



Innovation, skills and investment: their role in the medium-term outlook

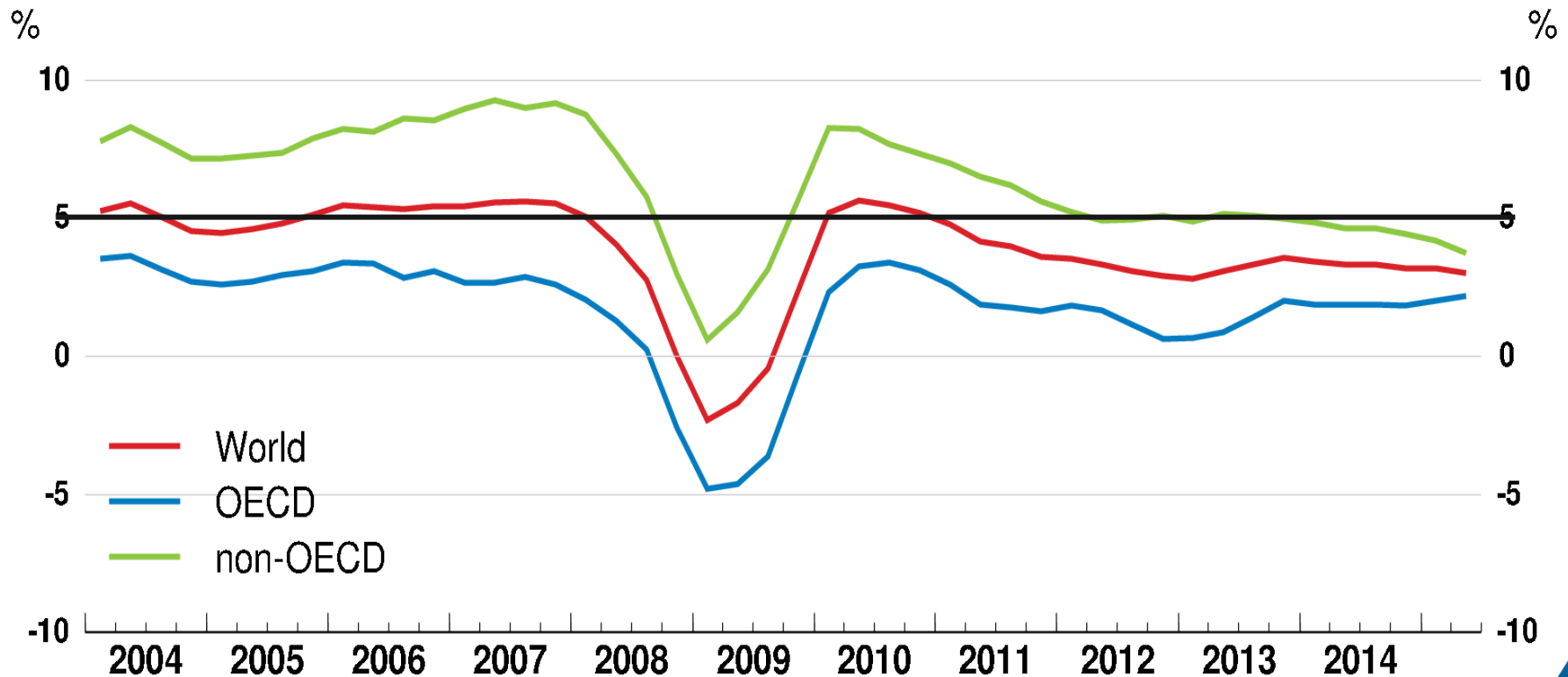
Stockholm – 19th October 2015

Catherine L. Mann
OECD Chief Economist



Medium Term Outlook: Worrying global slowdown

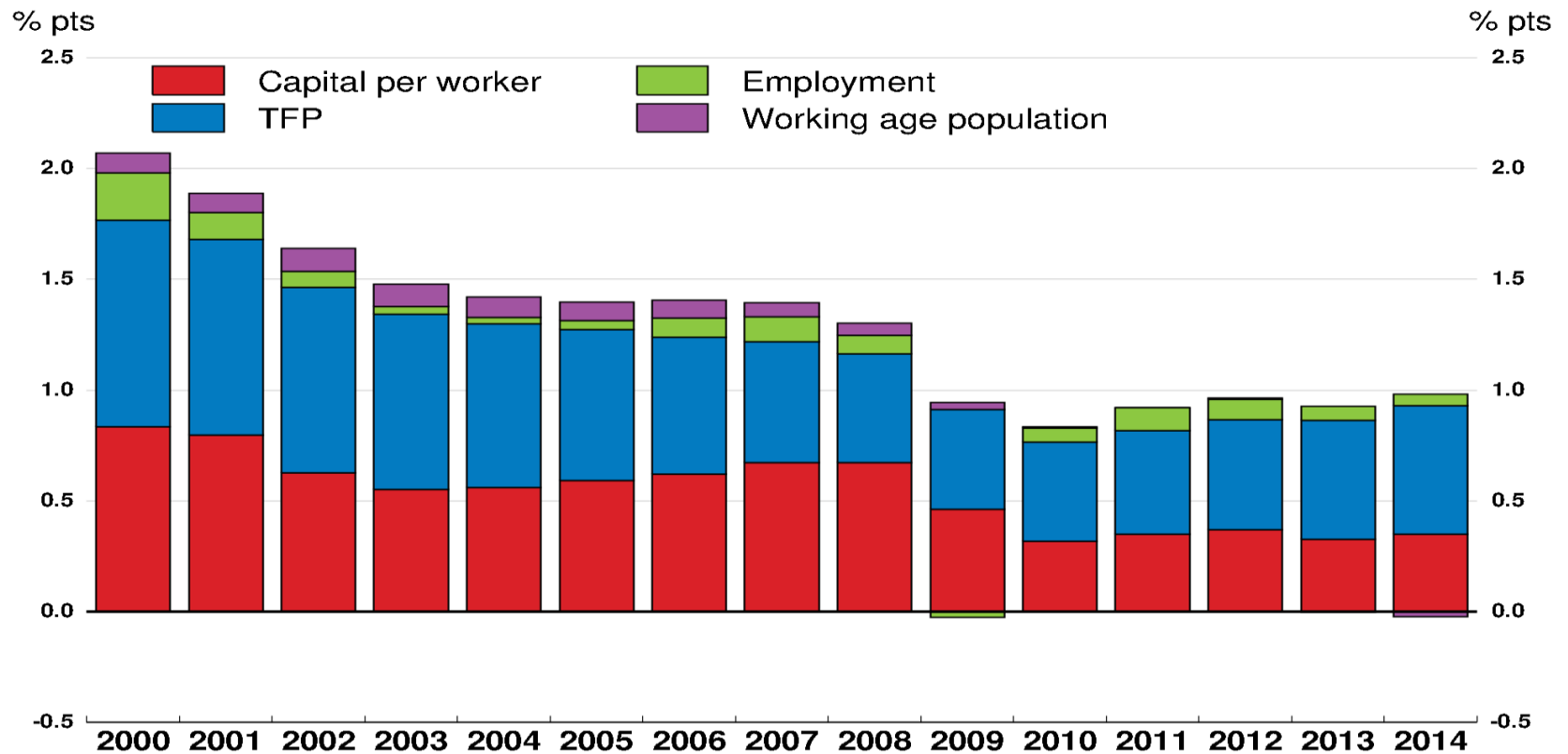
Recent world GDP growth has been significantly weaker than in the pre-crisis period, mainly because of a slowdown among EMEs, but also advanced economies





Also slowing potential growth: Can we make good on promises?

Contribution to growth of OECD potential output per capita



Source: OECD National Accounts Database; OECD calculations



Innovation, Skills, and Investment

three channels to affect potential growth

- **Capital deepening (investment)**
- **Labour market (employment and skills)**
- **Productivity (innovation and diffusion)**

- **Packages of structural policies**
 - **Unique for each country**
 - **Work together for greatest impact**



