

Institute for Environmental Studies (IVM)

Challenges and Opportunities for the New Member States and Candidate Countries: A note on Energy-Intensity

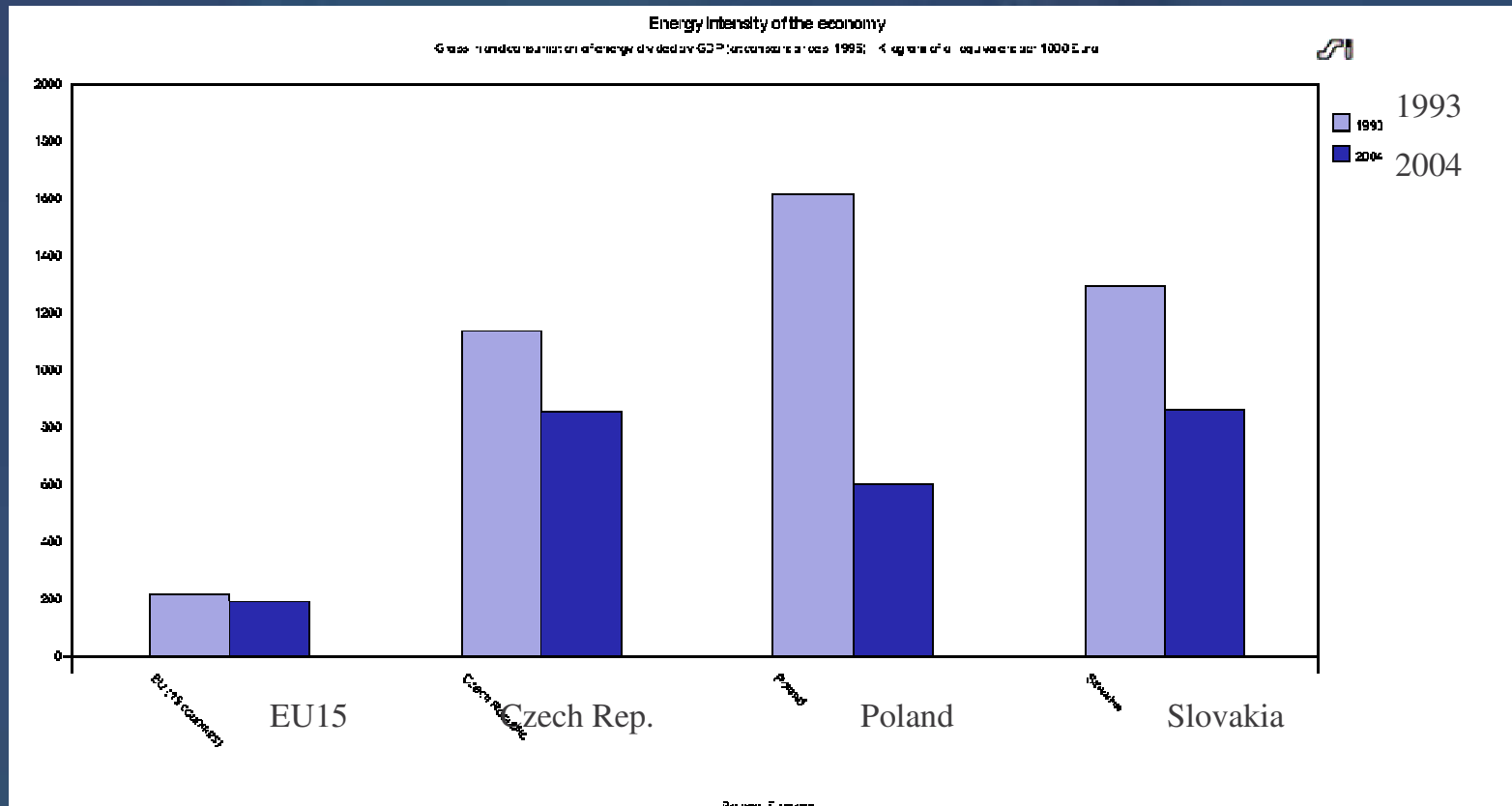
Onno Kuik

Workshop in Prague, 11-12 April 2007



Future Climate Change Policies: Challenges and Opportunities

Energy-intensities between 1993 and 2004



Source: Eurostat Energy Intensity of the Economy Dataset (Aug. 2006)

Future Climate Change Policies: Challenges and Opportunities

Markandya, A., Pedroso-Galinato, S. and Streimikiene, D.

Energy intensity in Transition Economies: Is There Convergence
Towards the EU Average?

