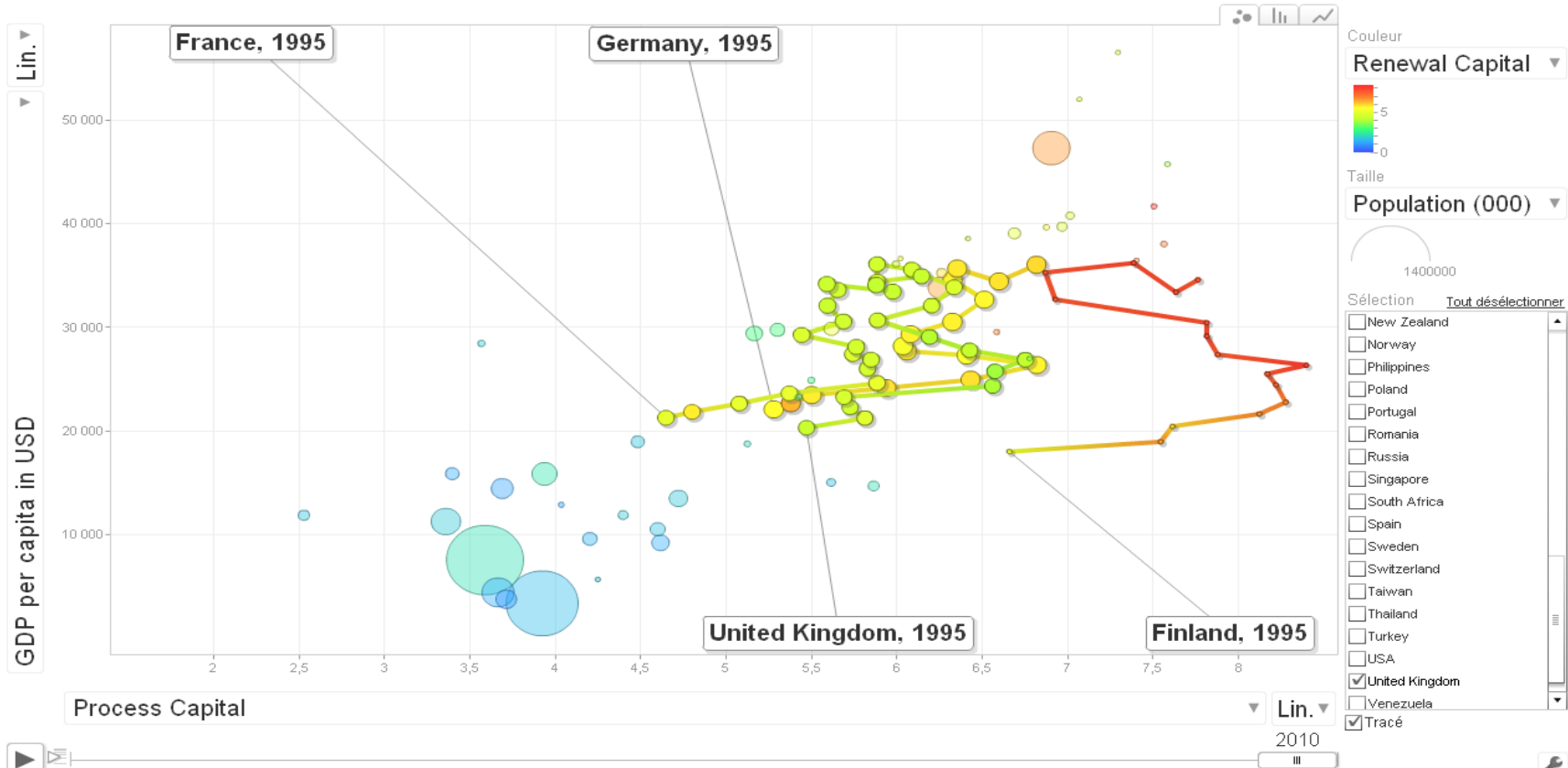


nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More

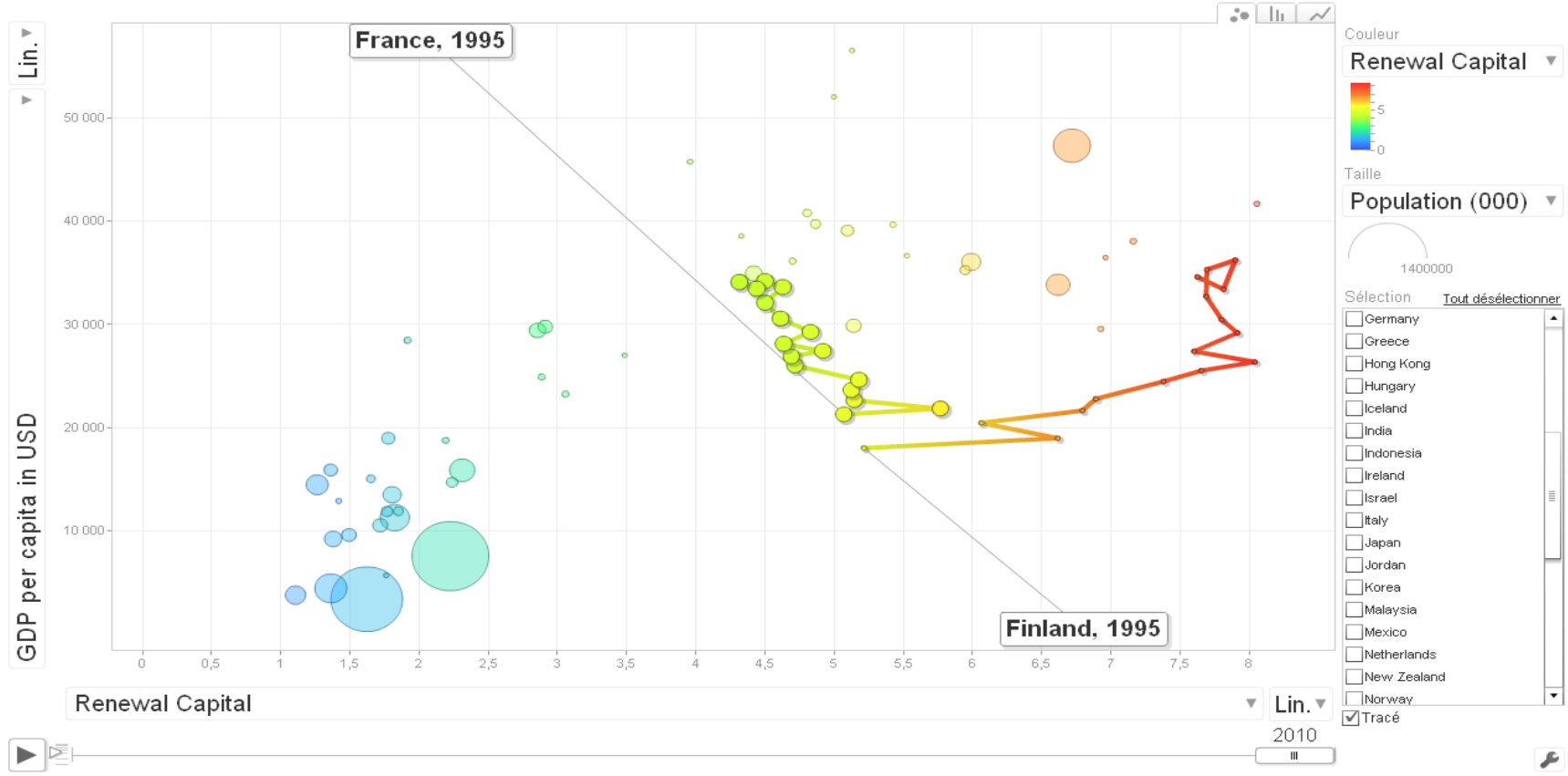


# nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

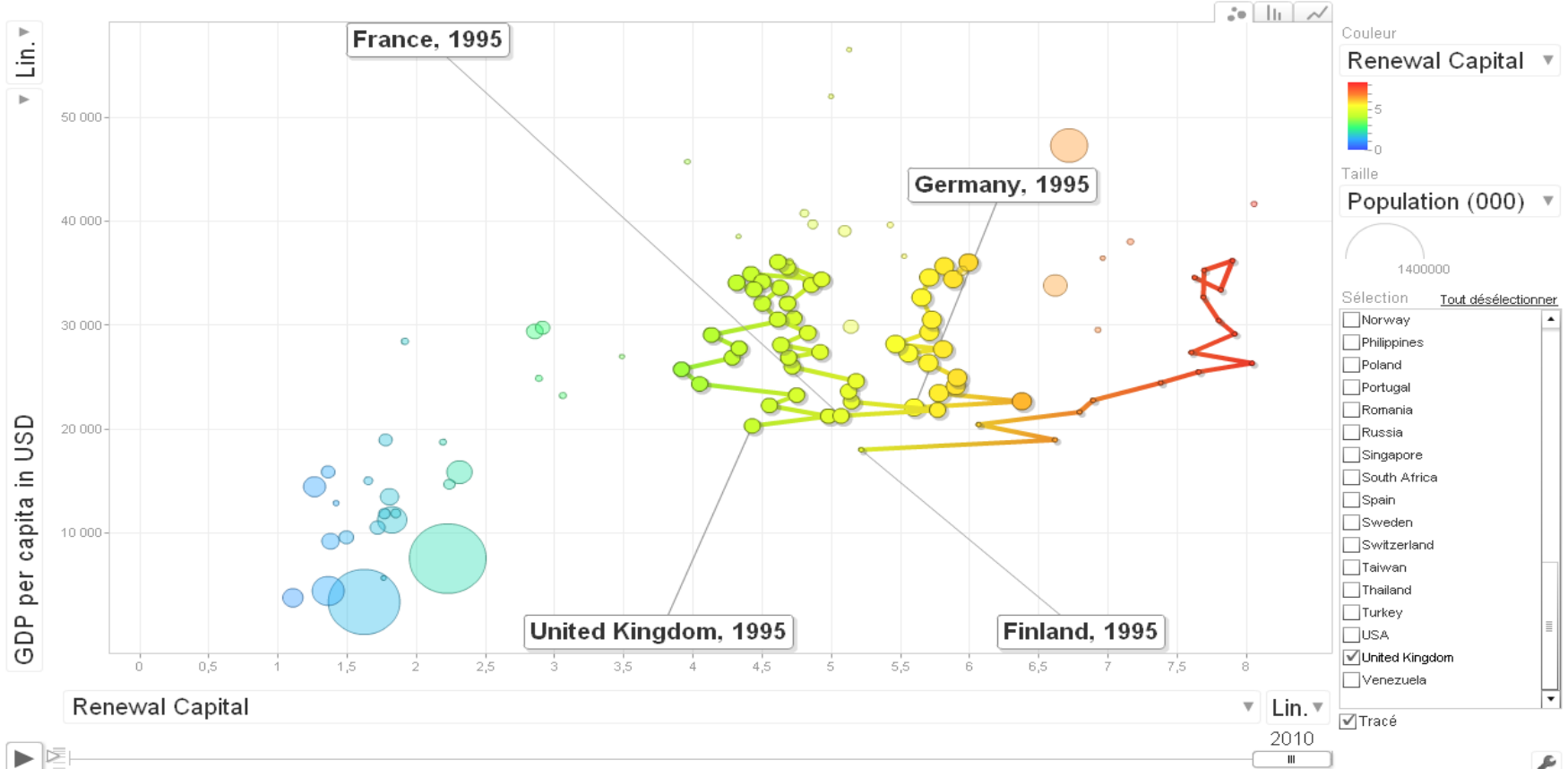
Edit Settings Publish Add Gadget to iGoogle... More