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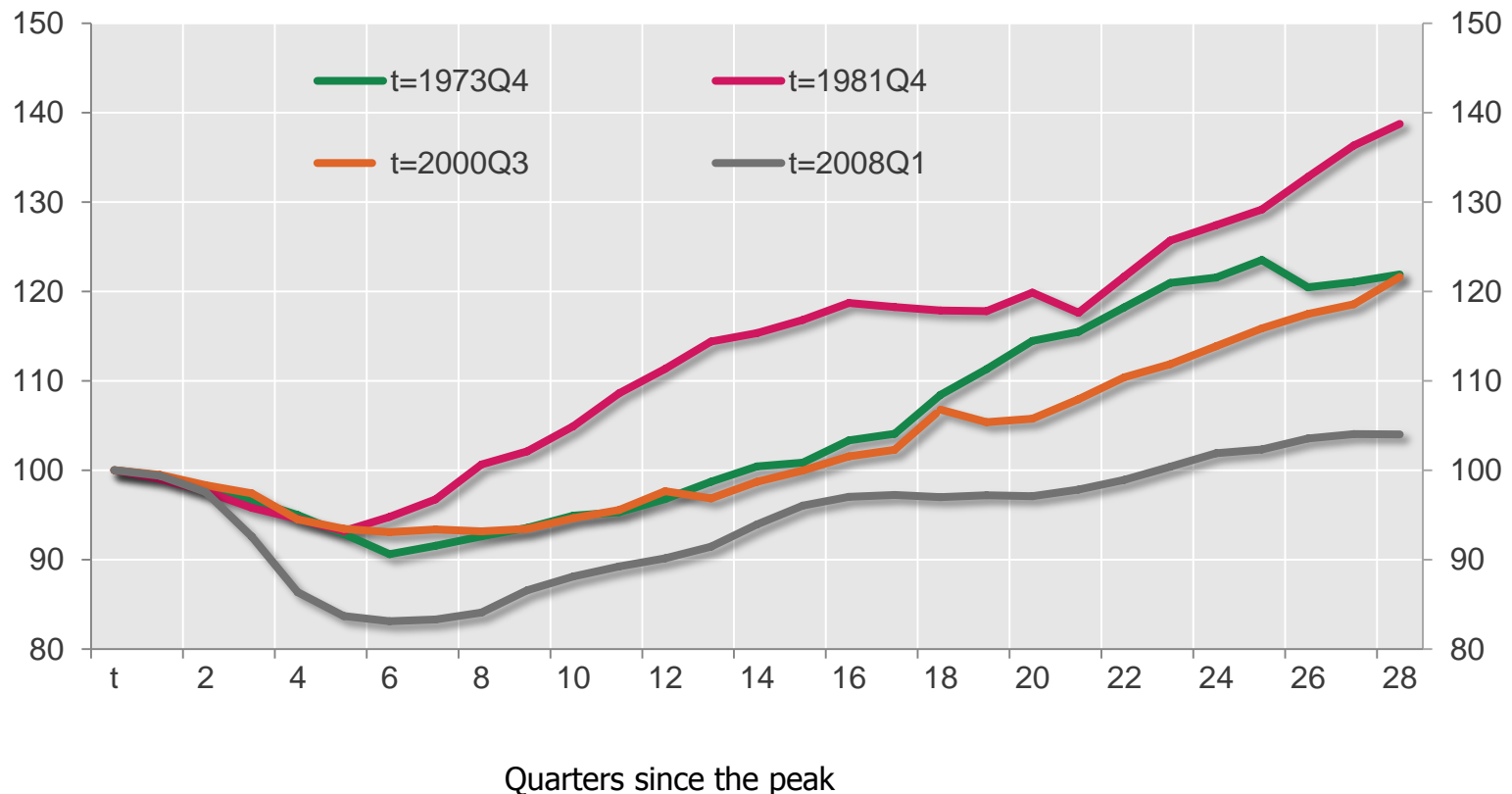
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Investment: Slow recovery in this cycle

Business investment in different cycles

*Cyclical peak in OECD real business fixed investment = 100
(date of peak indicated)*

