OECD Programme for International Student Assessment (PISA)

Seeing Spanish schools through the prism of PISA

Bilbao, 9 March 2009

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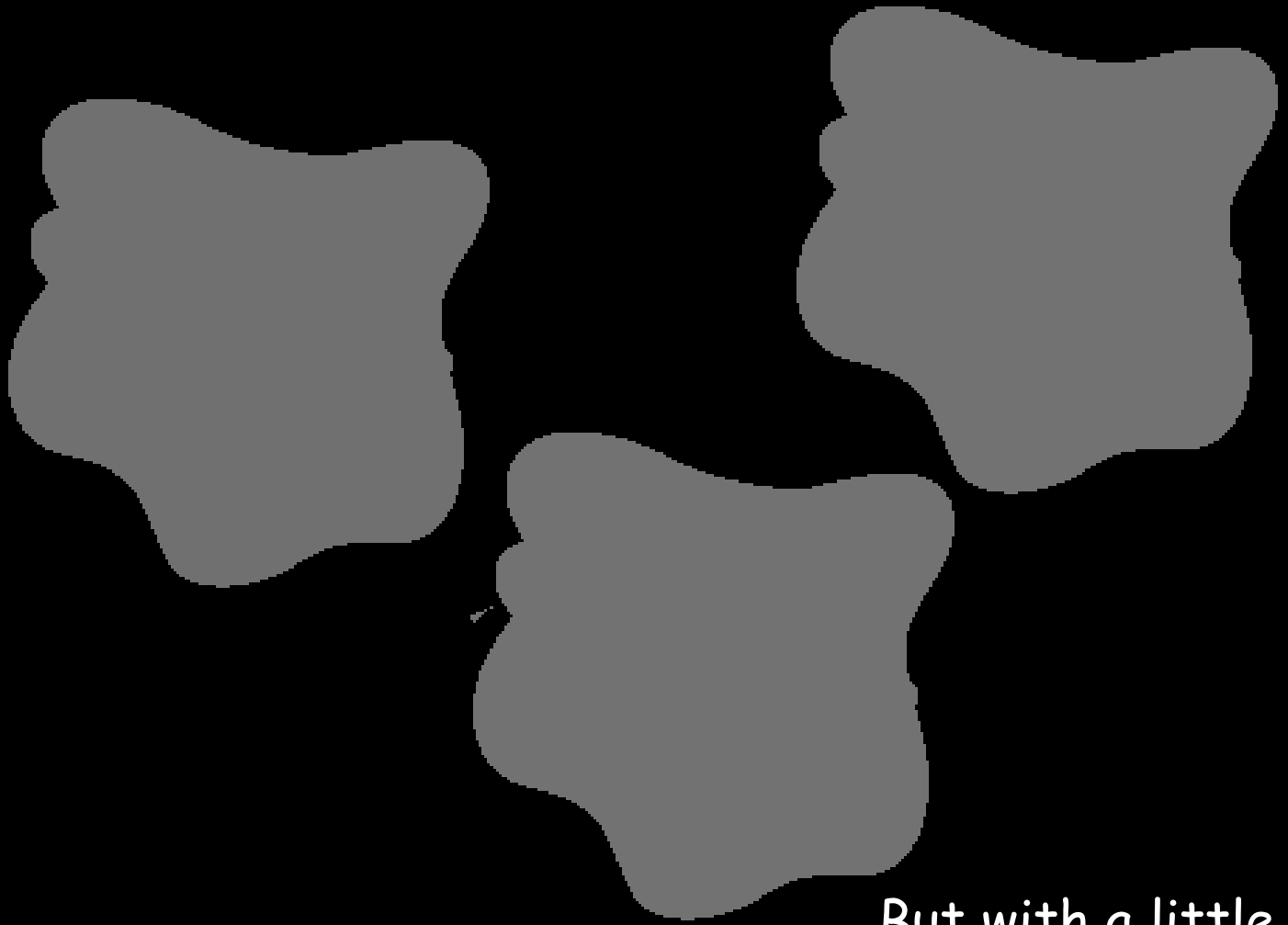
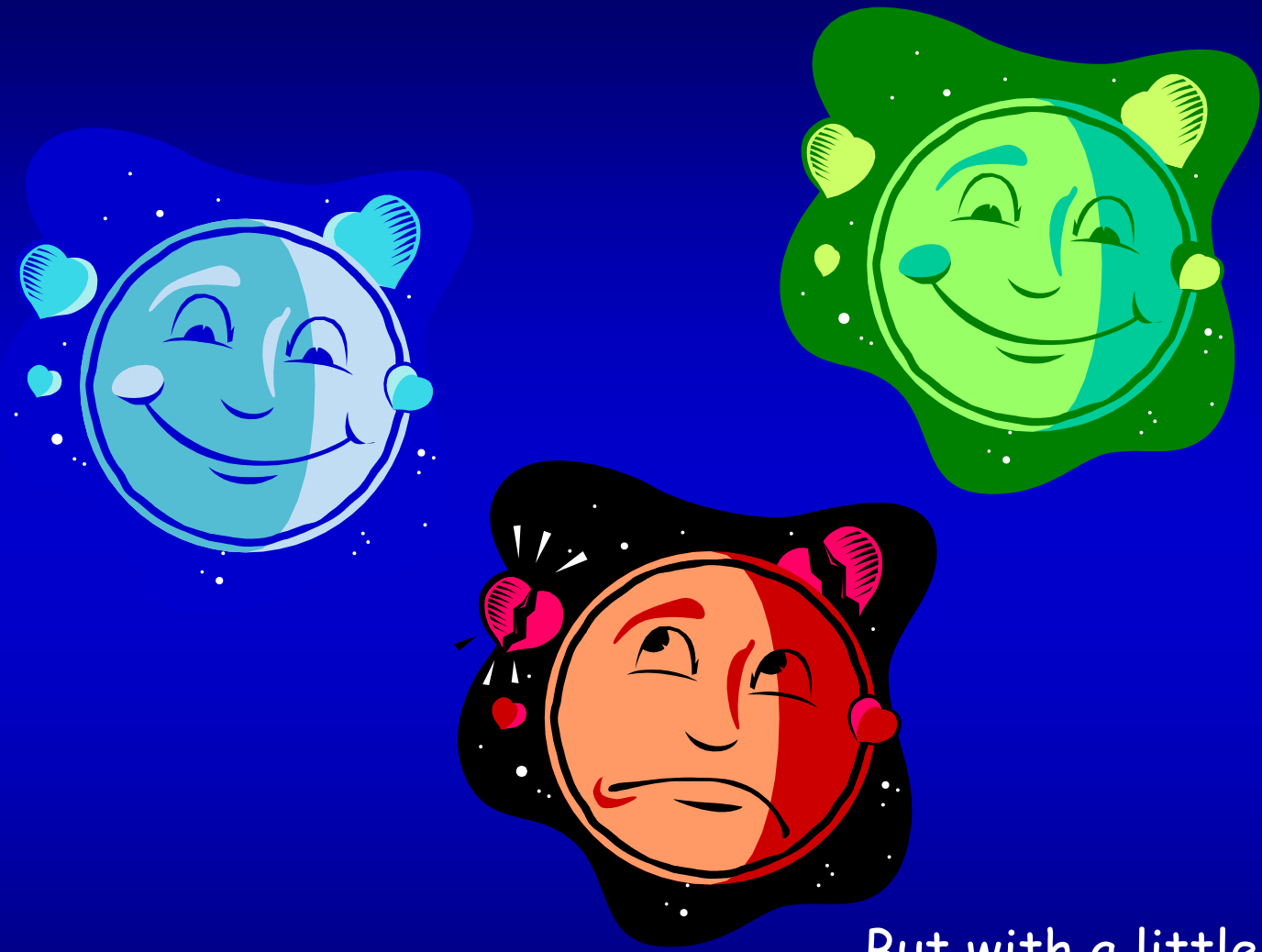
OECD Directorate for Education

In the dark…

…all students, universities and education systems look the same…



But with a little light….



But with a little light….

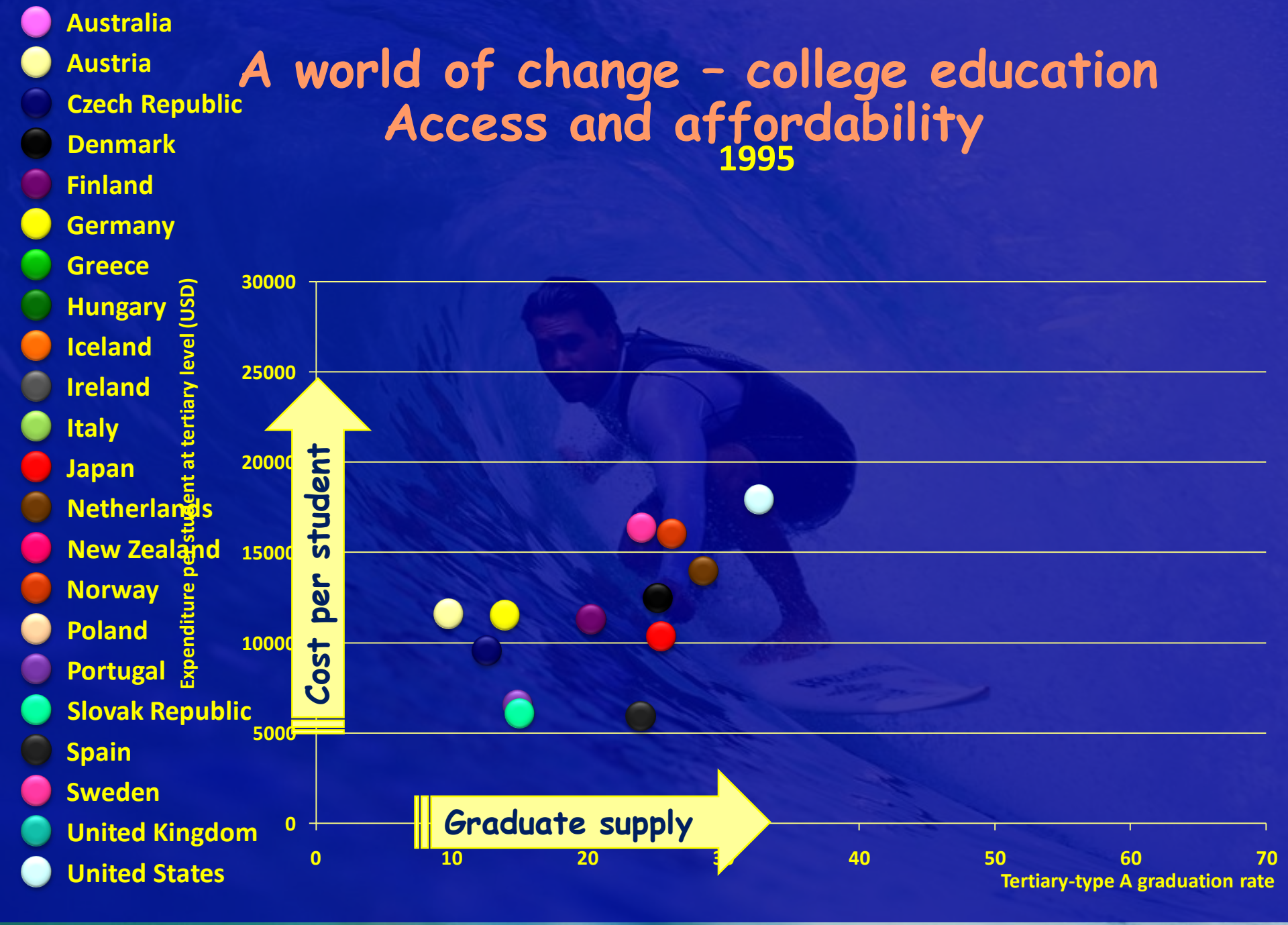
…important differences become apparent….

Today

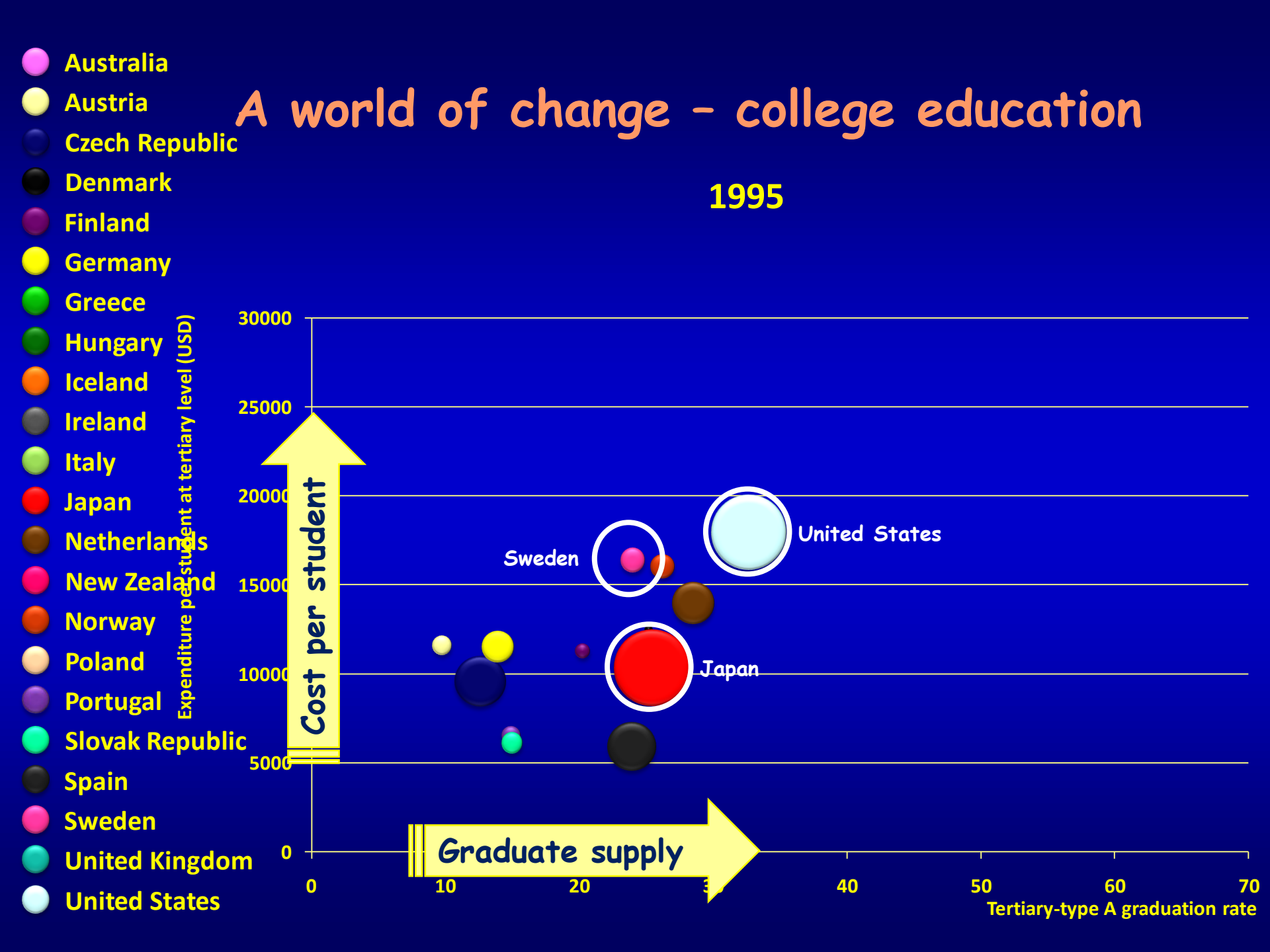
1. OECD's Programme for International Student Assessment (PISA)
   - What PISA measures – and why
2. Where we are – and where we can be
   - Where Spain and other countries stand in terms of quality, equity and efficiency in education and the engagement of students with science
   - What the best performing countries show can be achieved
3. How we can get there
   - Some policy levers that emerge from international comparisons