nic 48\_gapminder data of 1995~2010 ☆

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More

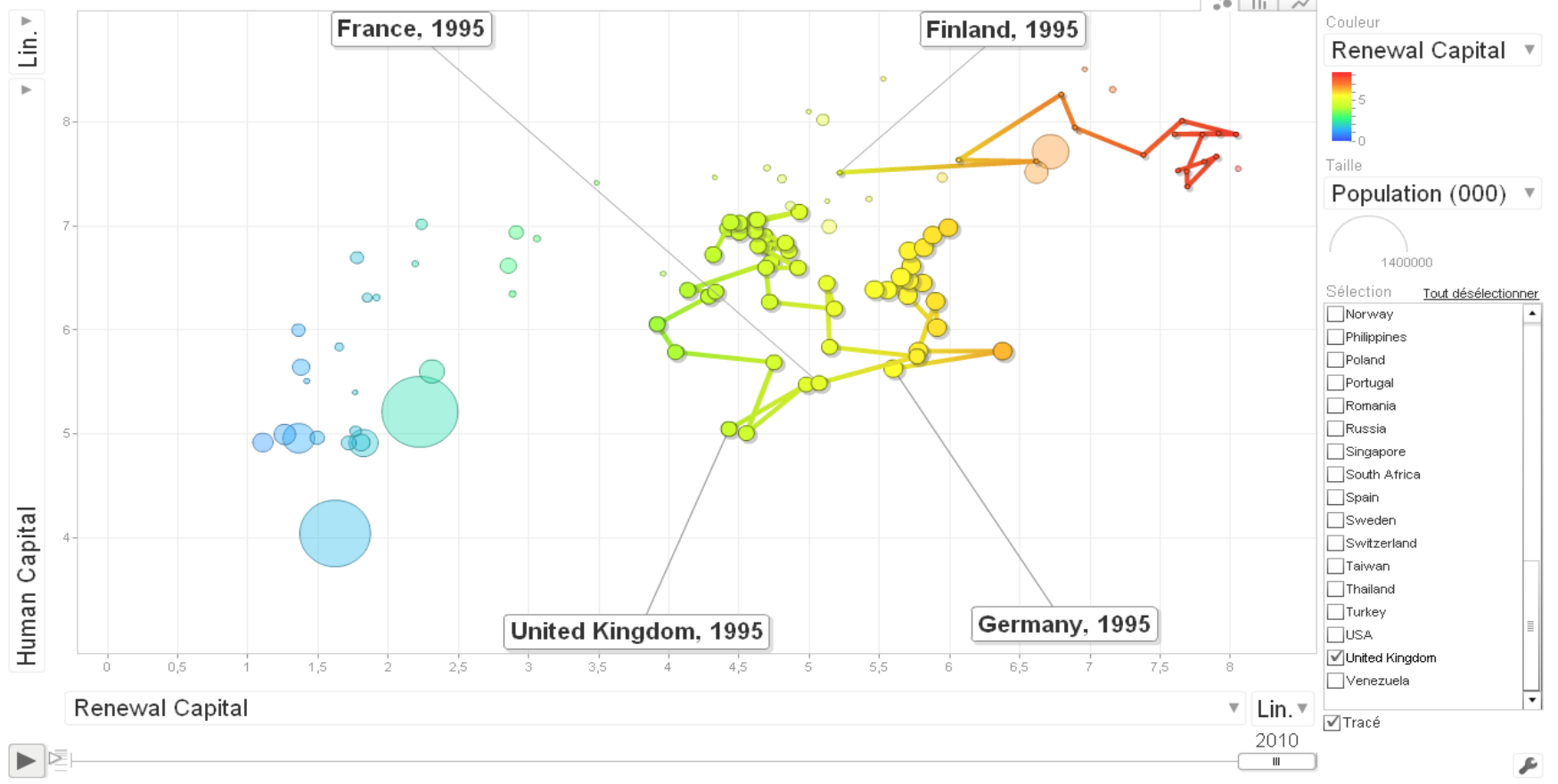


# nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More ▾

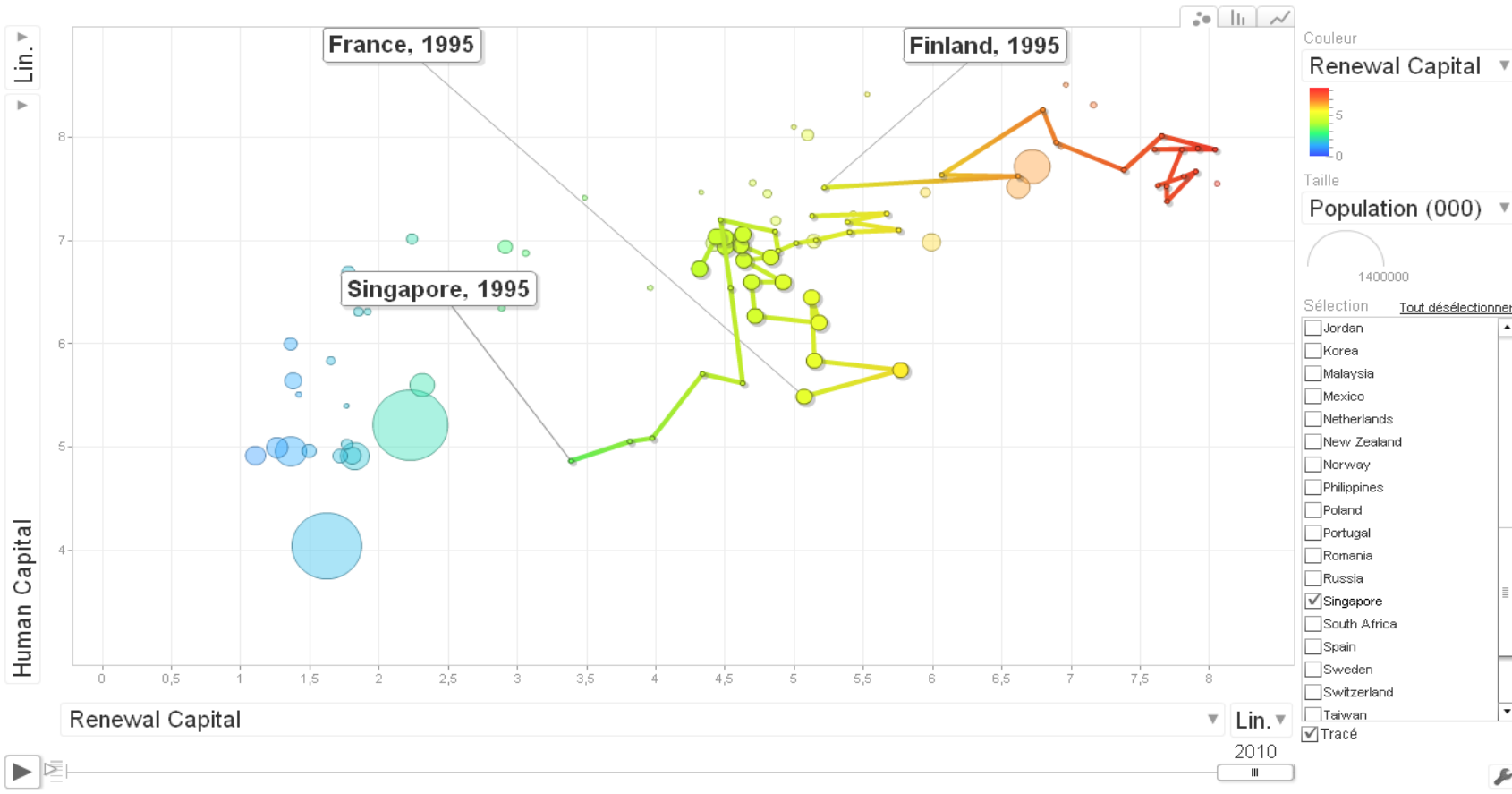


# nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More

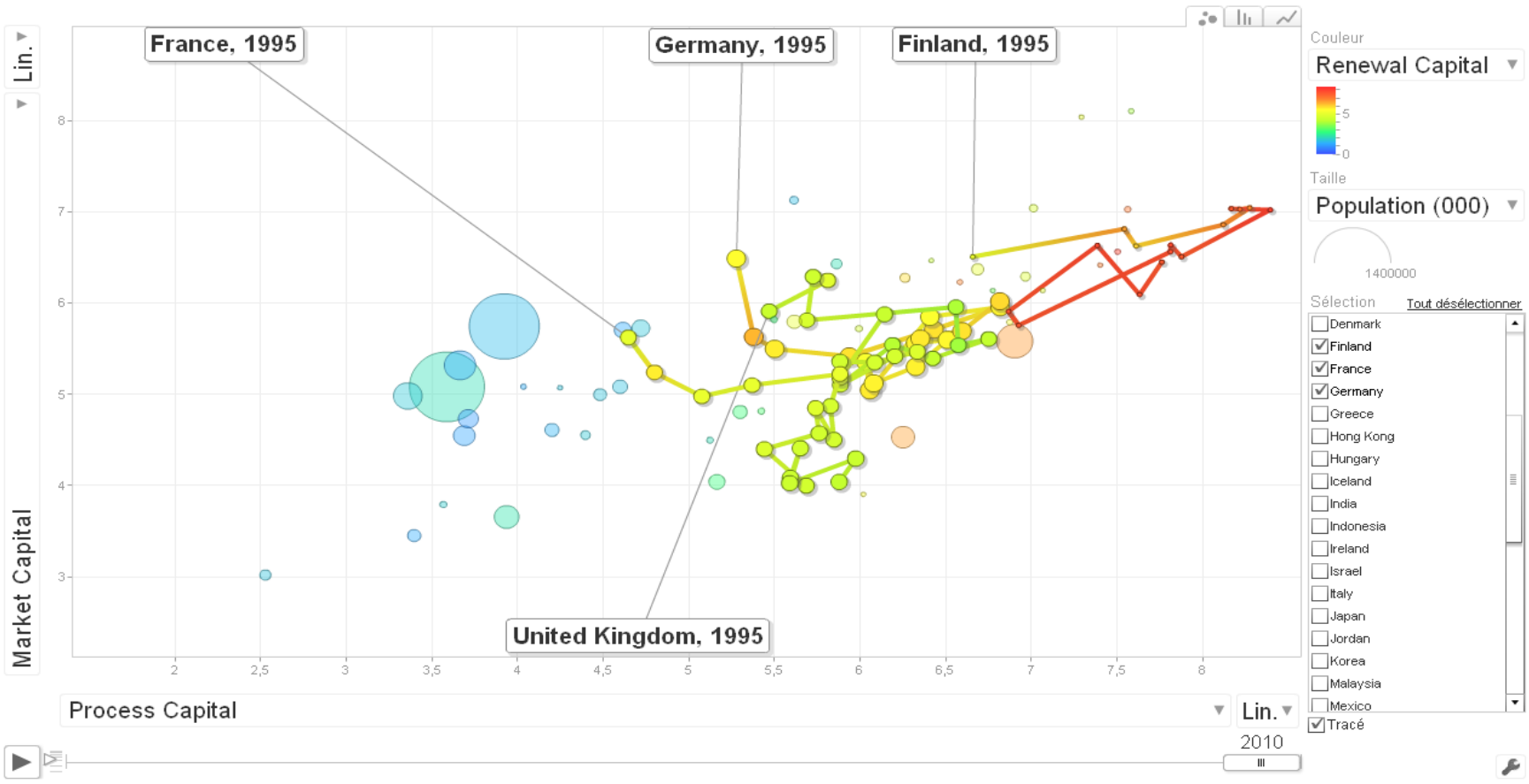


nic 48\_gapminder data of 1995~2010 ☆

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Share