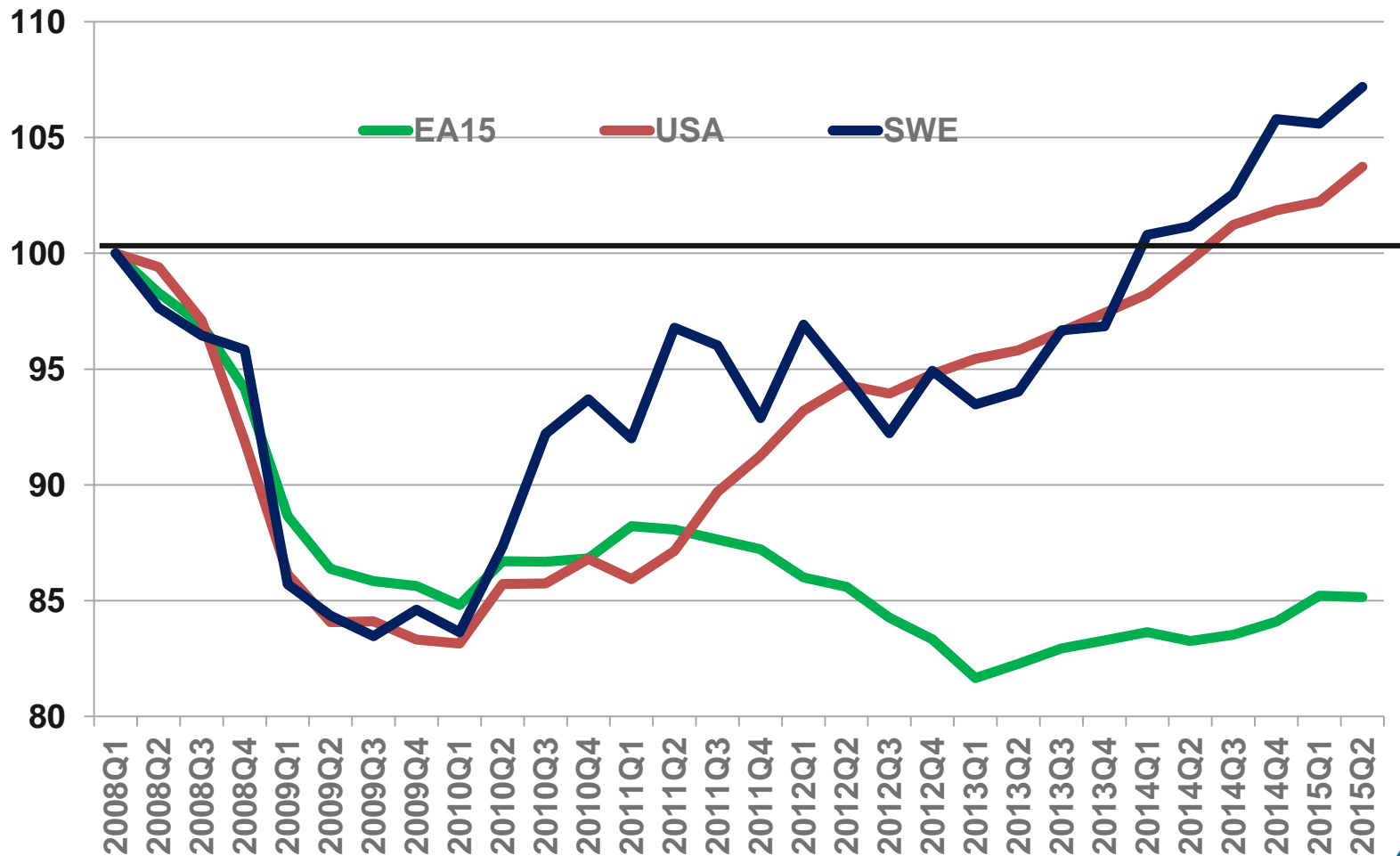


Source: June 2015 OECD Economic Outlook database.



Sweden and US; Very different from Euro area

Total fixed investment
Index, Q1 2008 = 100



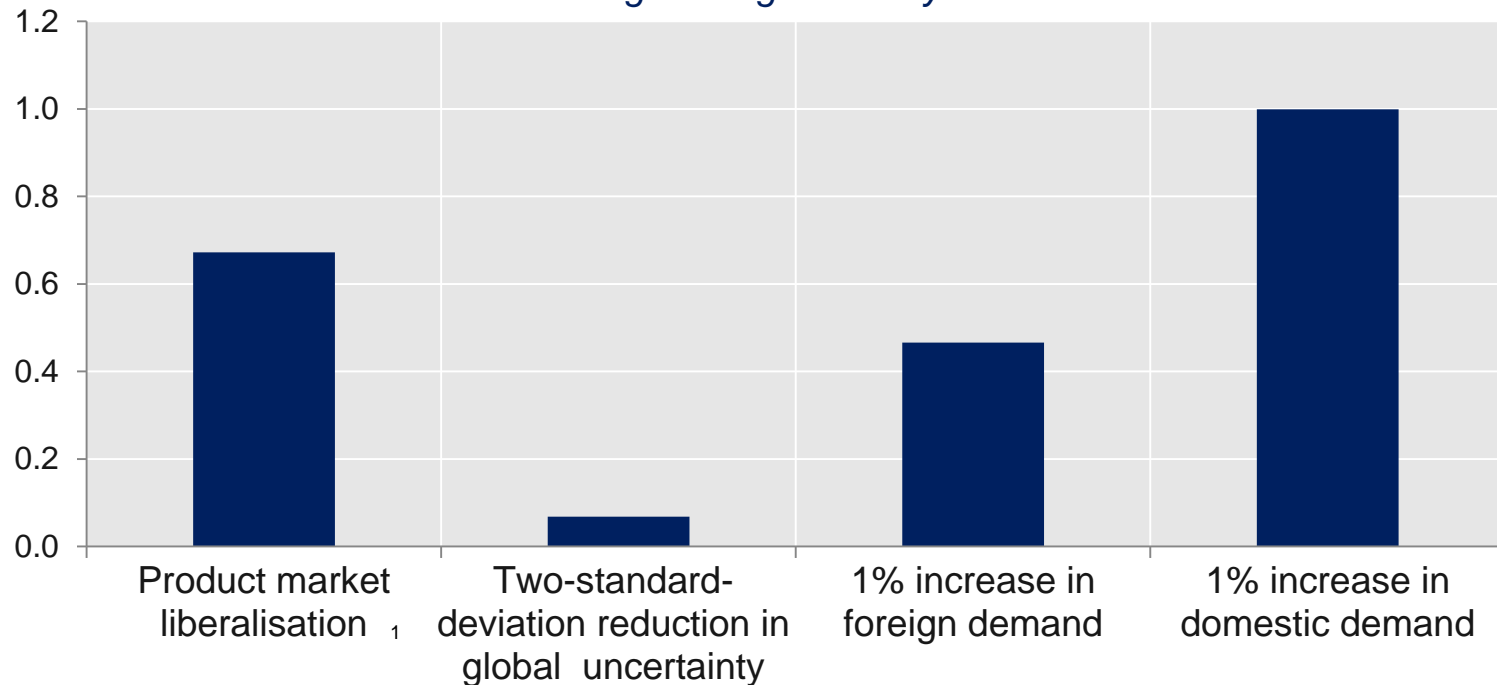
Source: OECD National Accounts database.