There is nowhere to hide
How the global talent pool has changed

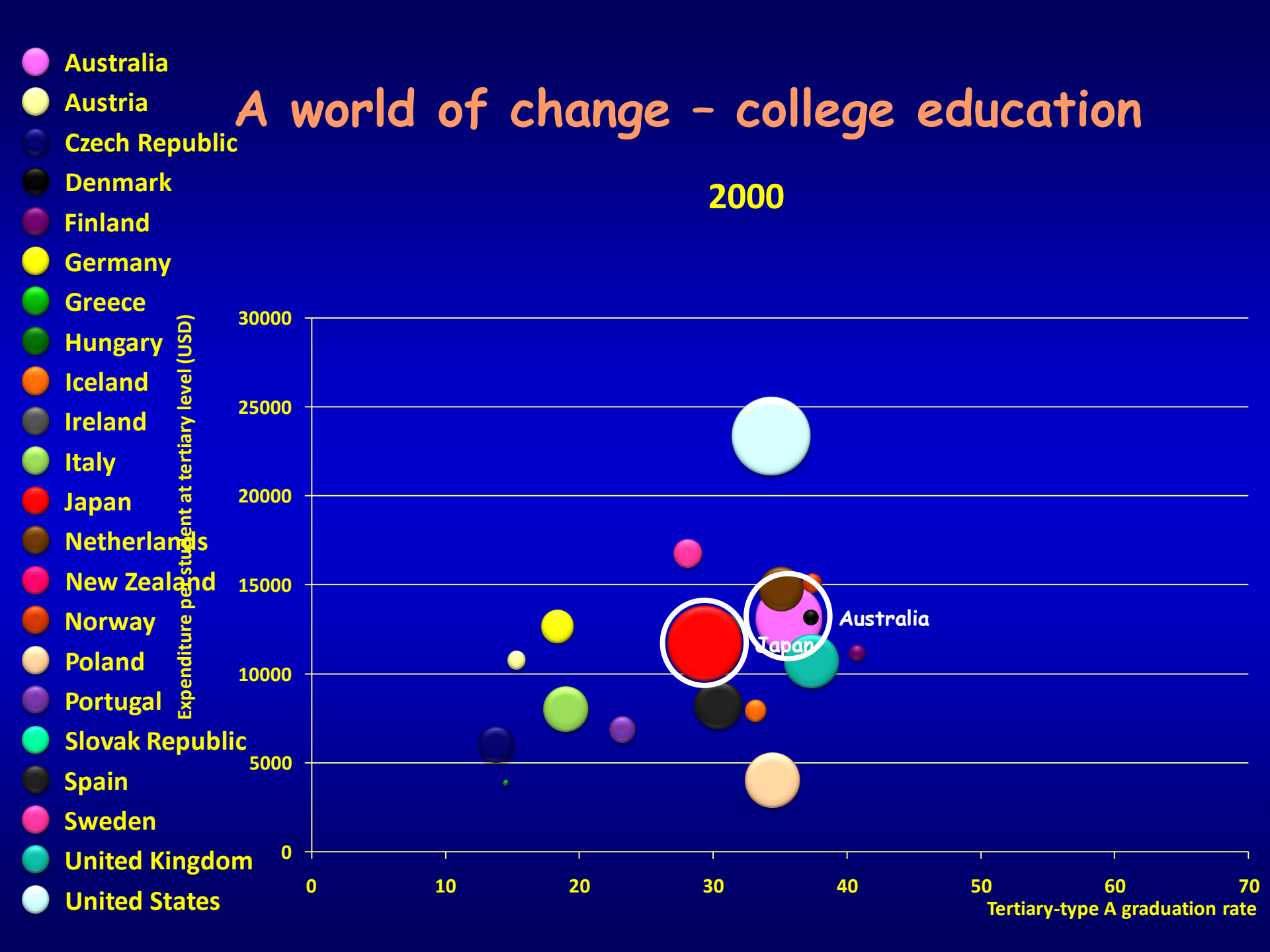
A world of change – college education
Access and affordability
1995