Edit Settings Publish Add Gadget to iGoogle... More

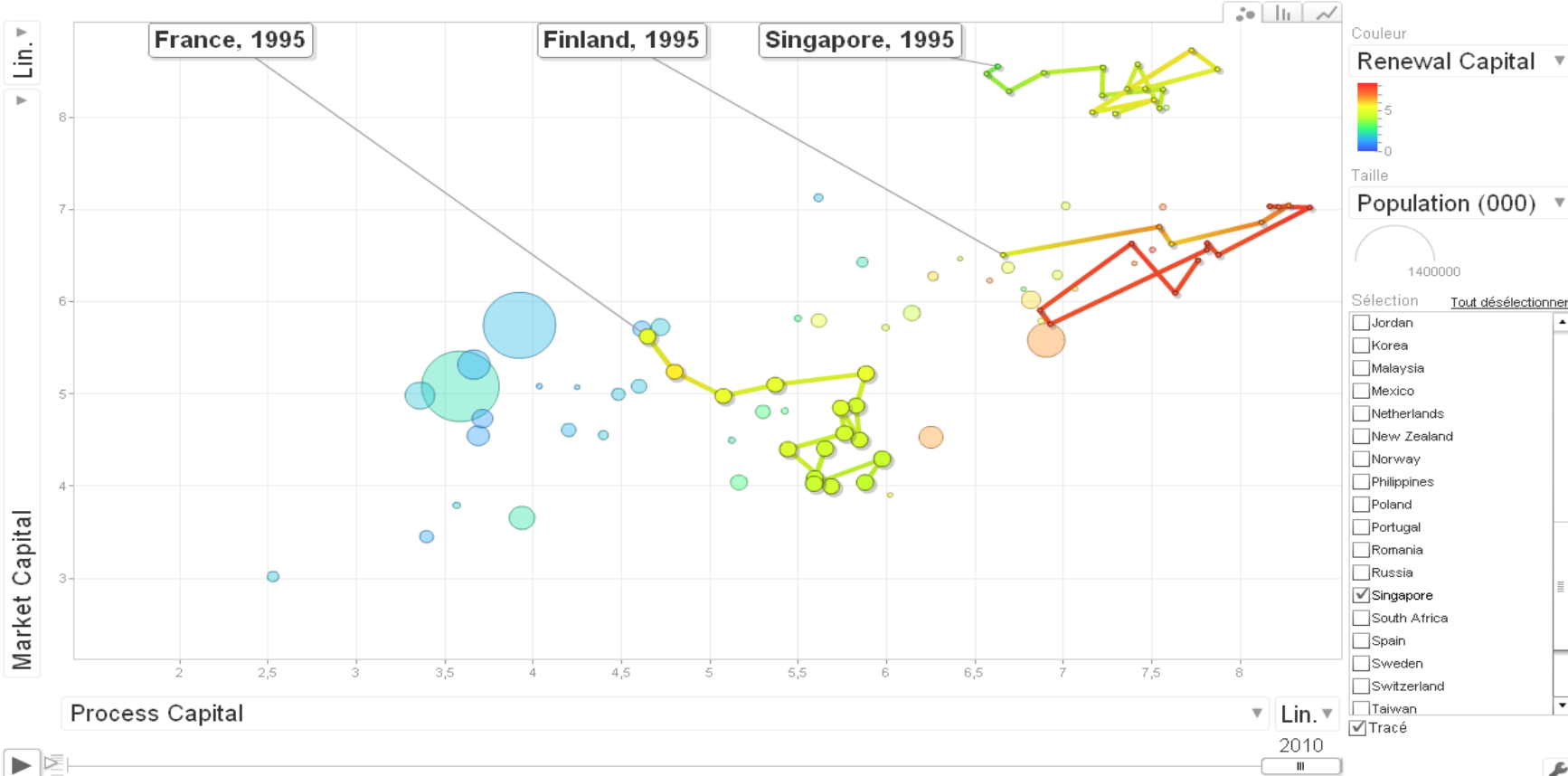


# nic 48\_gapminder data of 1995~2010 ☆

Share

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Edit Settings Publish Add Gadget to iGoogle... More