Investment and growth: Negative feedback loop current & potential, domestic & global

Estimated impact of shocks on investment

Percentage change after 5 years



1. 16% reduction in OECD index of regulation in energy, transport and communications (ETCR) over 5 years, equivalent to the average pace of reduction among ²15 OECD countries during the period 1993-2013.

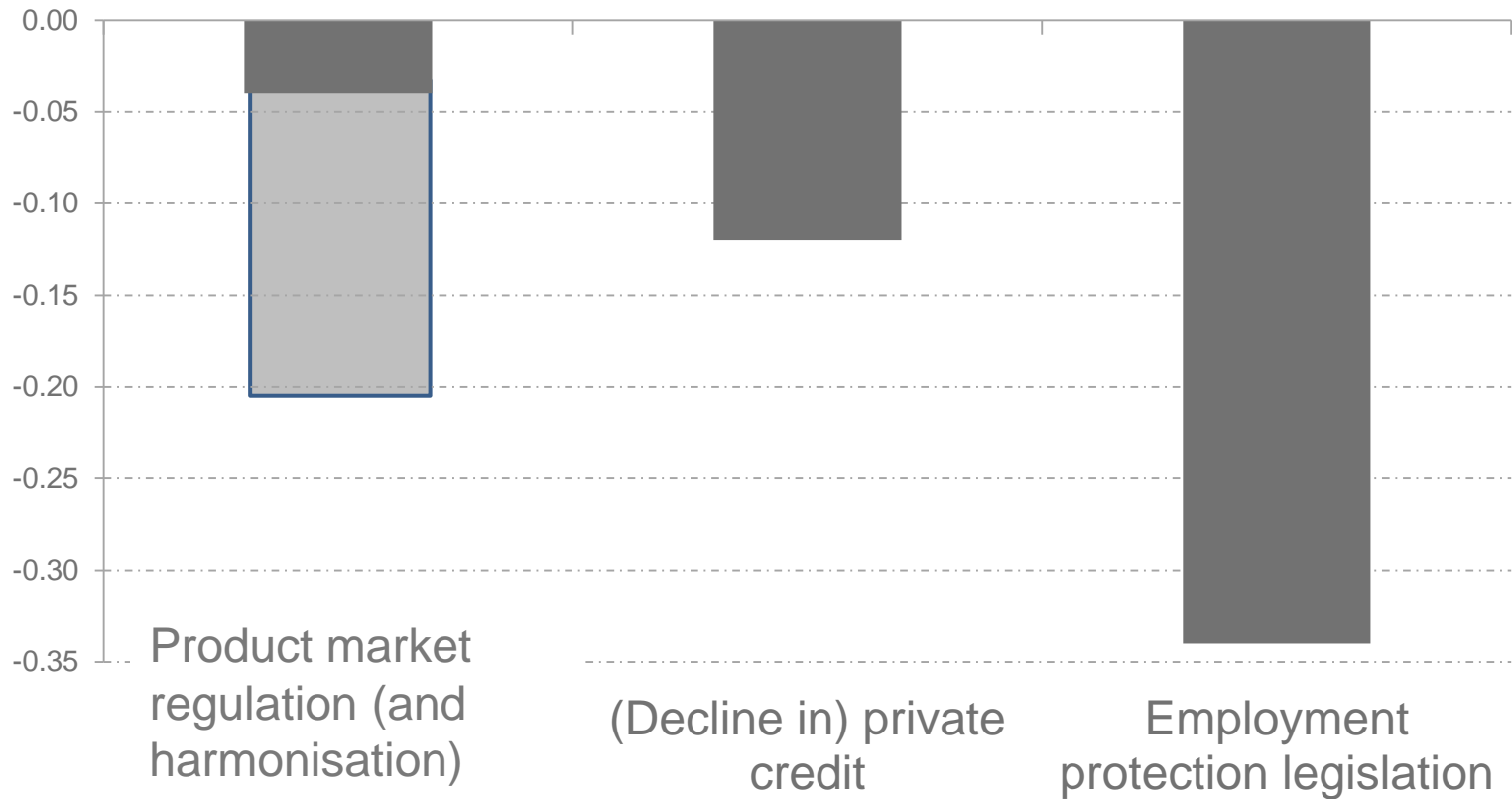
2. Two-standard-deviation reduction in index corresponds to a 26% reduction.