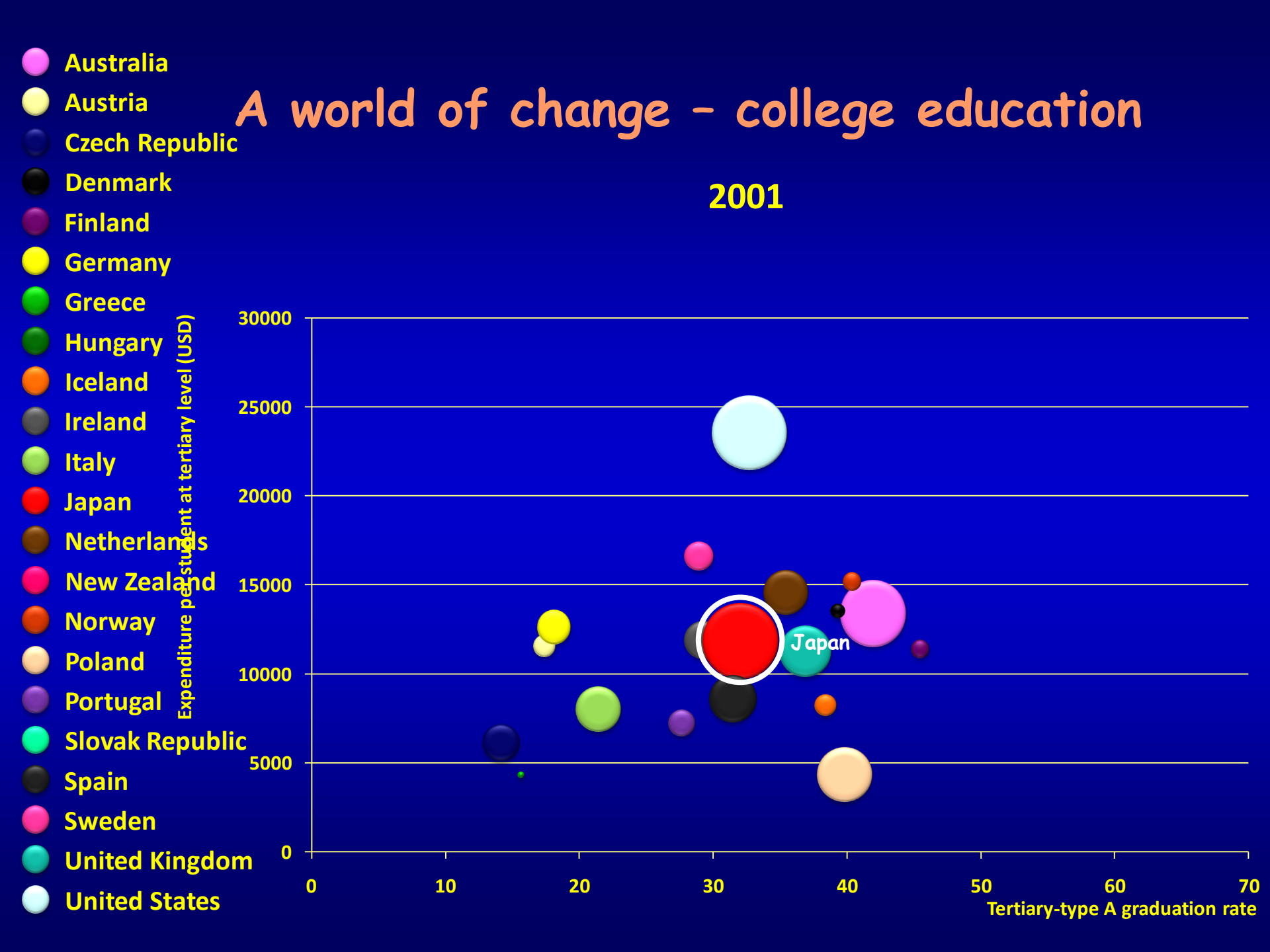
A world of change – college education



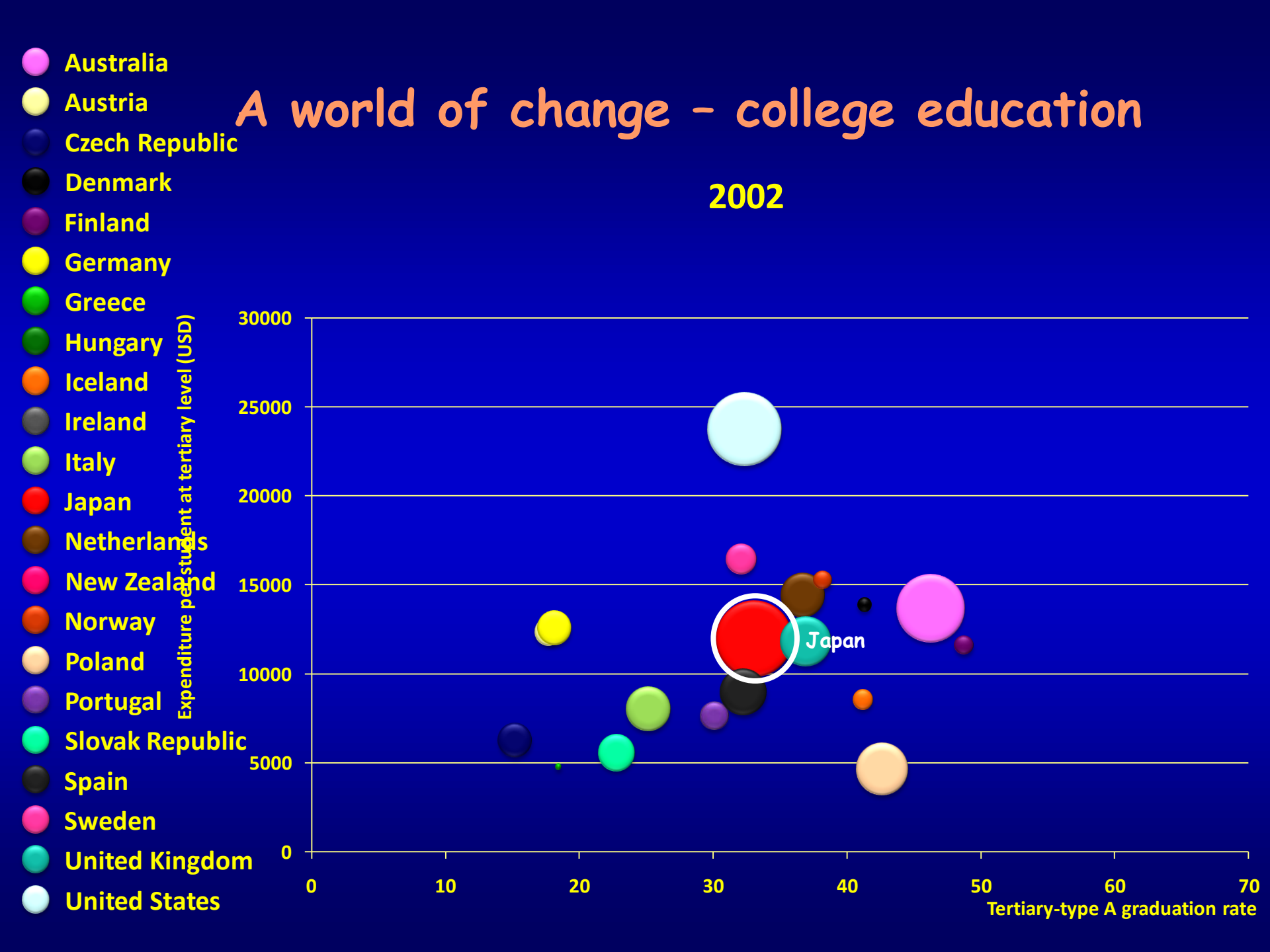
A world of change – college education



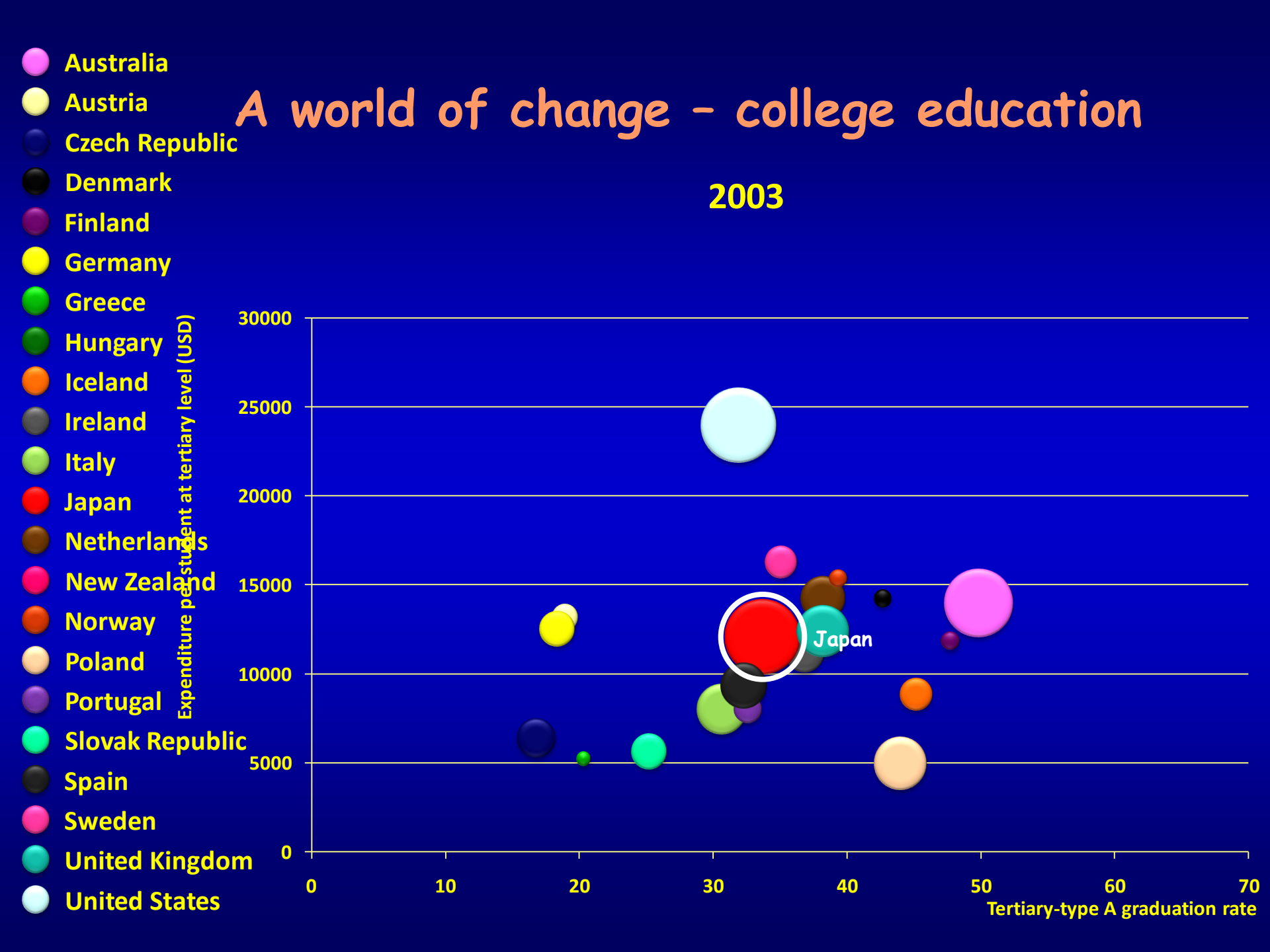
A world of change – college education



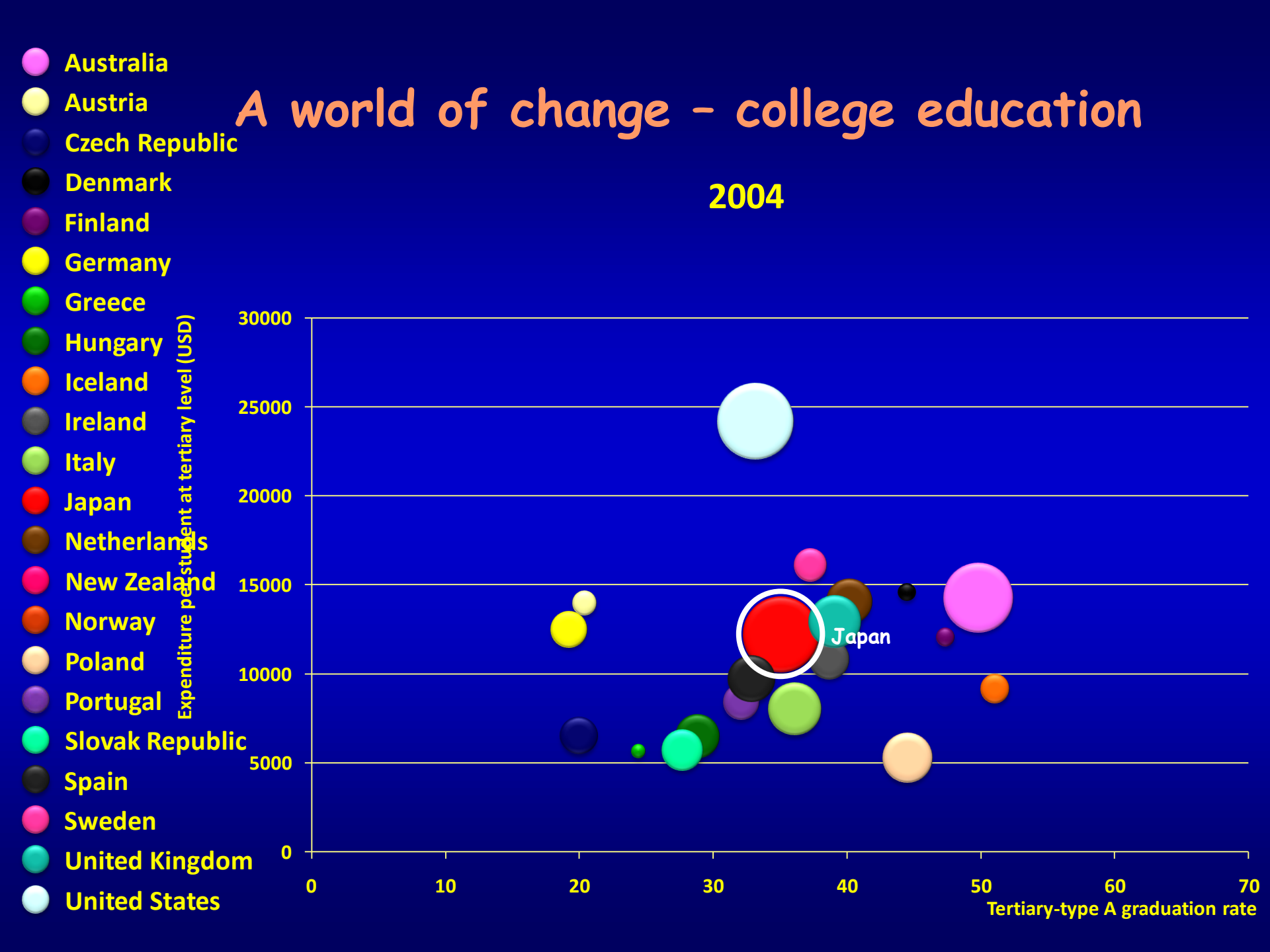
A world of change – college education



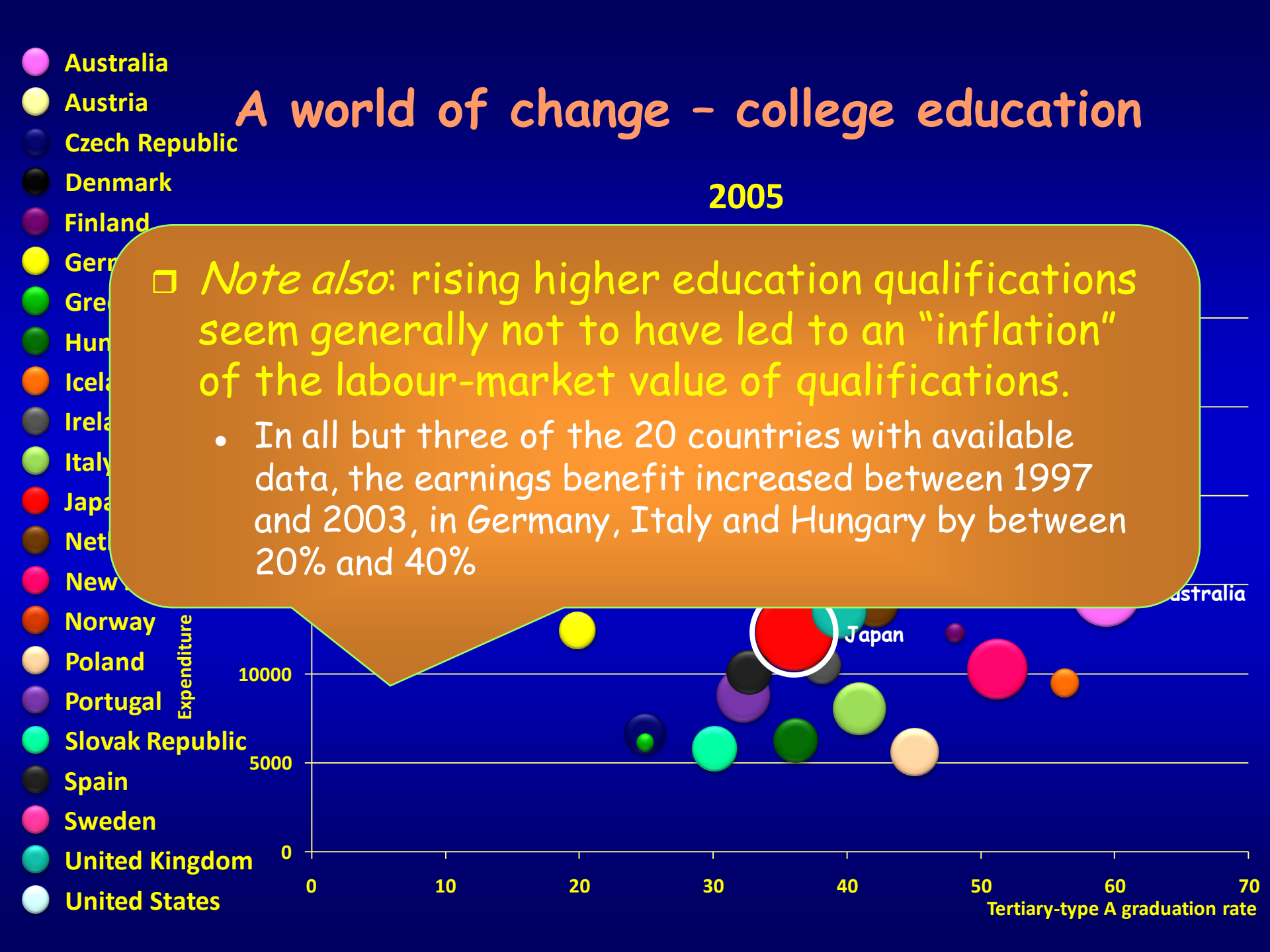
A world of change – college education



A world of change – college education



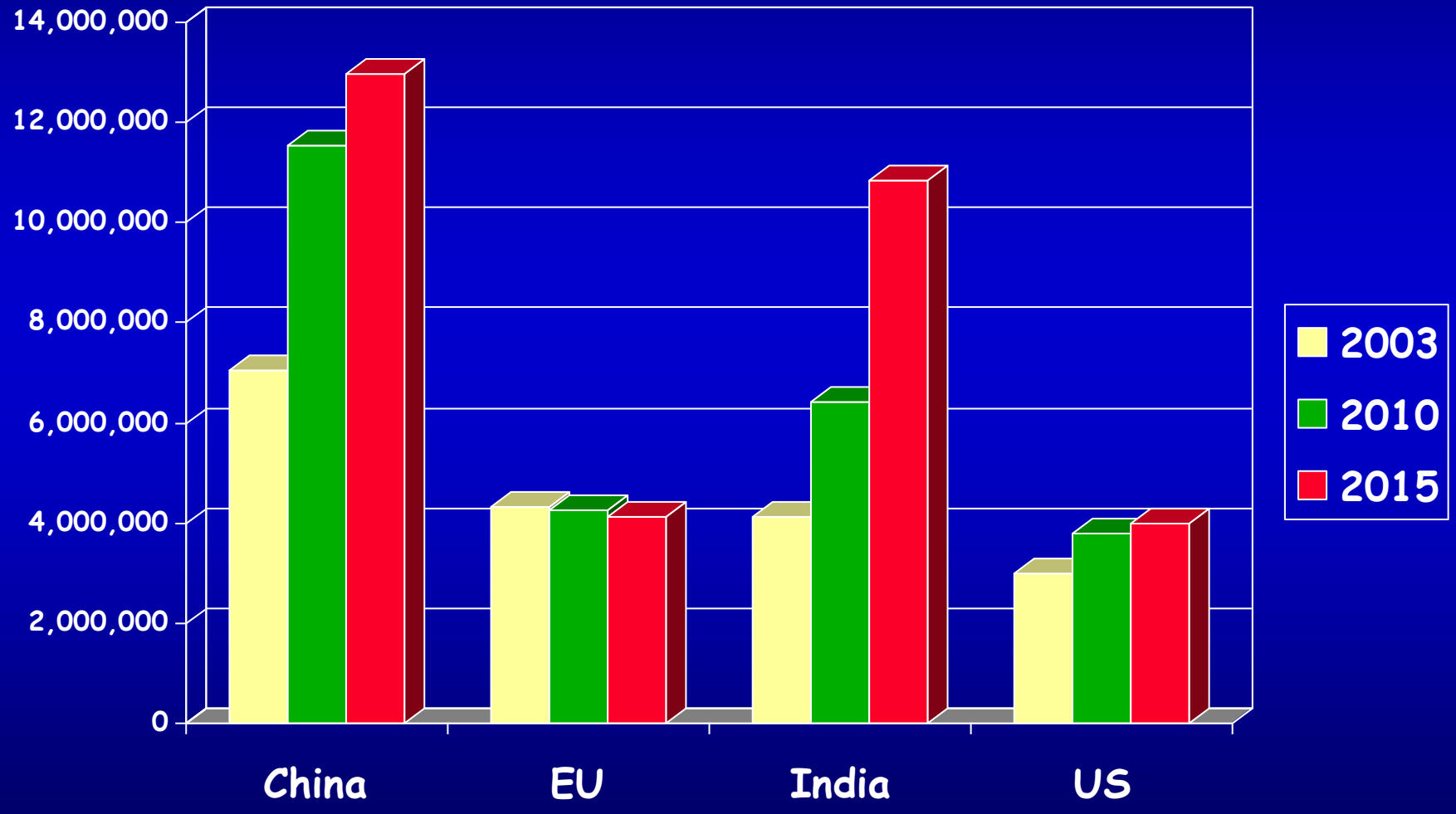
A world of change – college education



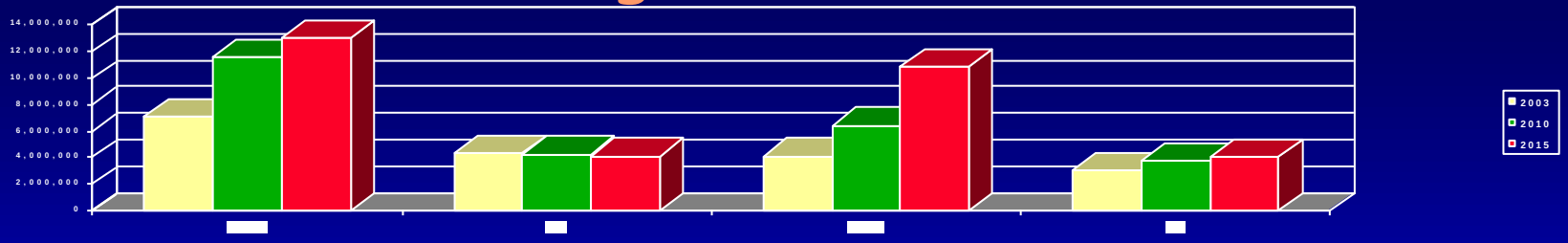
- *Note also*: rising higher education qualifications seem generally not to have led to an "inflation" of the labour-market value of qualifications.
  - In all but three of the 20 countries with available data, the earnings benefit increased between 1997 and 2003, in Germany, Italy and Hungary by between 20% and 40%

Metas cambiantes

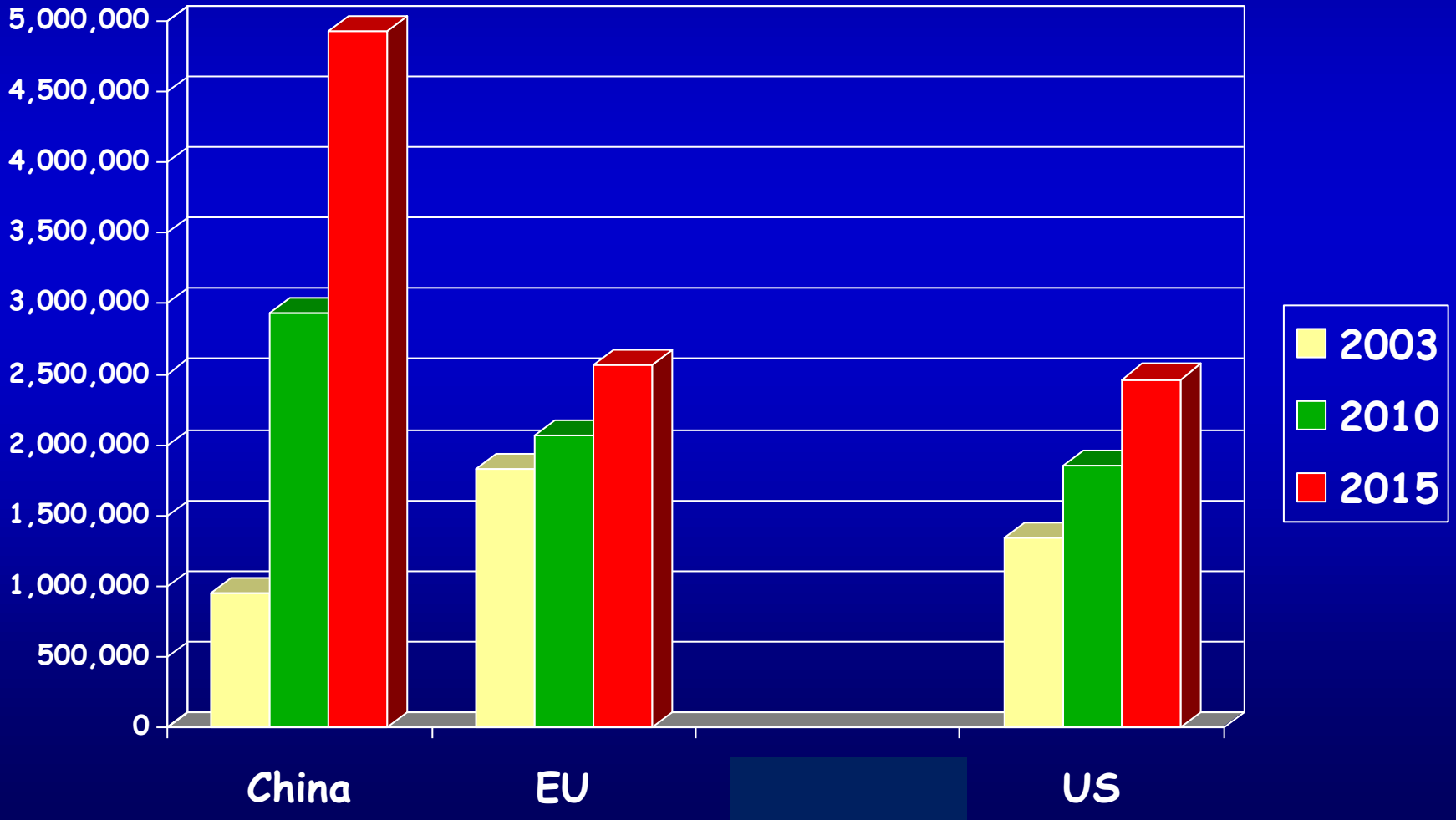
Oferta futura de graduados de secundaria



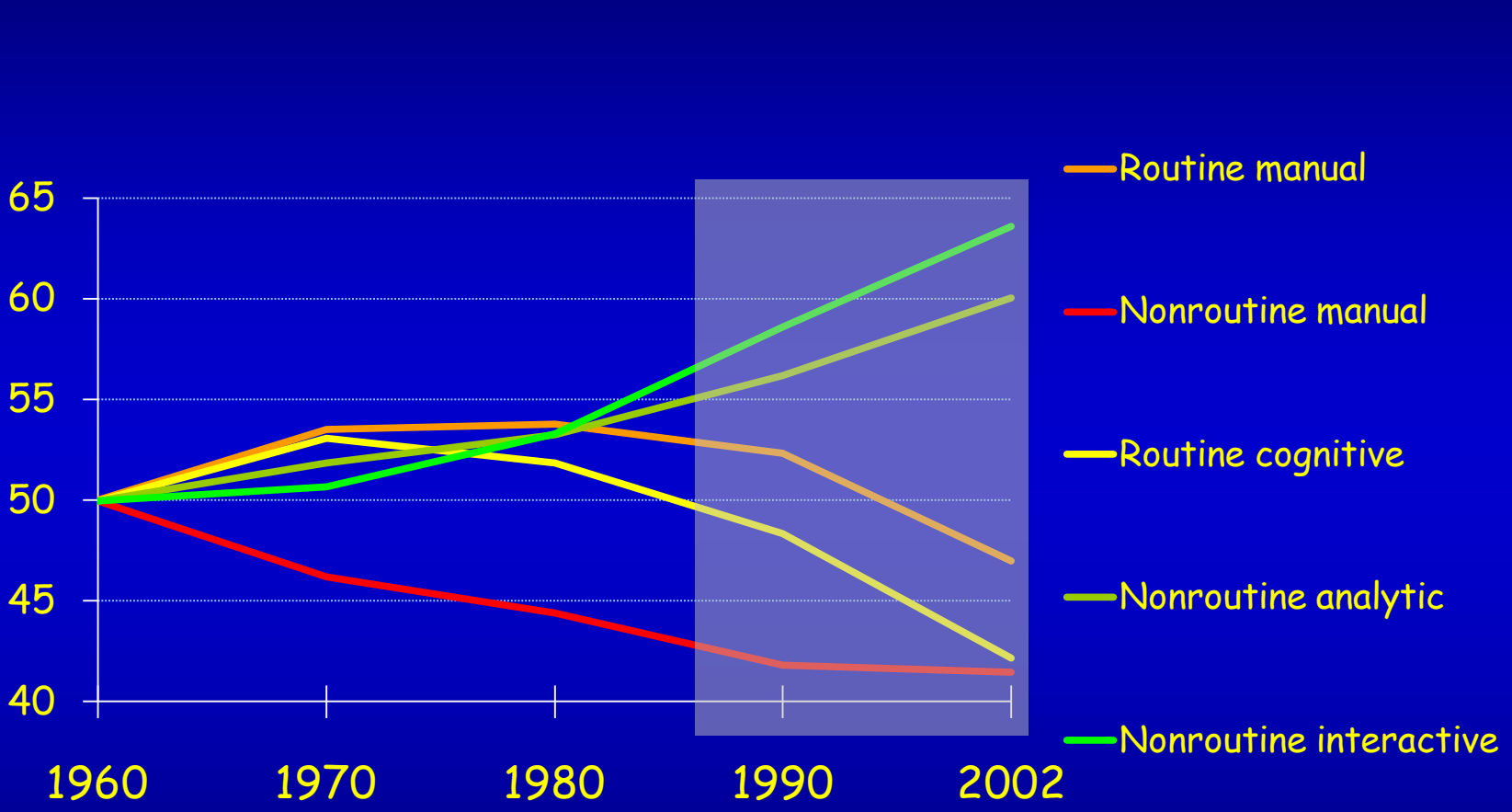
Oferta futura de graduados de secundaria



Oferta futura de graduados universitarios



Cómo está cambiando la demanda de competencias



(Levy y Murnane)

Decidir qué evaluar...

mirando al pasado: qué se espera que los estudiantes hayan aprendido

...o...

mirando al futuro: con qué éxito pueden extrapolar lo que han aprendido y aplicar sus conocimientos y habilidades en nuevos contextos

Para PISA, los países de la OCDE eligen el segundo planteamiento.