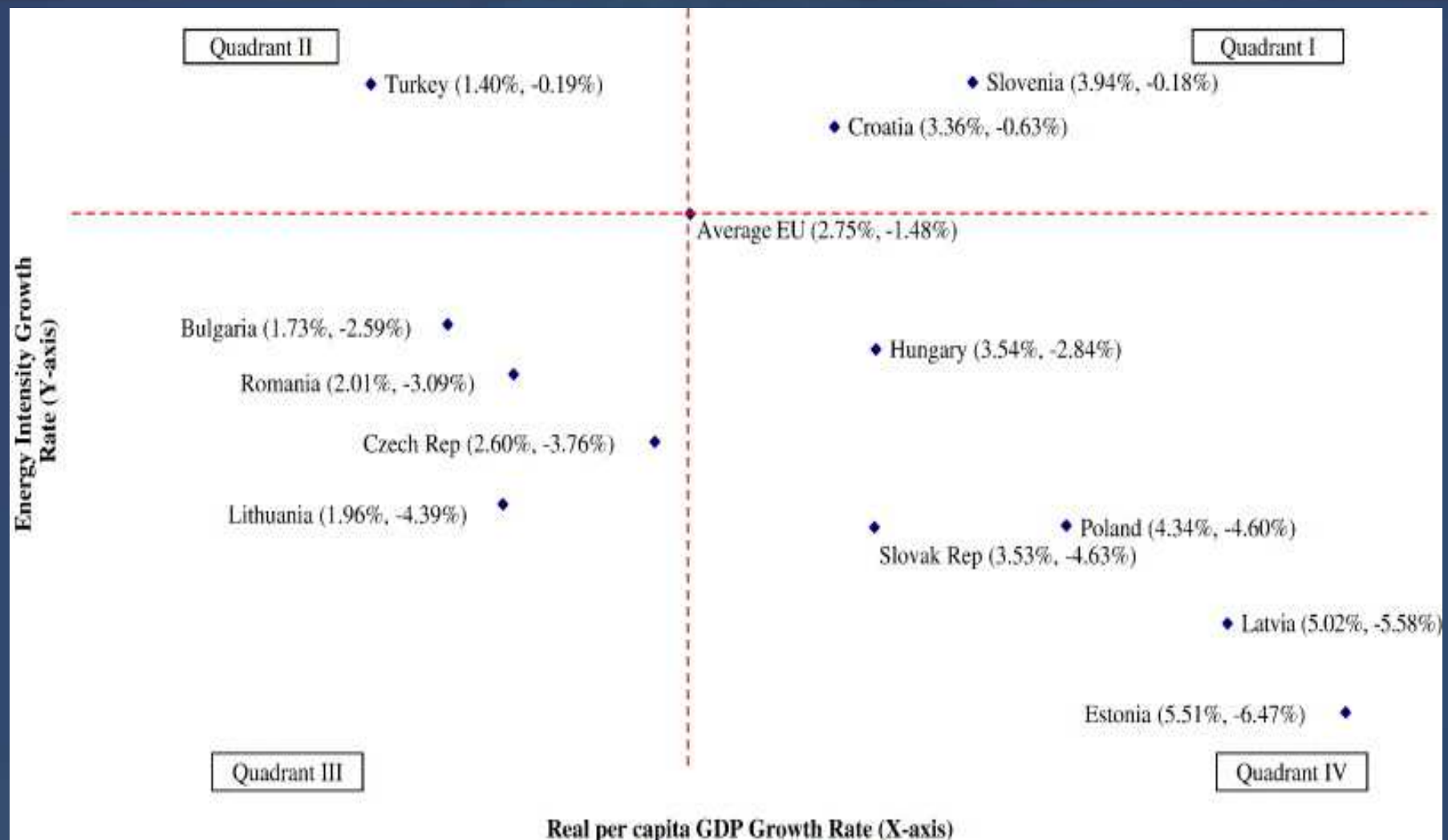
Energy Economics, 28(2006):121-145

Energy Intensity = E/Y

or, dividing both by population,

$$e/y = e$$

Future Climate Change Policies: Challenges and Opportunities



Comparison of energy intensity and real per capita GDP growth rates 1992-2002

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$$e_i^*/e_{eu} = (y_{eu}/y_i)^? \quad ? = \text{elasticity of adjustment}$$

$$e_i/e_{i,t-1} = (e_i^*/e_{i,t-1})^\mu \quad \mu = \text{speed of adjustment}$$

i = transition economy

eu = EU average

t = year

Results:

- There is convergence in per capita income (poor countries catch up with rich countries)
- For every 1% reduction in “income gap”, the “energy intensity gap” falls by more than 1%.
- Convergence of energy intensity for all transition countries to EU27 average is expected in the period till 2020.

Future Climate Change Policies: Challenges and Opportunities

Correlation between η and indicators of economic reform

Goverance and enterprise restructuring	0.58 ^{**}
Price liberalization	0.89 [*]
Competition policy	0.63 ^{**}
Electric power reform	0.62 ^{**}

* Statistical significance at 5%

** Statistical significance at 10%

Source: Markanya et al. 2006

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Correlation between η and indicators of economic reform

Goverance and enterprise restructuring	0.58 ^{**}
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Sound *economic* policies lead to a faster rate of energy-intensity convergence!

* Statistical significance at 5%

** Statistical significance at 10%

Source: Markanya et al. 2006

Thank you!