Source: OECD calculations.



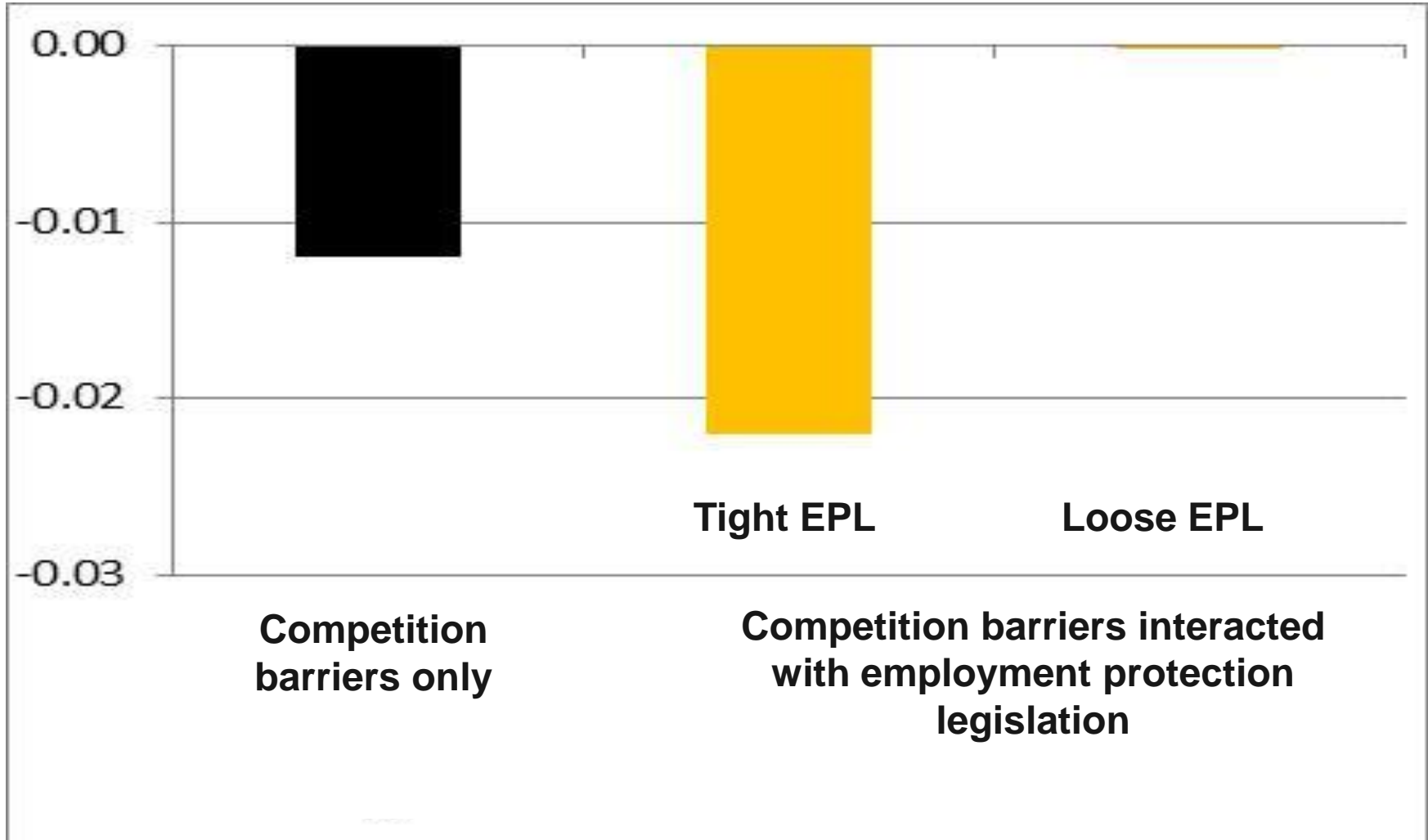
Structural policies affect investment

Elasticity of capital stock with respect to policy variables





Competition boosts investment, especially in conjunction with an easing of employment protection laws