PISA

A three-yearly global assessment that…

… examines the performance of 15-year-olds in key subject areas as well as a wider range of educational outcomes

- Including students attitudes to learning and their learning behaviour

… collects contextual data from…

… students, parents, schools and systems…

… in order to identify policy levers

Coverage

- Representative samples of between 3,500 and 50,000 15-year-old students drawn in each country
- Most federal countries also draw state-level samples
- PISA covers roughly 90% of the world economy .

PISA 2006

- The latest PISA assessment emphasizes science competencies, defined in terms of an individual's:
  - Scientific knowledge and *use* of that knowledge to…
    - … identify scientific issues,
    - … explain scientific phenomena, and
    - … draw evidence-based conclusions about science-related issues
  - Understanding of the characteristic features of science as a form of human knowledge and enquiry
  - Awareness of how science and technology shape our material, intellectual and cultural environments
  - Willingness to engage with science-related issues
- A large proportion of complex open-ended tasks .

PISA defines science performance in terms of a student's:

Scientific knowledge
and *use/extrapolation* of that knowledge to..

- ... identify scientific issues,
- ... explain scientific phenomena, and
- ... draw evidence-based conclusions about science-related issues

Understanding of the characteristic features of science as a form of human knowledge and enquiry

Awareness of how science and technology shape our material, intellectual and cultural environments

Willingness to engage with science-related issues

For example

When reading about a health issue, can students separate scientific from non-scientific aspects of the text, apply knowledge and justify personal decisions ?

PISA defines science performance in terms of a student's:

Scientific knowledge
and *use/extrapolation* of that knowledge to...

- ... identify scientific issues,
- ... explain scientific phenomena, and
- ... draw evidence-based conclusions about science-related issues

Understanding of the characteristic features of science as a form of human knowledge and enquiry

Awareness of how science and technology shape our material, intellectual and cultural environments

Willingness to engage with science-related issues

For example

Can students distinguish between evidence-based explanations and personal opinions ?

PISA defines science performance in terms of a student's:

Scientific knowledge
and *use/extrapolation* of that knowledge to...

- ... identify scientific issues,
- ... explain scientific phenomena, and
- ... draw evidence-based conclusions about science-related issues

Understanding of the characteristic features of science as a form of human knowledge and enquiry

Awareness of how science and technology shape our material, intellectual and cultural environments

Willingness to engage with science-related issues

For example

Can individuals recognise and explain the role of technologies as they influence a nation's economy ?

Or are they aware of environmental changes and the effects of those changes on economic/social stability ?

PISA defines science performance in terms of a student's:

Scientific knowledge
and *use/extrapolation* of that knowledge to...

- ... identify scientific issues,
- ... explain scientific phenomena, and
- ... draw evidence-based conclusions about science-related issues

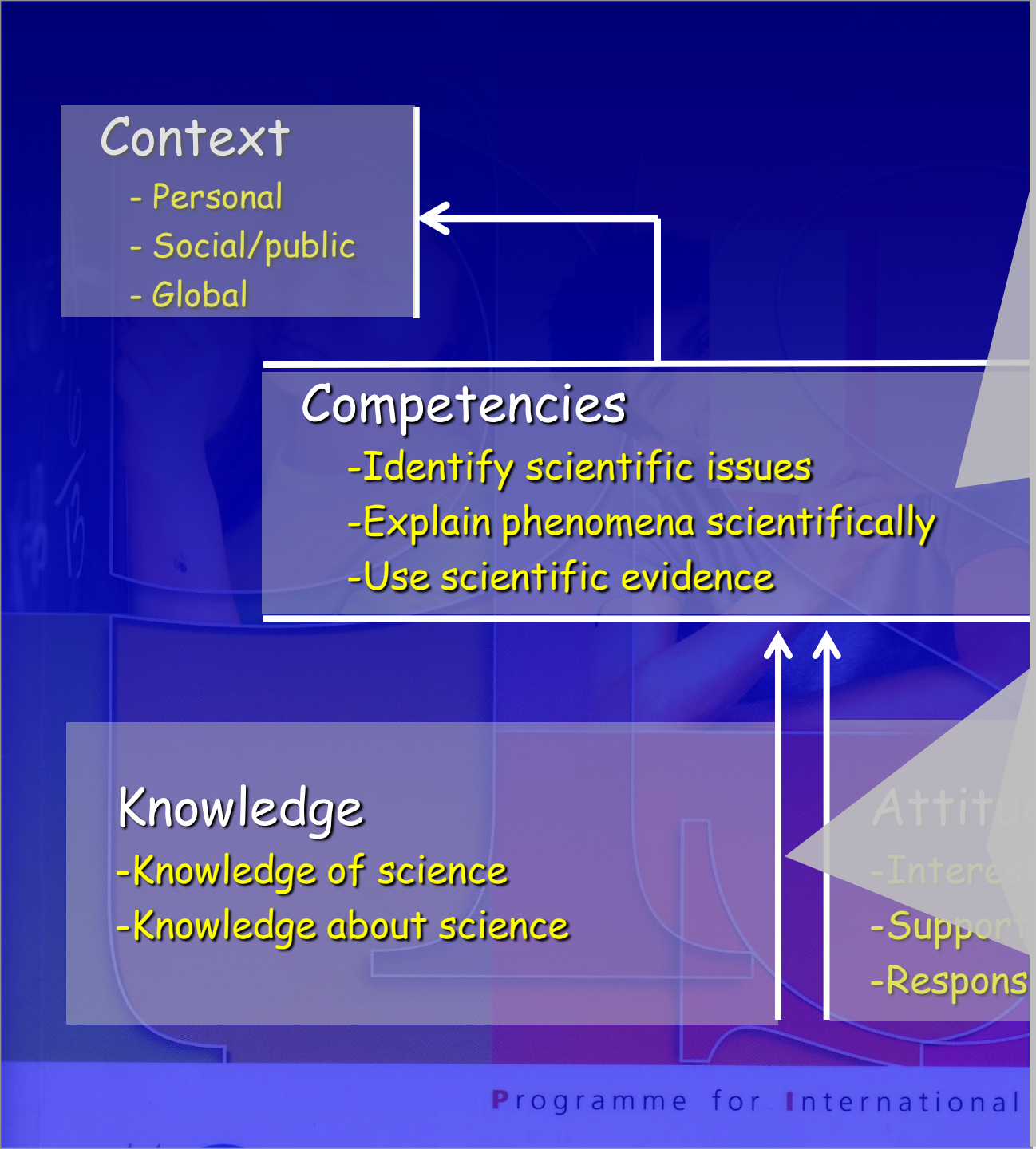
Understanding of the characteristic features of science as a form of human knowledge and enquiry

Awareness of how science and technology shape our material, intellectual and cultural environments

Willingness to engage with science-related issues

Interest in science, support for scientific enquiry, responsibility for the environment

This addresses the value students place on science, both in terms of topics and in terms of the scientific approach to understanding the world and solving problems



Interest science

Indicate curiosity in science and science-related issues and endeavours

Demonstrate willingness to acquire additional scientific knowledge and skills, using variety of resources and methods

Demonstrate willingness to seek information and have an interest in science, including consideration of science-related careers

Support for science

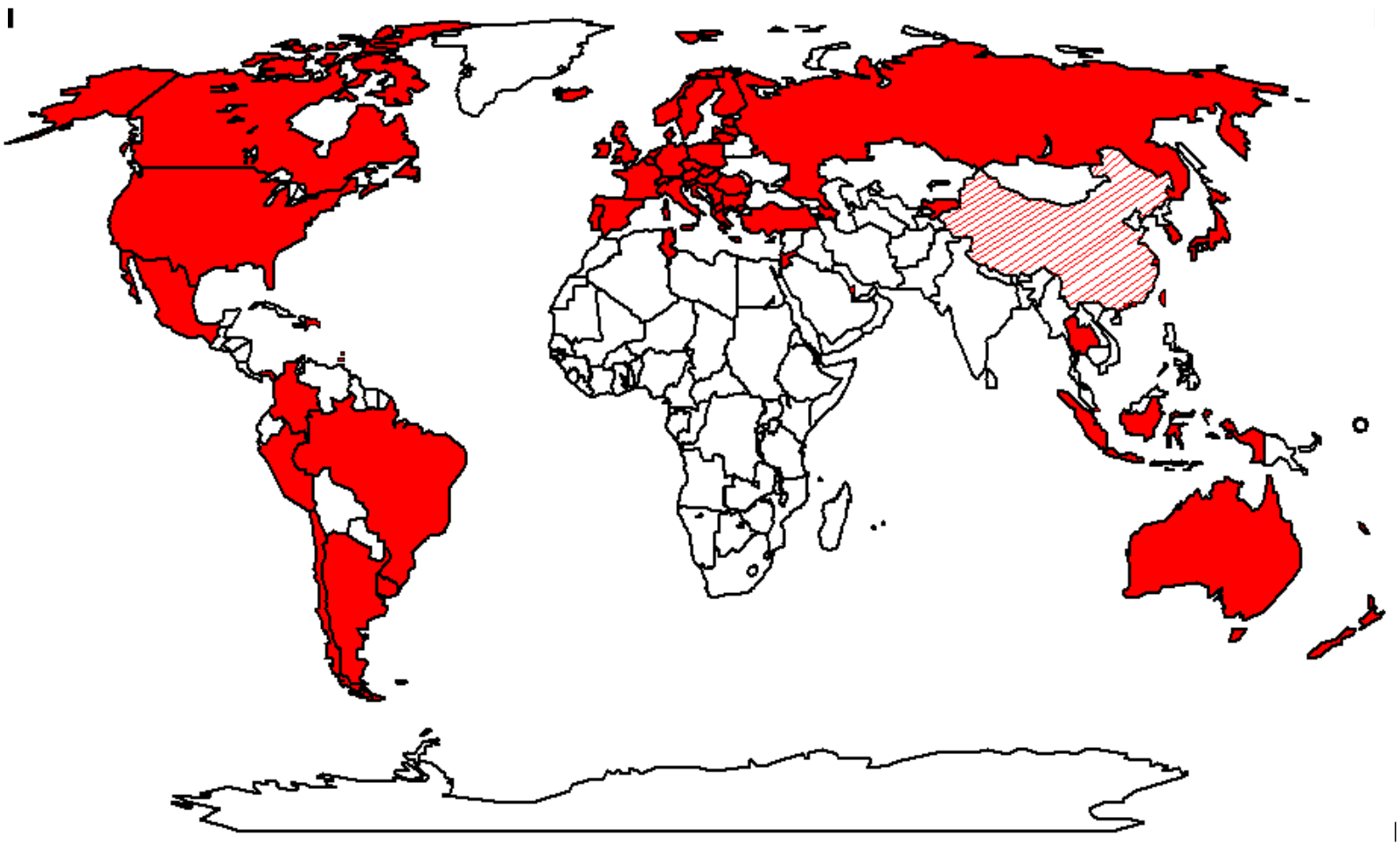
Acknowledge the importance of considering different scientific perspectives and arguments

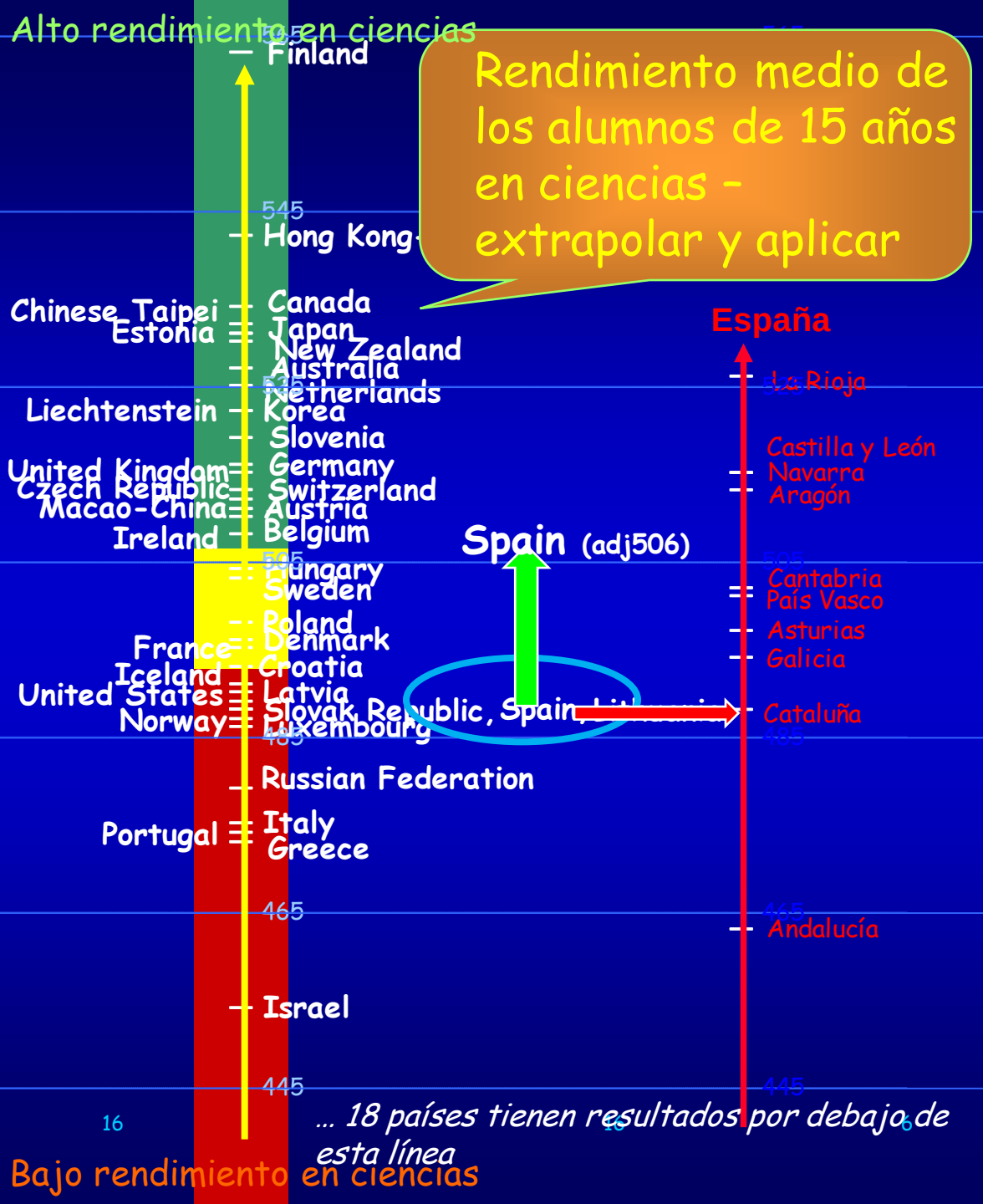
Support the use of factual information and rational explanation