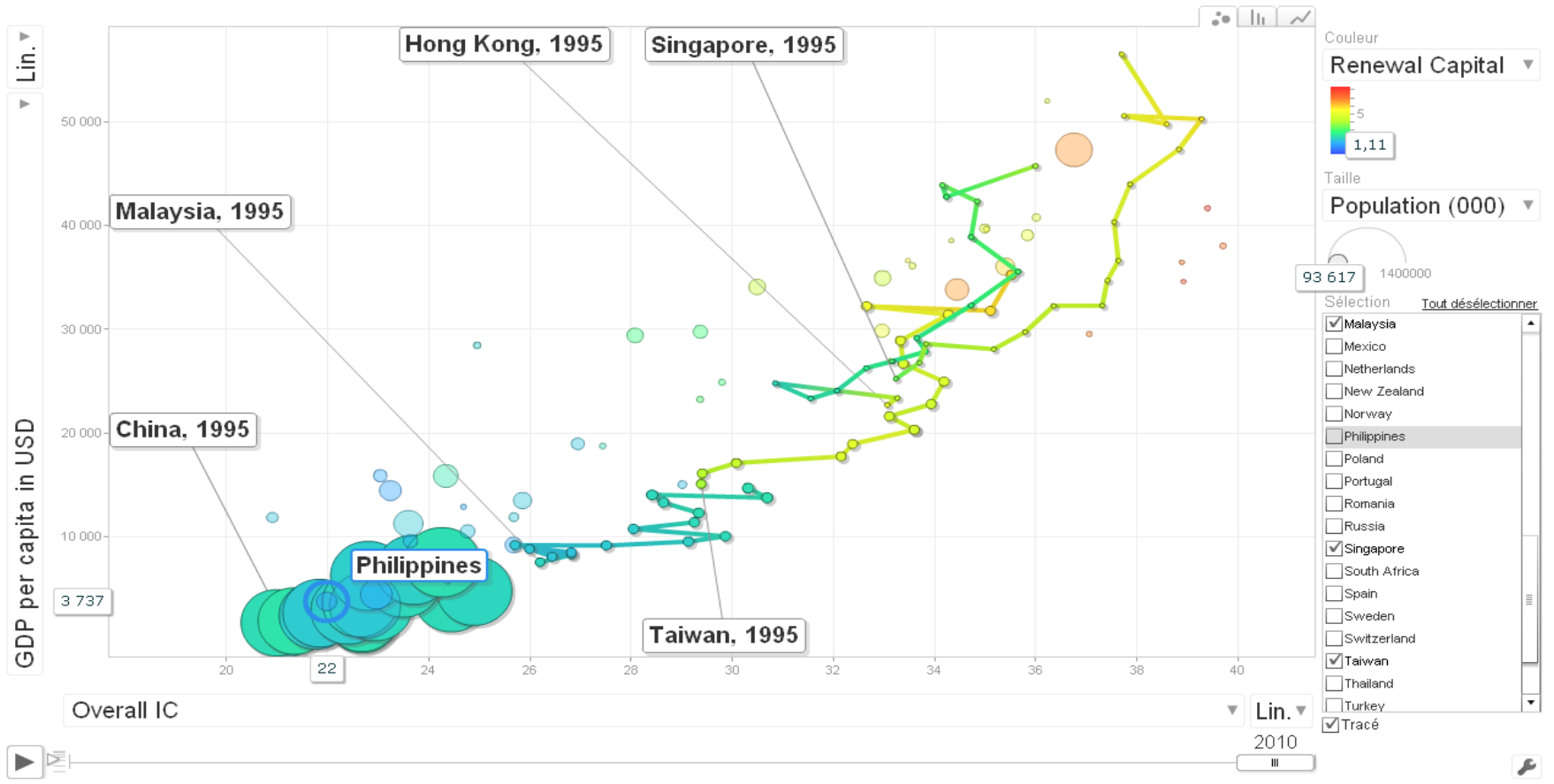


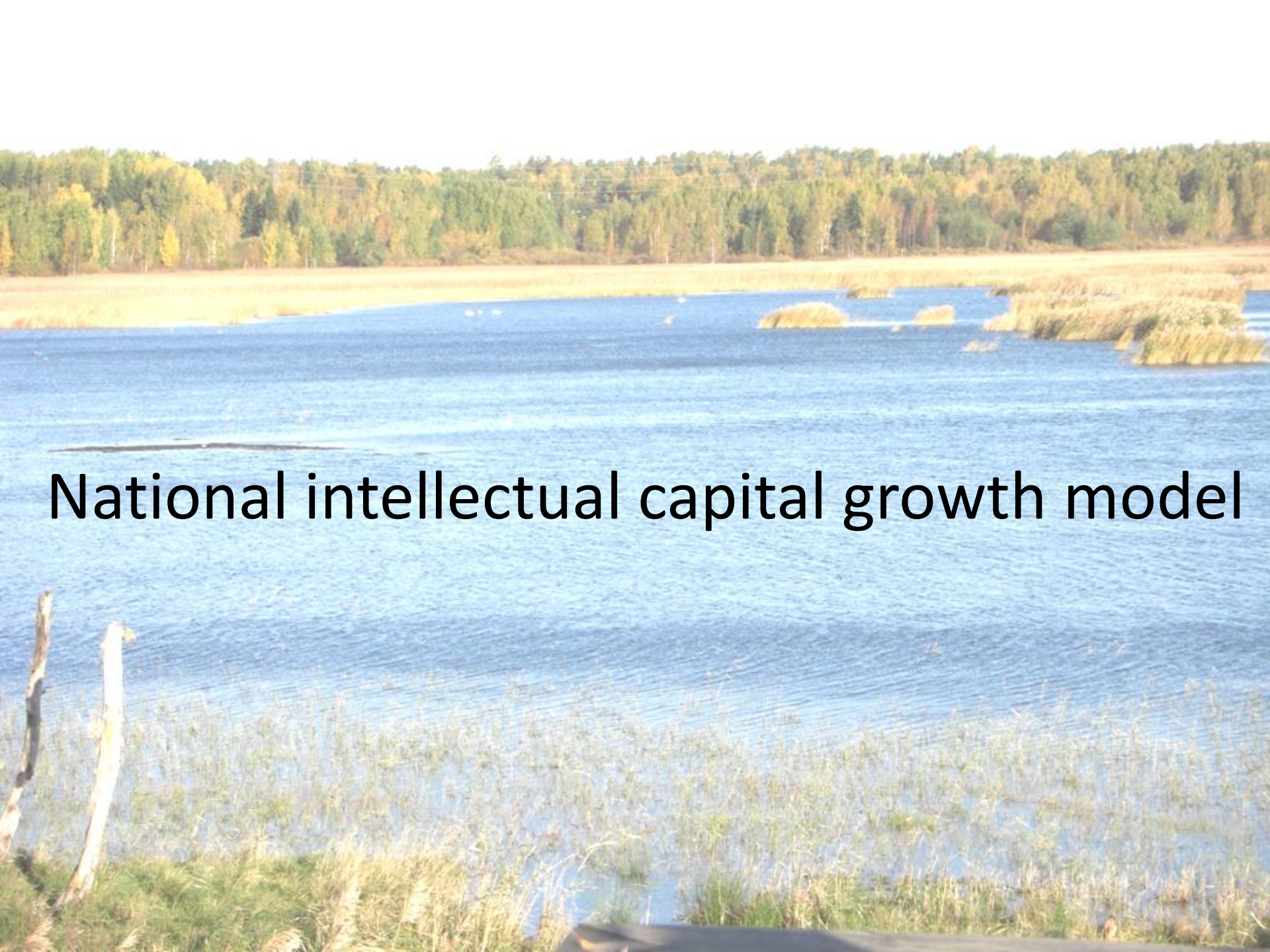
nic 48\_gapminder data of 1995~2010 ☆

File Edit View Insert Format Data Tools Help Last edit was made 49 days ago by motion.chart.lin