Source: Egert (2015) work in progress



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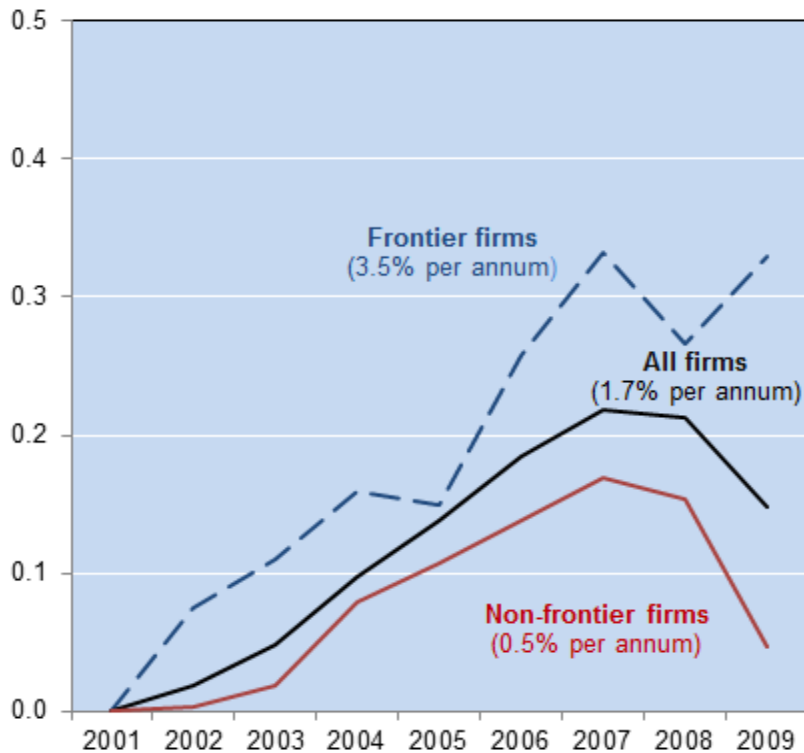


Innovation: Frontier vs. Diffusion

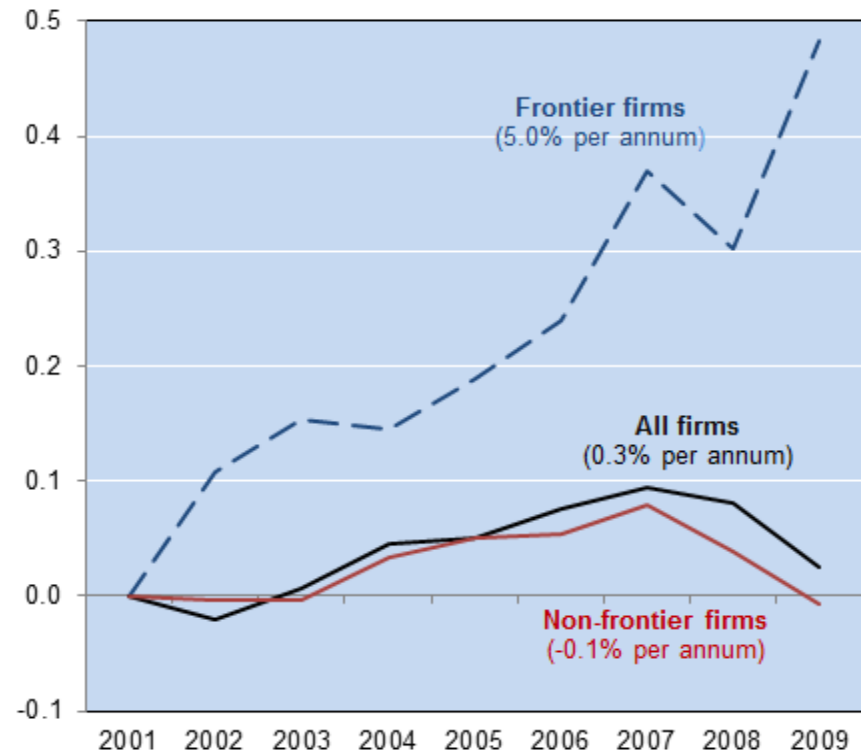
biggest issue is diffusion from frontier firms