Logical and careful processes in drawing conclusions

Países PISA en 2009

De la economía mundial: 87%

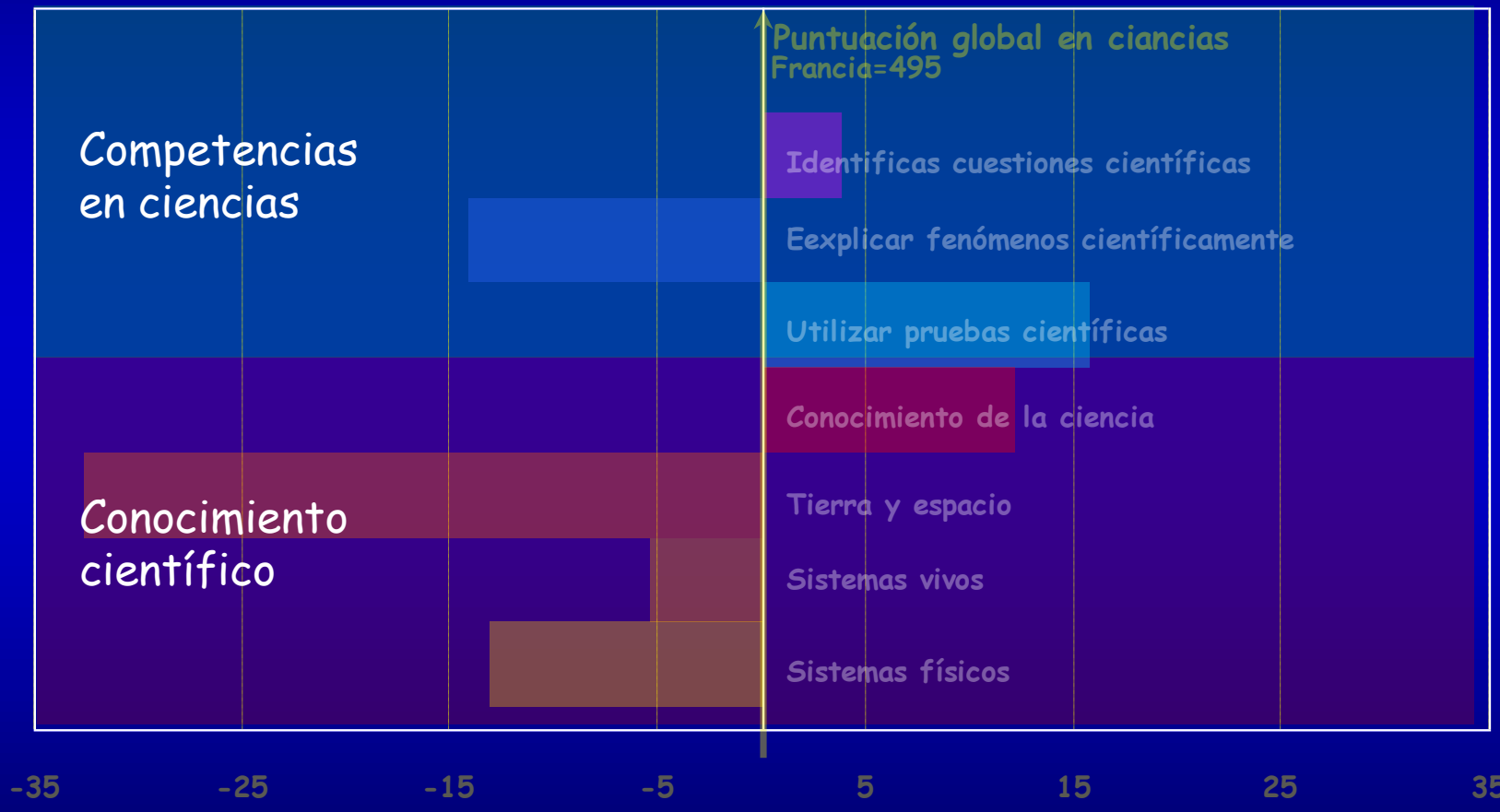



Alto rendimiento en ciencias
Rendimiento medio de los alumnos de 15 años en ciencias - extrapolar y aplicar
Finland
545
Hong Kong
Chinese Taipei
Canada
Estonia
Japan
New Zealand
Australia
Liechtenstein
Netherlands
Korea
Slovenia
United Kingdom
Germany
Czech Republic
Switzerland
Macao-China
Austria
Ireland
Belgium
Hungary
Sweden
Poland
France
Denmark
Iceland
Croatia
United States
Latvia
Norway
Slovak Republic
Luxembourg
Russian Federation
Portugal
Italy
Greece
465
Israel
445
Spain (adj506)
España
La Rioja
Castilla y León
Navarra
Aragón
Cantabria
País Vasco
Asturias
Galicia
Cataluña
Andalucía
16
... 18 países tienen resultados por debajo de esta línea
Bajo rendimiento en ciencias

Puntos fuertes y débiles de los países en ciencias

según sus resultados globales

Francia

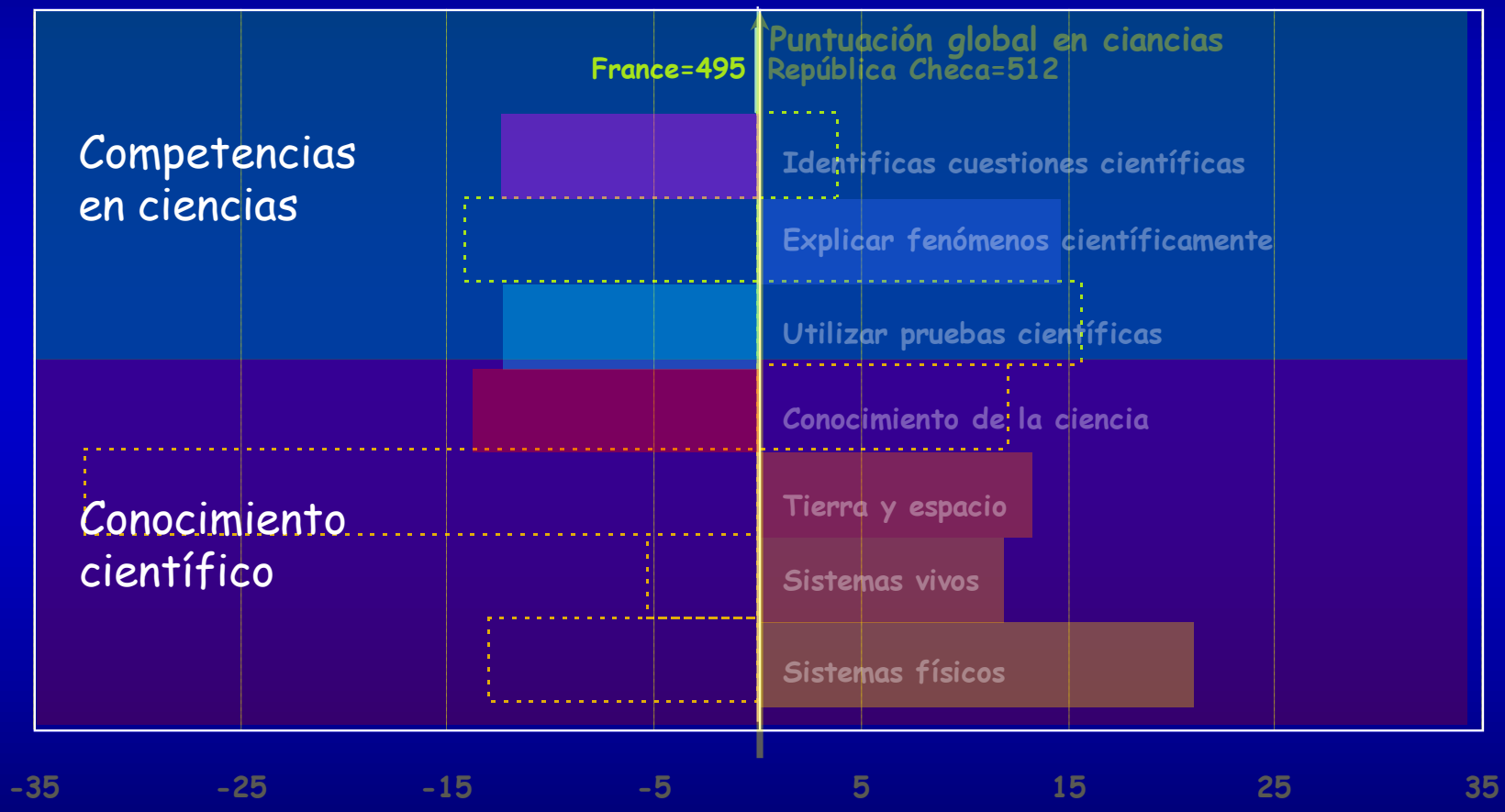


OECD (2007), *PISA 2006 – Science Competencies for Tomorrow's World*, Figura 2.13

Puntos fuertes y débiles de los países en ciencias

según sus resultados globales

República Checa

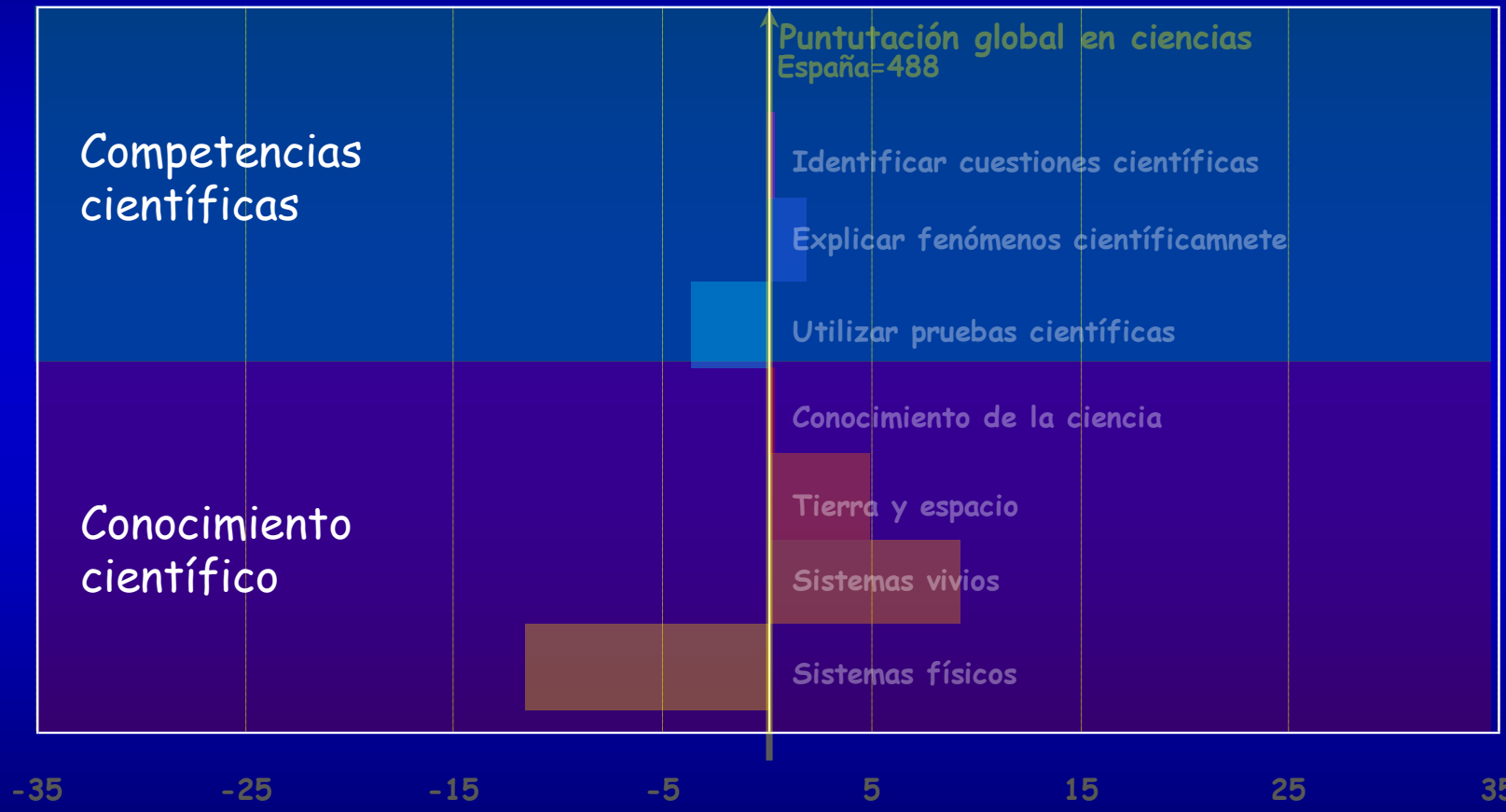


OECD (2007), *PISA 2006 – Science Competencies for Tomorrow's World*, Figure 2.13

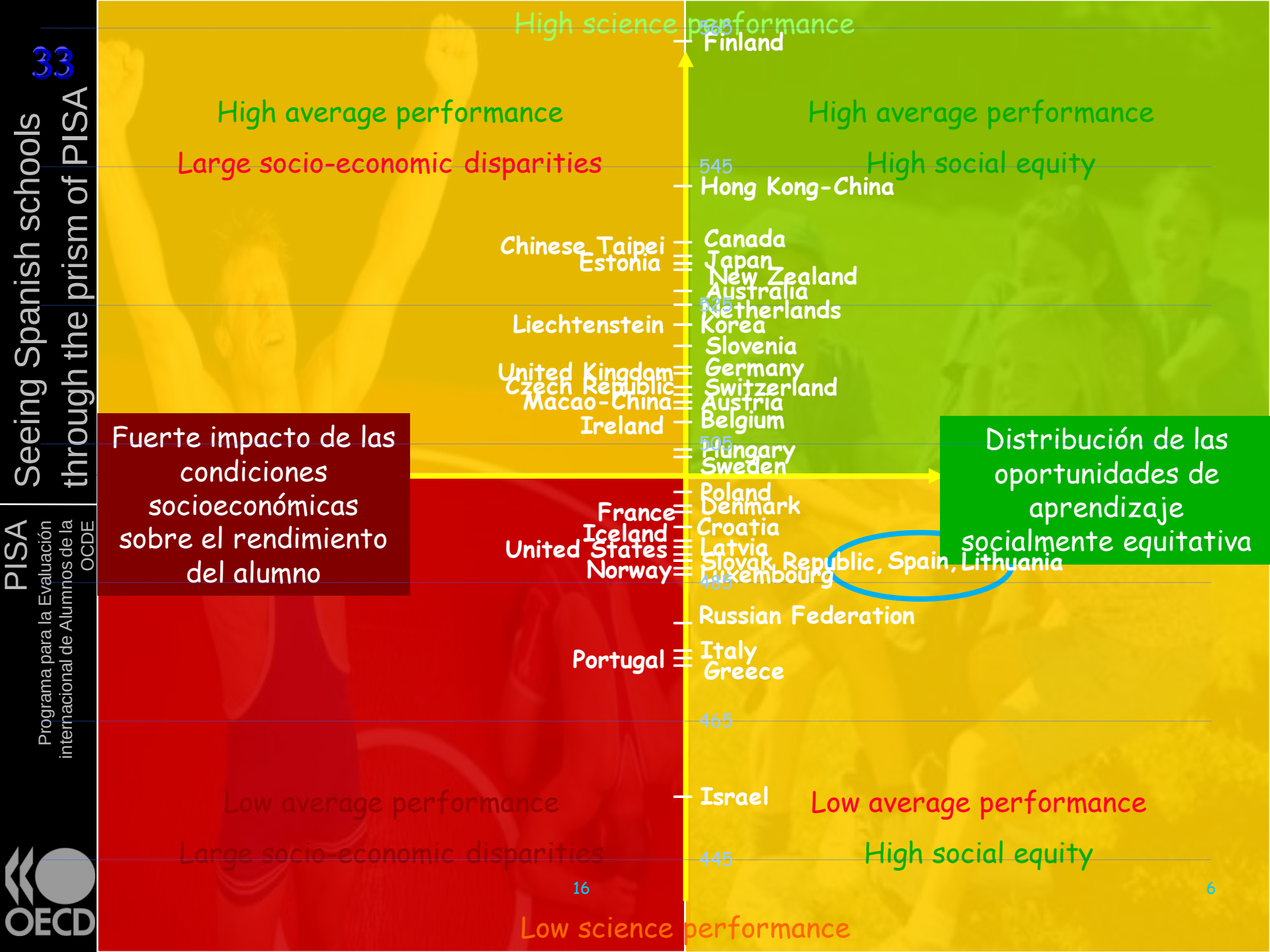
Puntos fuertes y débiles de los países en ciencias

según sus resultados globales

España

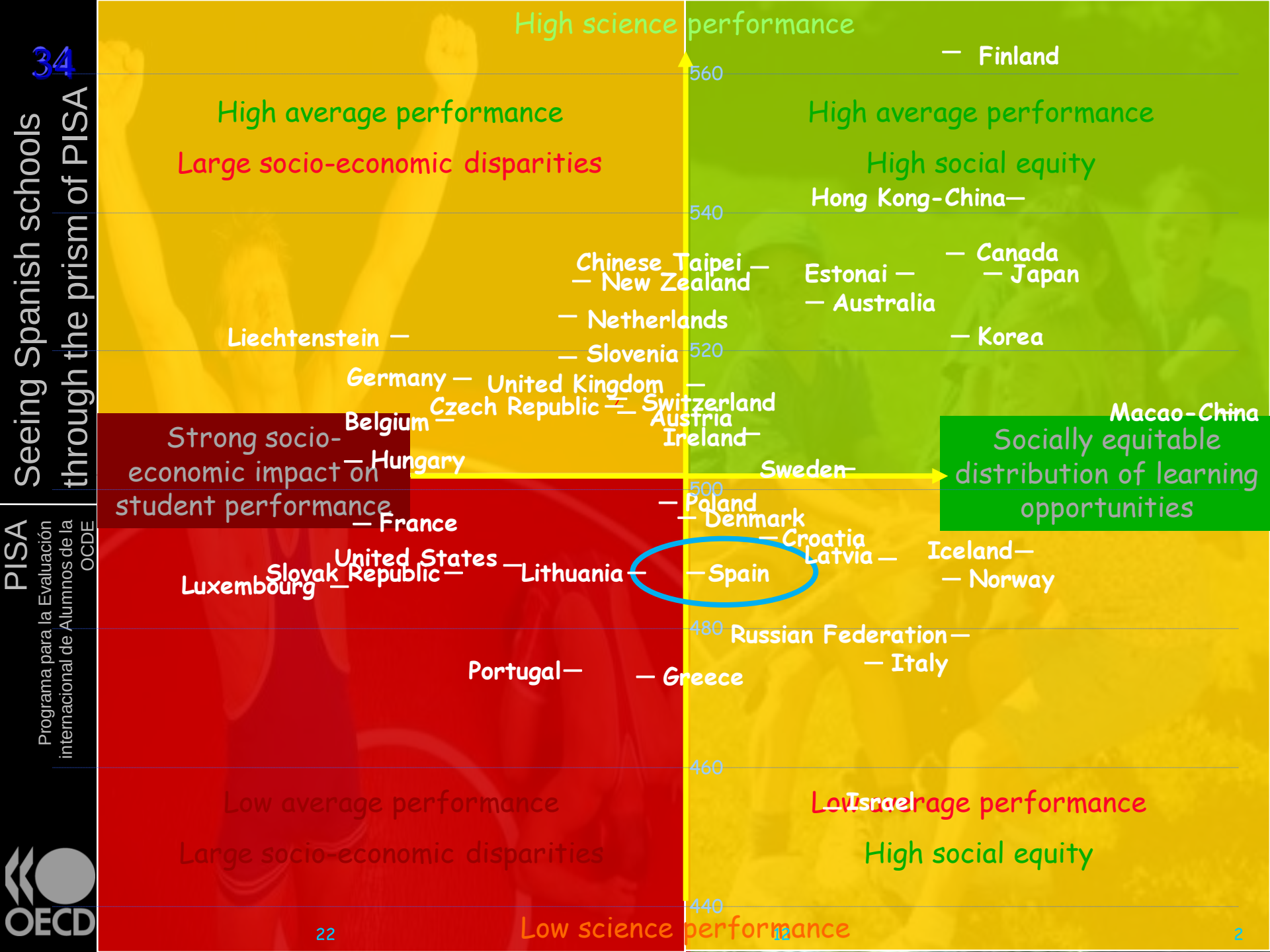


OECD (2007), *PISA 2006 – Science Competencies for Tomorrow's World*, Figure 2.13