Share

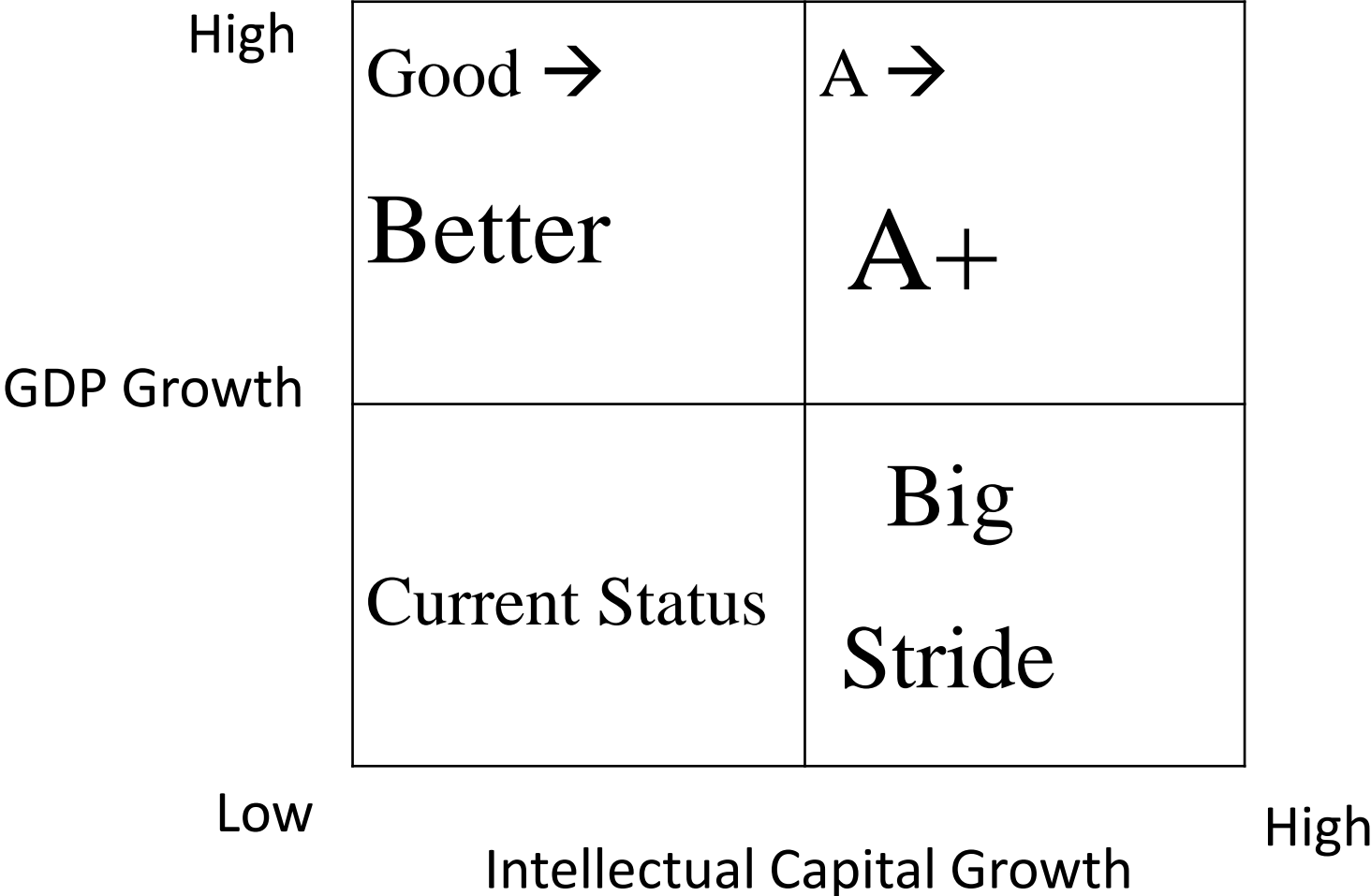
Edit Settings Publish Add Gadget to iGoogle... More





National intellectual capital growth model

# National Intellectual Capital Growth Model



# Potential paths of National Intellectual Capital Development

- Route #1: HC + MC + PC → FC + overall IC (China, Korea)
- Route #2: HC + MC + RC → FC + overall IC (Sweden)
- Route #3: HC + PC + RC → FC + overall IC (Singapore)
- Route #4: HC + PC → FC + overall IC (Ireland)
- Route #5: HC + RC → FC + overall IC (Taiwan)
- Route #6: PC → FC + overall IC (Poland)



A scenic view of a large blue lake with a forested background and reeds in the foreground. The text "Policy implications" is overlaid in the center of the image.

# Policy implications

# Implication - 1

- Market capital of France is going backwards
- China is still behind, yet Hong Kong is part of China and is well developed in both intangibles and tangibles
- Singapore and Taiwan are Chinese societies (bamboo network)
- Singapore was hard hit by financial crisis, yet bounced back very fast



# Implication - 2

- In general, Asians are very diligent people
- Current and future human resources in the mentioned Asia countries are very qualified (high-tech engineers, PISA)
- China, Hong Kong, Singapore, Taiwan and even Japan, Korea are under the influence of Confucianism (benevolent, loyal, harmonious, polite ...)
- Korea is developing very fast
- Malaysia is very aggressive and shows good performance in trading
- Innovation and entrepreneurship in the mentioned Asian countries are increasingly evident



# Conclusion

- Know thy yourself
- Strategy formation
  - Short term: market capital + process capital
  - Long term: human capital + renewal capital
- Benchmarking
- Partnering & collaborating
  - Within Europe
  - With Asia
- Goal setting





Carol Yeh-Yun Lin · Leif Edvinsson

# National Intellectual Capital

A Comparison of 40 Countries

 Springer

[www.nic40.org](http://www.nic40.org)

A photograph of a dirt path winding through a dense forest. The path is covered in fallen leaves and leads into the distance. The trees are tall and have green foliage. The text "Thank you!" and "Yehyunln@nccu.edu.tw" is overlaid on the image.

**Thank you!**  
**Yehyunln@nccu.edu.tw**