High science performance
565
Finland
High average performance
Large socio-economic disparities
High average performance
High social equity
545
Hong Kong-China
Chinese Taipei
Canada
Estonia
Japan
New Zealand
Australia
535
Netherlands
Liechtenstein
Korea
Slovenia
United Kingdom
Germany
Czech Republic
Switzerland
Macao-China
Austria
Ireland
Belgium
505
Hungary
Sweden
Poland
France
Denmark
Iceland
Croatia
United States
Latvia
Norway
Slovak Republic, Spain, Lithuania
Luxembourg
485
Russian Federation
Portugal
Italy
Greece
465
Israel
Low average performance
Large socio-economic disparities
Low average performance
High social equity
445
16
6
Low science performance
Fuerte impacto de las condiciones socioeconómicas sobre el rendimiento del alumno
Distribución de las oportunidades de aprendizaje socialmente equitativa

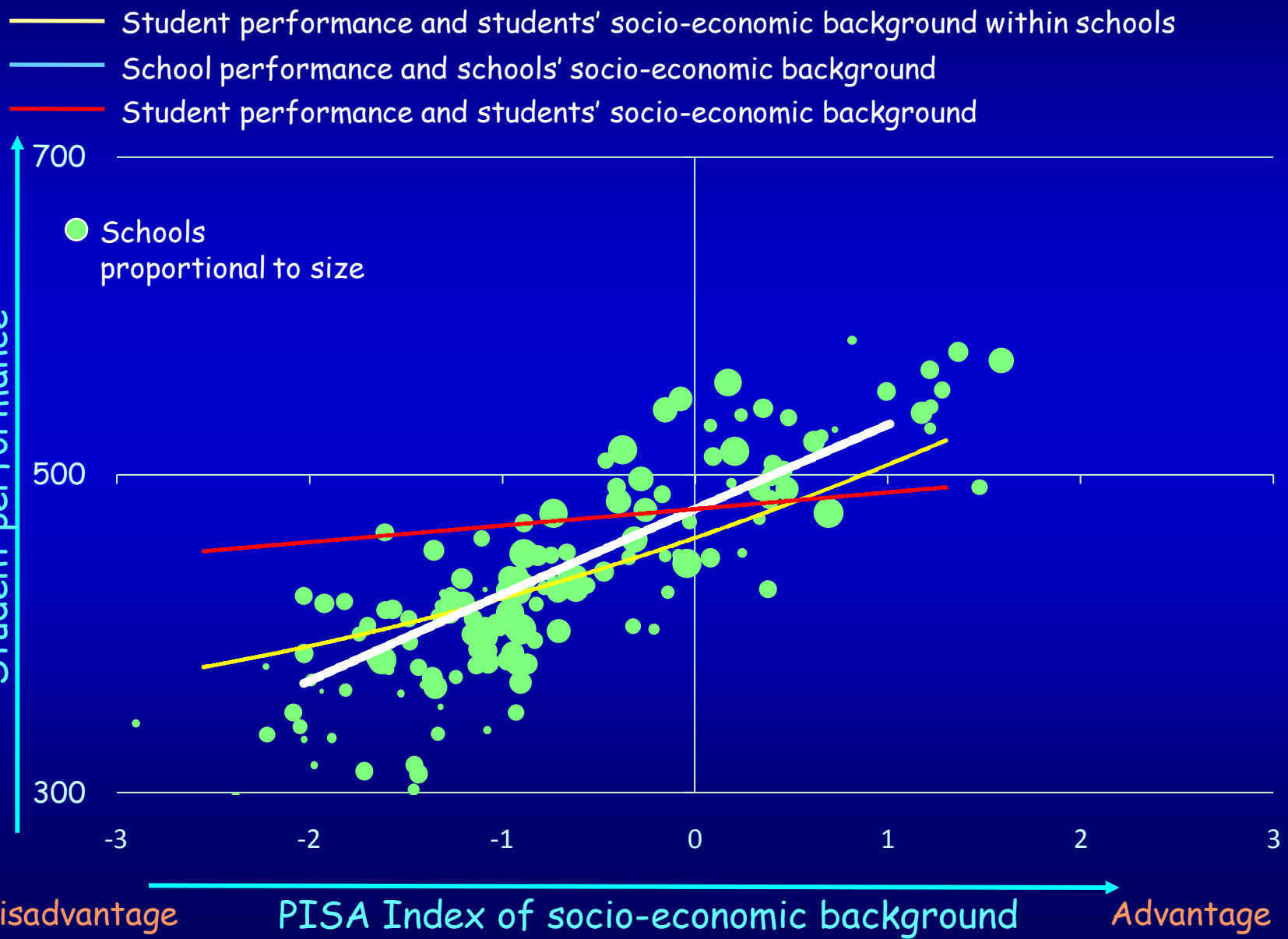
Seeing Spanish schools through the prism of PISA

PISA Programa para la Evaluación internacional de Alumnos de la OCDE



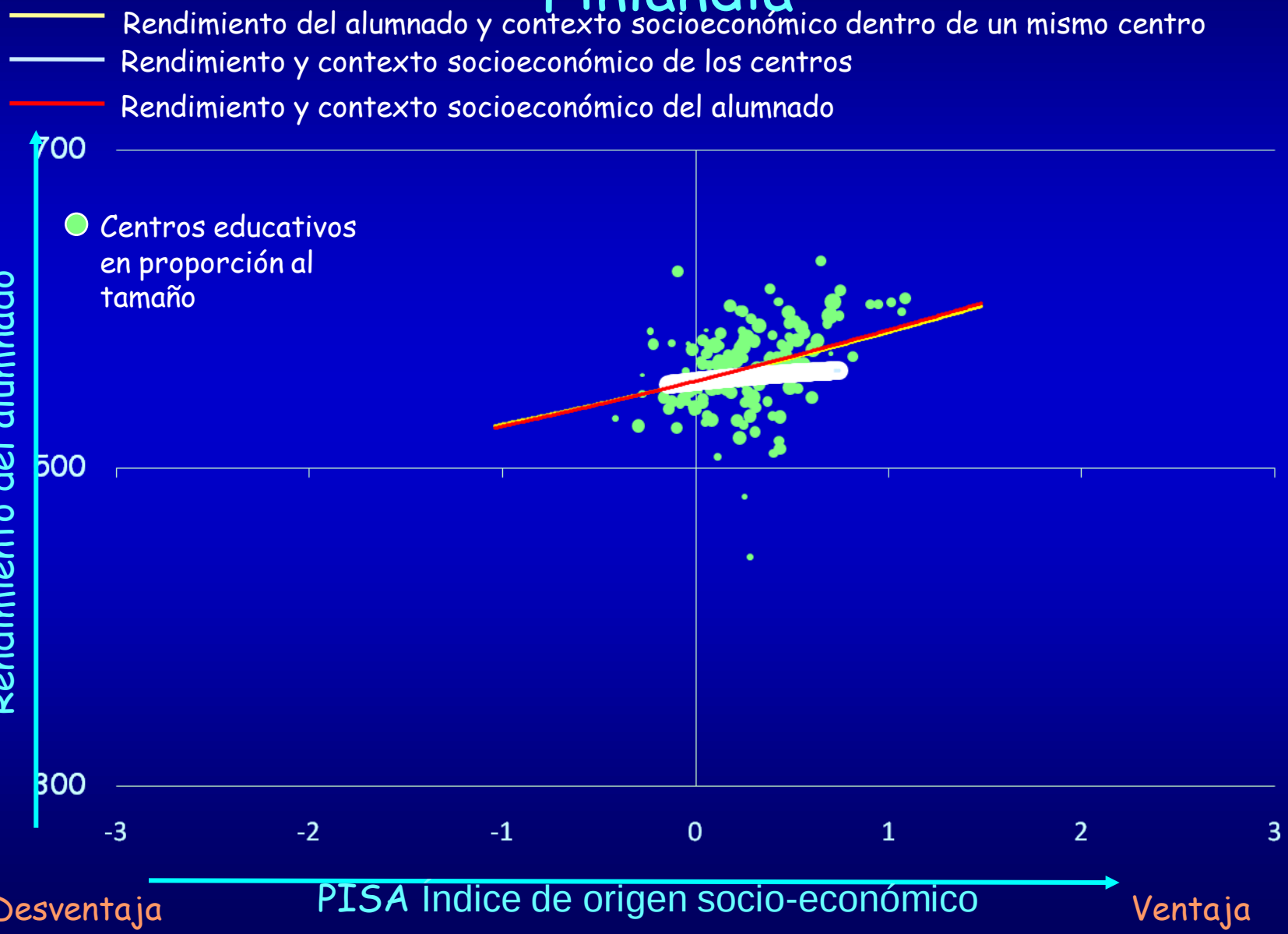
School performance and socio-economic background

Spain



Rendimiento escolar y contexto socioeconómico del alumnado

Finlandia

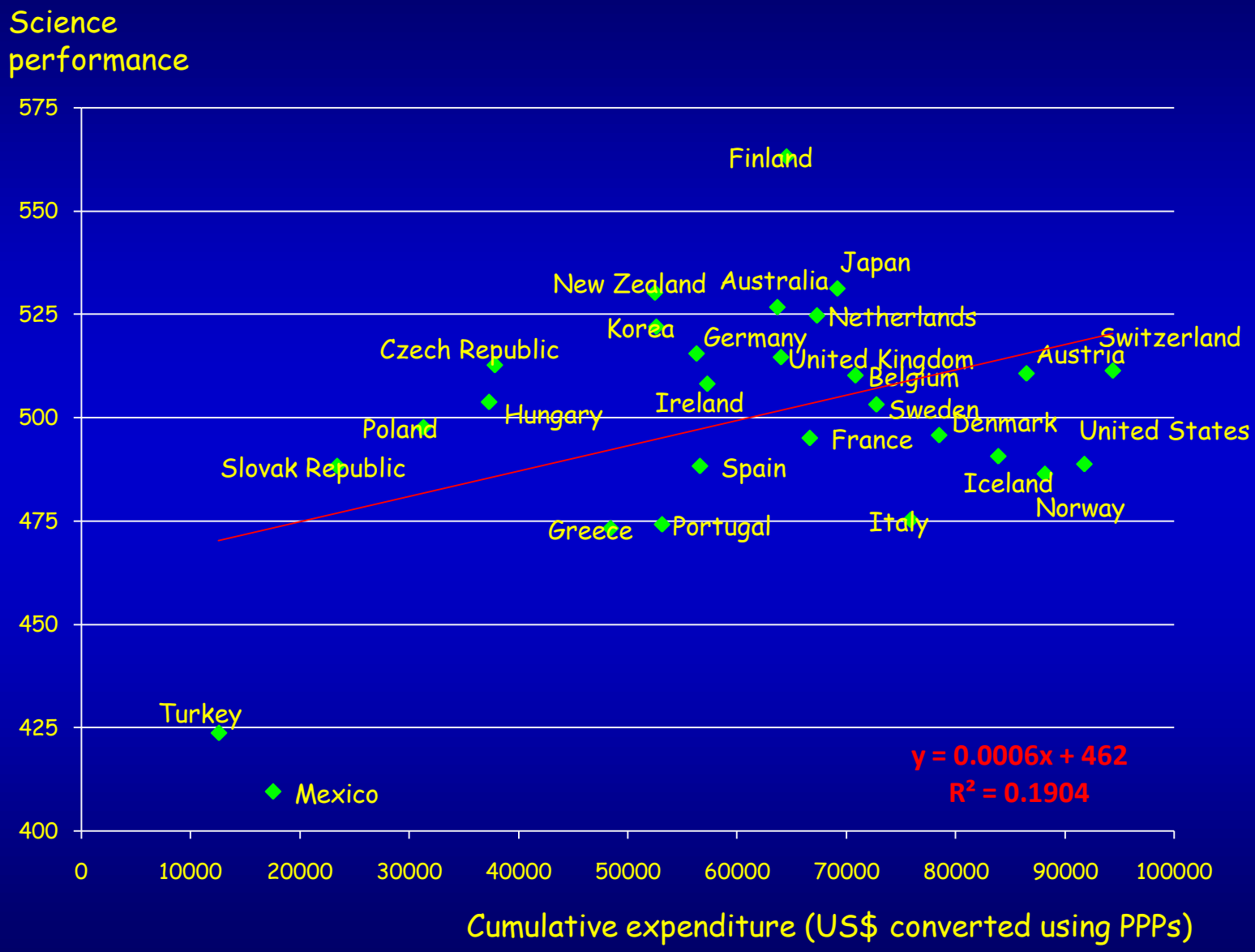


Posibles claves para el diseño de una política educativa a partir de los contrastes manifestados por la OCDE

Mitos

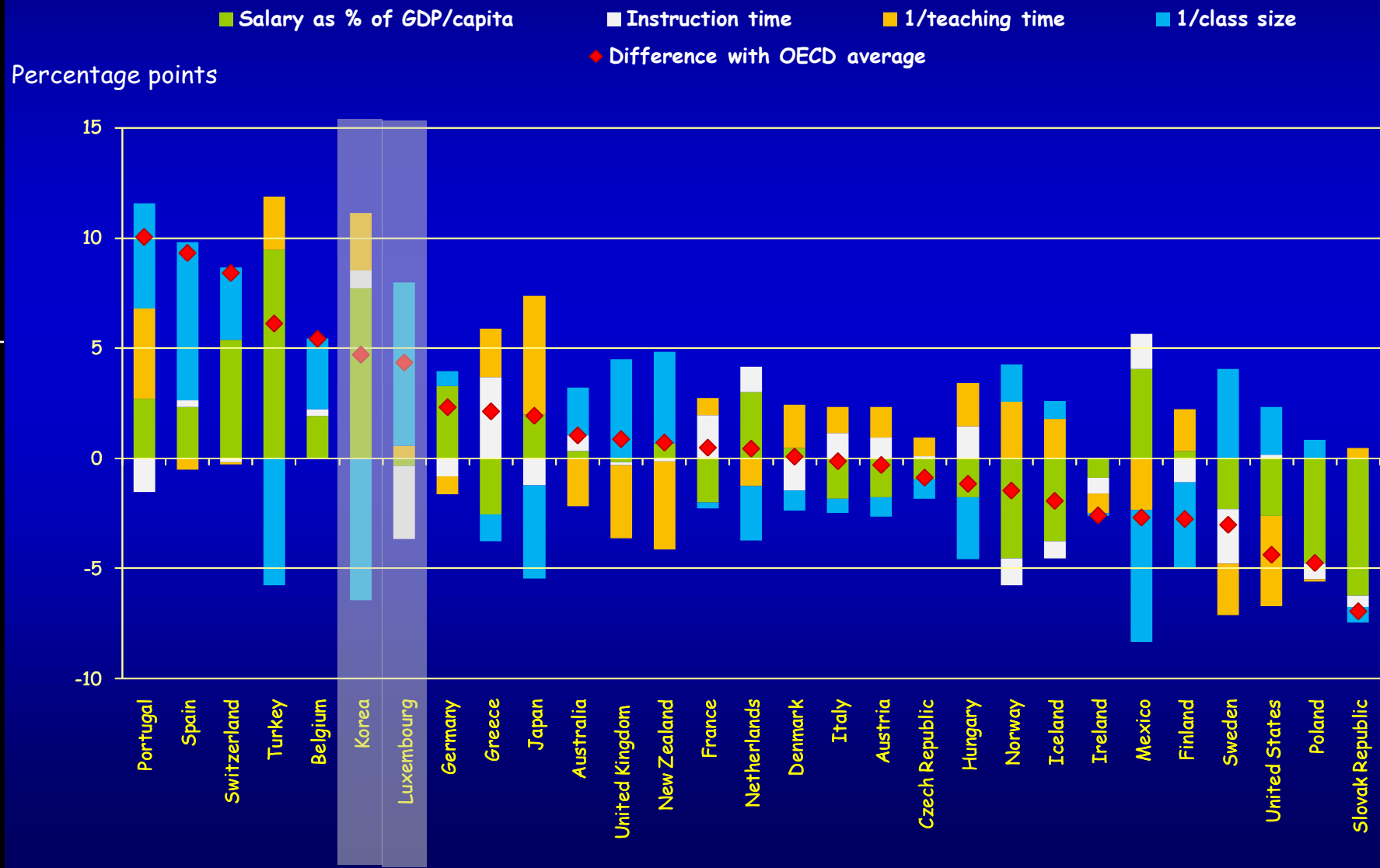
- No existe relación entre el tamaño del país y el rendimiento medio
- No existe relación entre el porcentaje de inmigrantes y el rendimiento medio
- Hay pocas diferencias en la motivación de los estudiantes hacia la prueba
- Impacto limitado de las preferencias nacionales por ciertos ítems.

Money matters - but other things do too



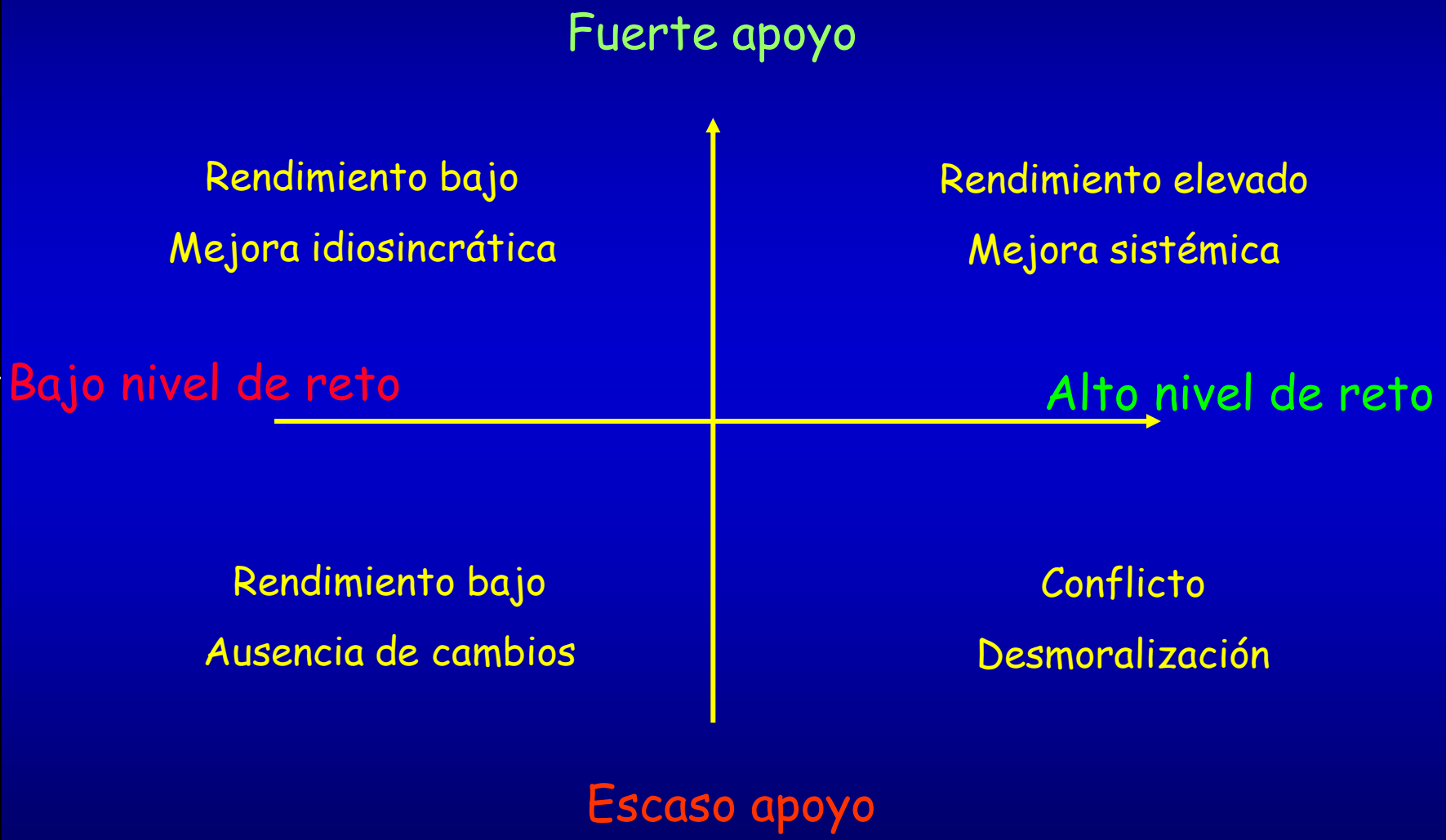
Countries spend their money differently

Contribution of various factors to upper secondary teacher compensation costs per student as a percentage of GDP per capita (2004)




Altas expectativas y estándares universales
Acceso al desarrollo profesional de mejor calidad

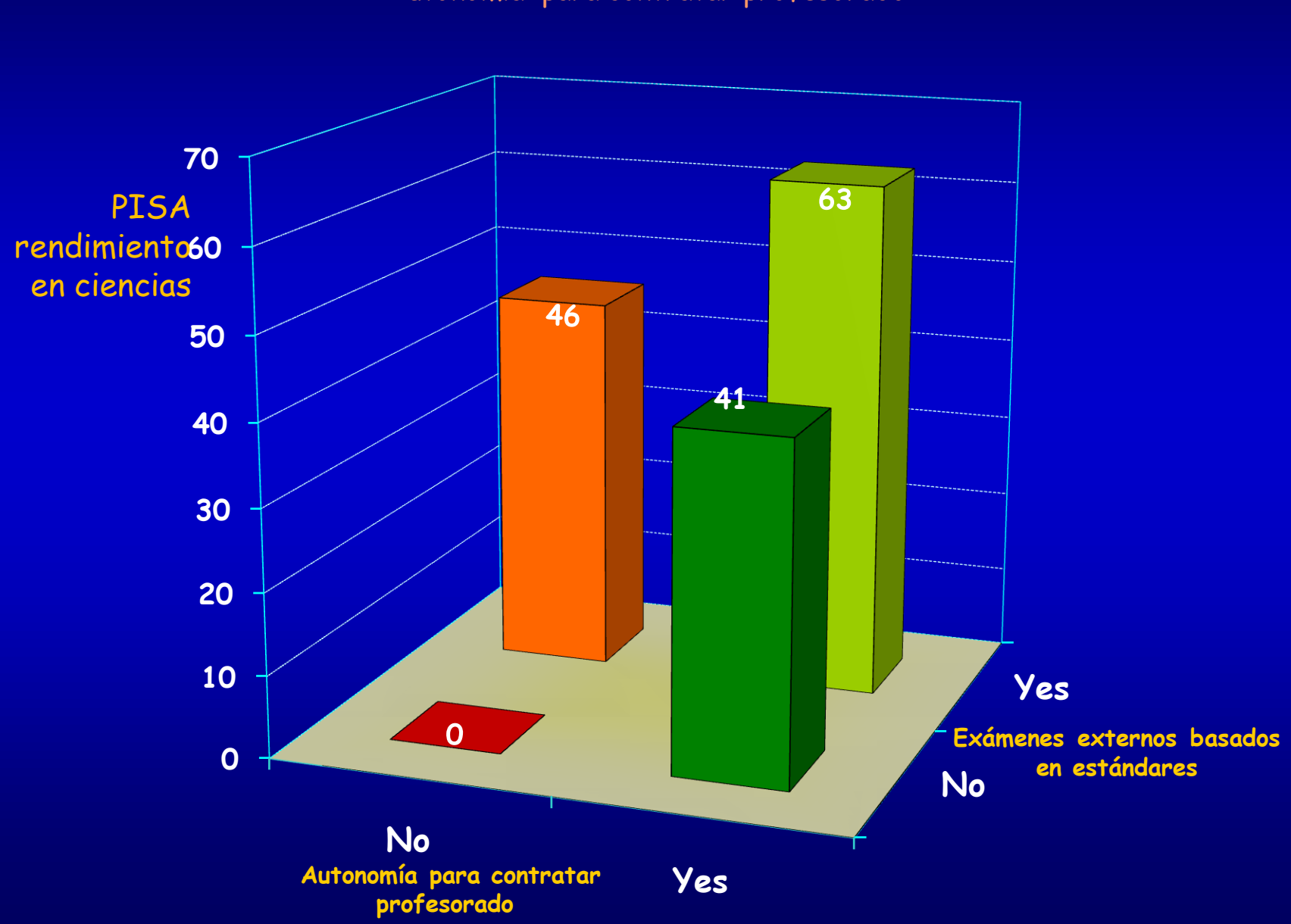
Retos y apoyos



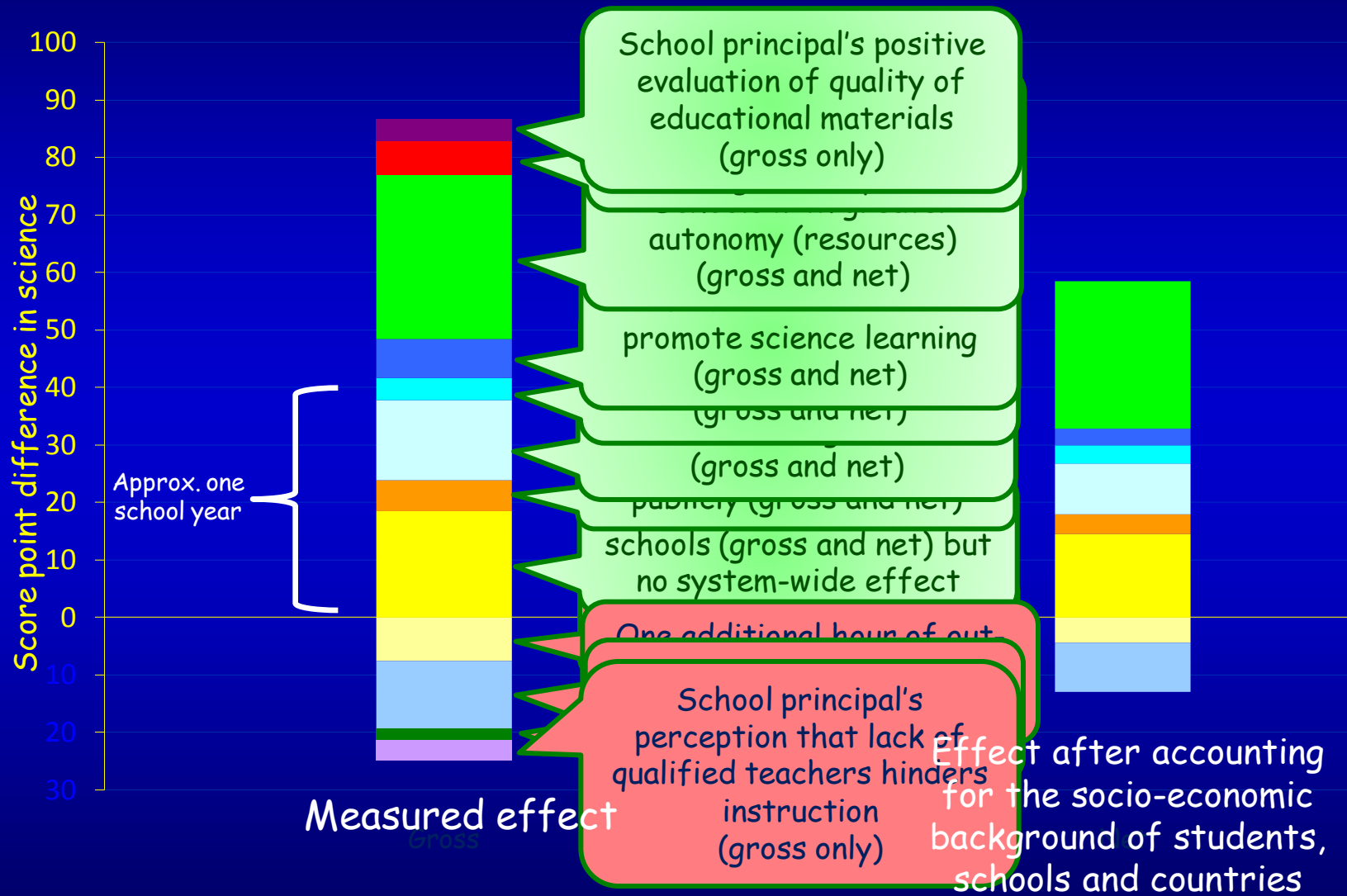

Alta amb
Responsabilidad en desarrollo. El colegio como centro de acción
Responsabilidad de centro e intervencionismo, en porporción inversa para alcanzar el éxito
rrollo
jor calidad

Responsibilidad local y prescripción nacional

Autonomía escolar, exámenes basados en estándares oficiales y rendimiento en ciencias

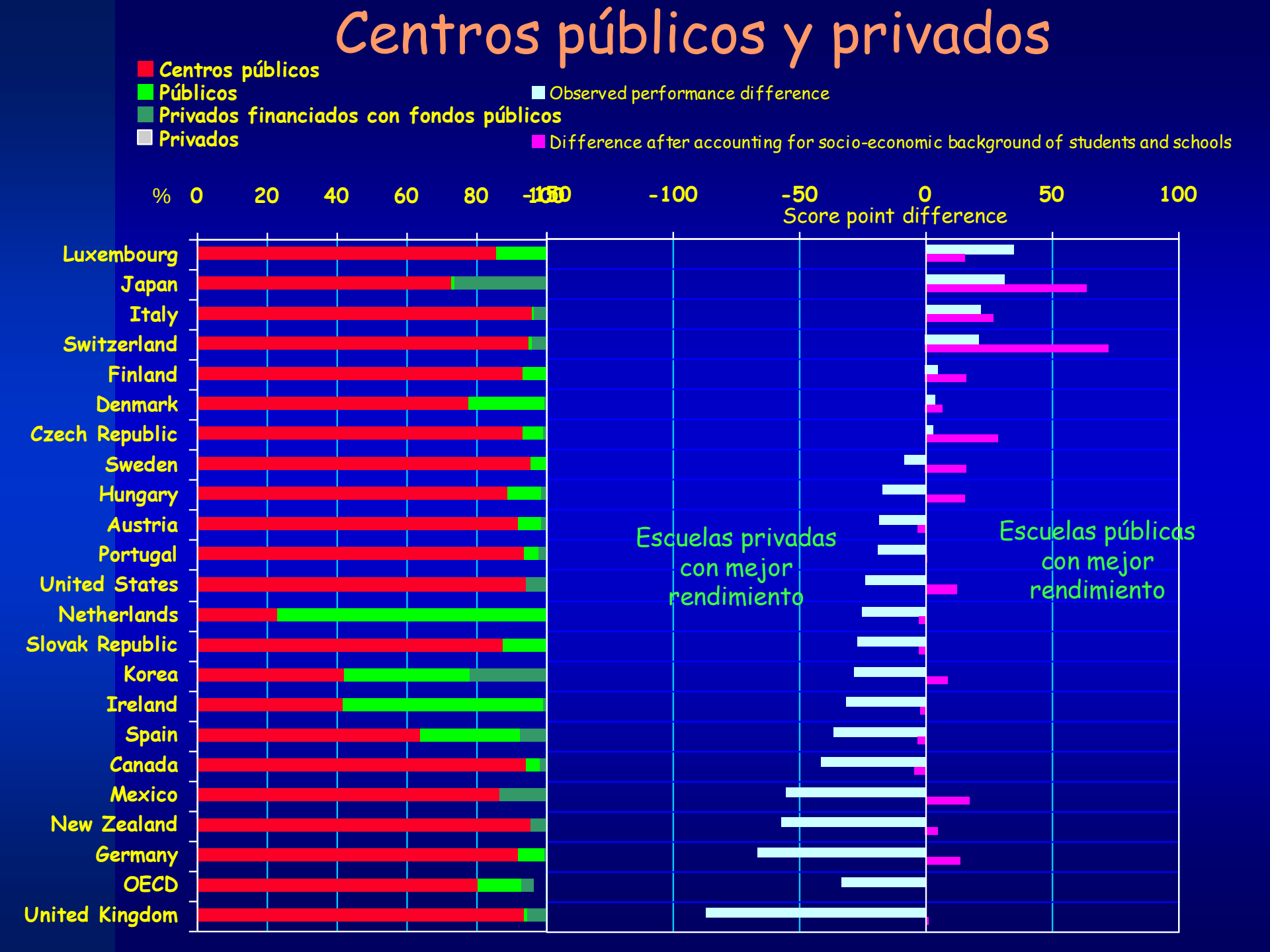


Conjunto de datos internacionales: consecuencias de ciertos factores del centro y del sistema en el rendimiento en ciencias tras tomar en consideración todos los otros factores del modelo



OECD (2007), *PISA 2006 – Science Competencies from Tomorrow's World*, Table 6.1a

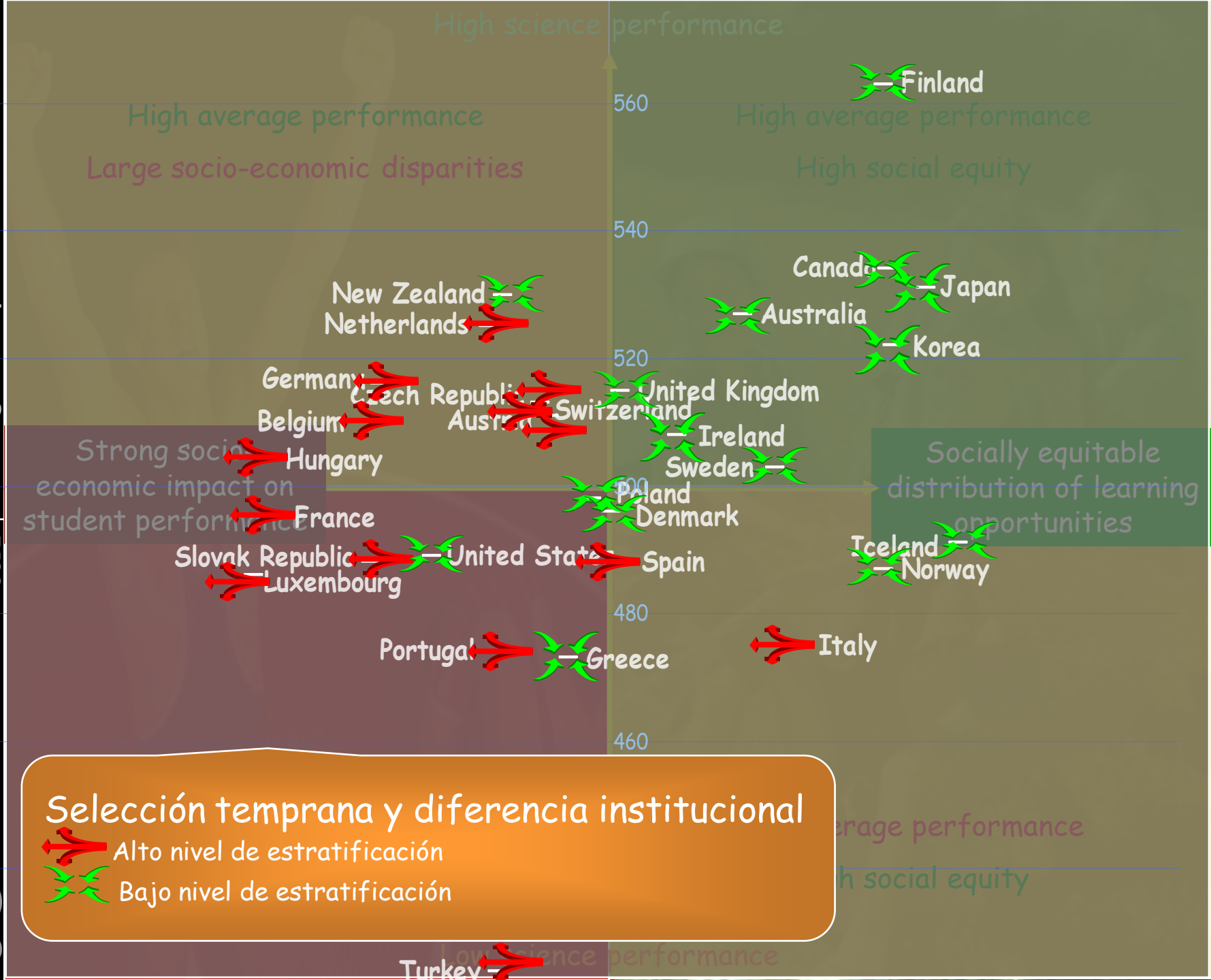
Centros públicos y privados




mbiciones
ela como centro
ión de
Oportunidades educativas integradas
Pasar de sistemas de enseñanza y evaluación prescritos a un aprendizaje personalizado
Acceso
profesiona

Seeing Spanish schools through the prism of PISA

PISA
Programa para la Evaluación internacional de Alumnos de la OCDE



La calidad de un sistema educativo no puede exceder la calidad de sus maestros

¿Por qué preocuparse?

- **Progreso**
  - Preocupación por las competencias necesarias para el crecimiento económico, la mejora de la productividad y las tasas de innovación tecnológica
    - Un año más de educación supone entre el 3% y el 6% del PIB
    - El incremento en las cualificaciones universitarias no parece haber producido una "inflación" del valor de mercado de las cualificaciones (en 17 de los 20 países con datos disponibles, los ingresos aumentaron entre 1997 y 2003; en Alemania, Italia y Hungría aumentaron entre un 20% y un 40%)
- **Justicia**
  - Preocupación por el papel de las competencias en la generación de desigualdad social y en el resultado económico
  - Tanto la destreza media como la distribución de destrezas son importantes en el crecimiento a largo plazo
- **Rentabilidad**
  - Preocupación por la demanda, la eficiencia, y la efectividad de la inversión en bienes públicos

- www.oecd.org; www.pisa.oecd.org
  - Todas las publicaciones nacionales e internacionales
  - Base de datos completa, a micro nivel
- email: pisa@oecd.org
- Andreas.Schleicher@OECD.org

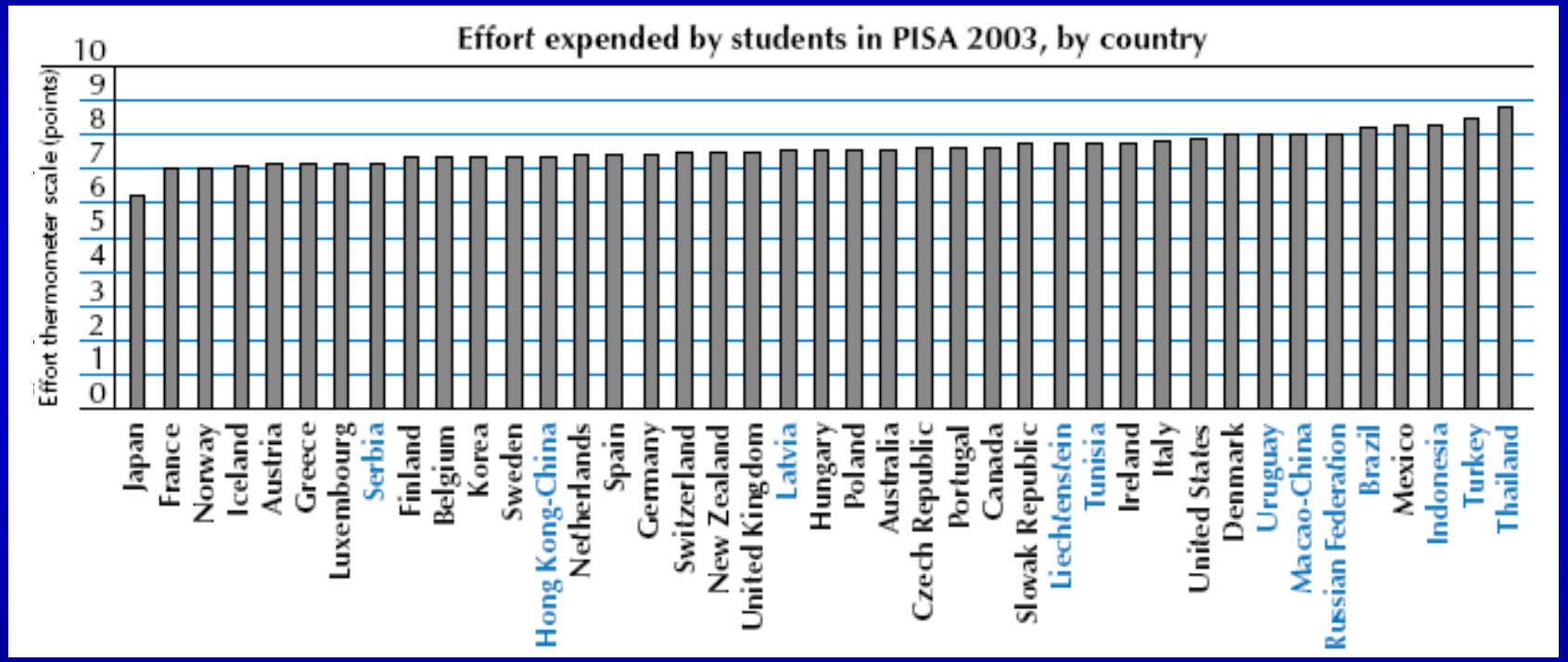
Thank you !

… y recuerde:

Sin datos, usted sólo es otro ciudadano más con opinión

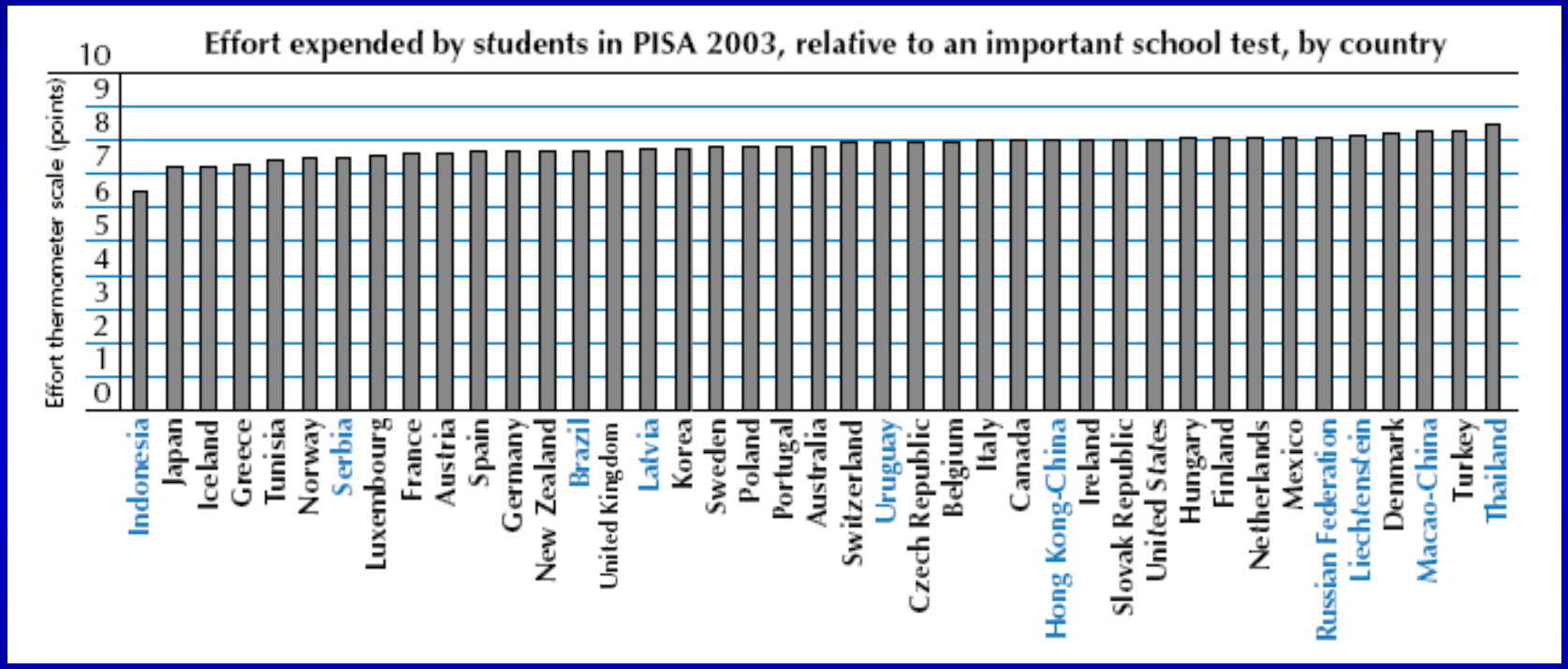
Diapositivas de apoyo

Esfuerzo realizado por el alumado en PISA 2003



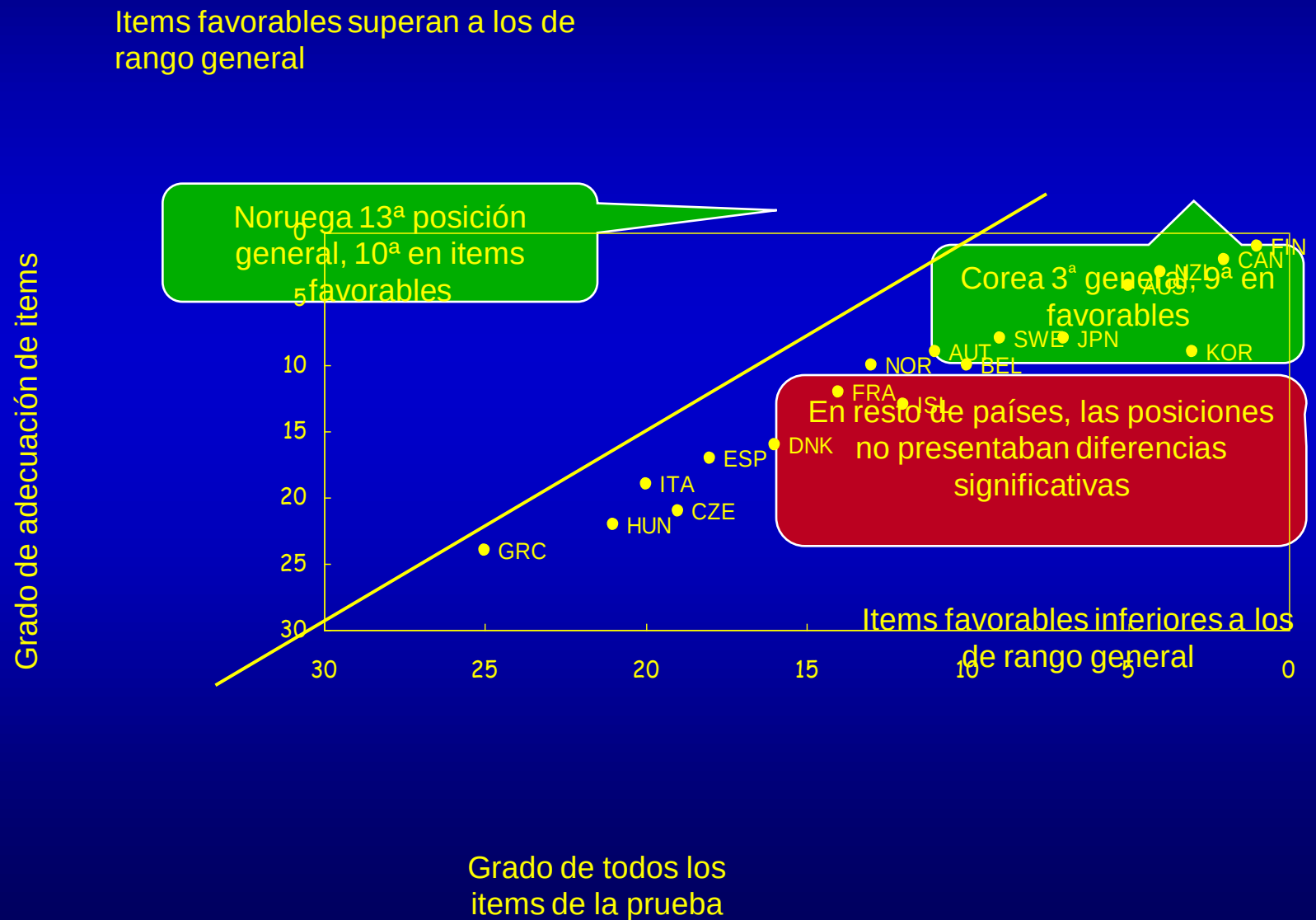
(Butler and Adams, 2007)

Esfuerzo realizado por el alumado en PISA 2003, en comparación con un examen importante



(Butler and Adams, 2007)

Comparación: Posición general frente a posición por adecuación de items



Cómo ha cambiado la demanda de habilidades

Medición económica de tareas rutinarias y no rutinarias (EEUU)

Mean task input as percentiles of the 1960 task distribution

	Routine ma	Nonroutine	Routine co	Nonroutine	Nonroutine interactive
1960	50,0	50,0	50,0	50,0	50,0
1970	53,5	46,2	53,1	51,9	50,7
1980	53,8	44,4	51,8	53,2	53,3
1990	52,3	41,8	48,3	56,2	58,6
2002	47,0	41,4	42,2	60,1	63,6
	To resize chart data range, drag lower right corner of range.				

(Levy and Murnane)

Mejora de perspectivas del alumnado de 19 años, posterior a la Educación Secundaria, en relación a la comptencia lectora a la edad de 15 años (Canadá); se ha tenido en cuenta el comrpomiso con la escuela, el sexo, la pimera lengua, el lugar de residencia, los ingresos y la educación familiar

(grupo de referencia nivel 1)