Firm-level evidence, Orbis data adjusted
Labour productivity; index 2001=0

Manufacturing Sector



Services Sector



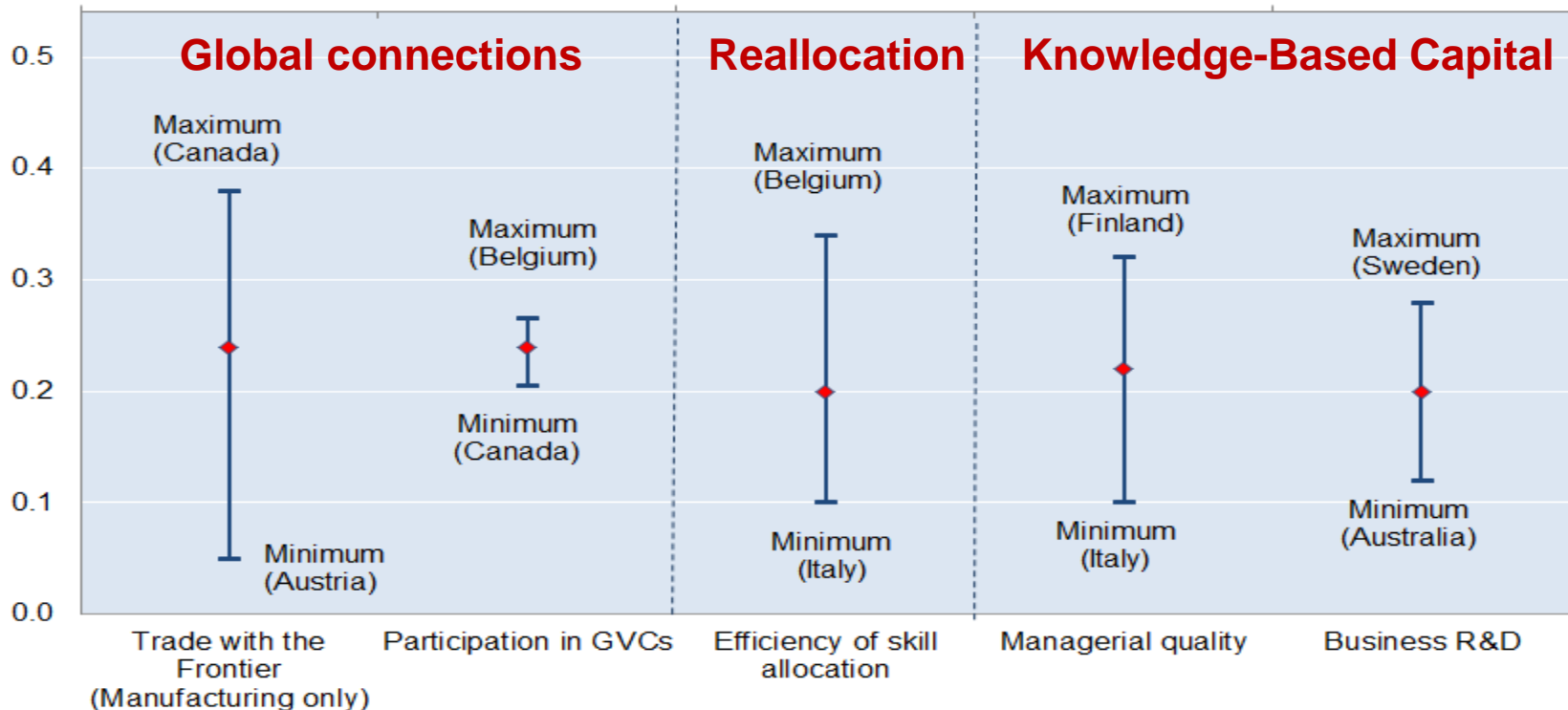
“Frontier firms” corresponds to the average labour productivity of the 100 globally most productive firms in each 2-digit sector. “Non-frontier firms” is the average of all other firms. “All firms” is the sector total. The average annual growth rate is shown in parentheses.

Source: Andrews, Criscuolo and Gal (2015).



Structural Factors Affecting Diffusion

Estimated frontier spillover (% pa) associated with a 2% point increase in MFP growth at the global productivity frontier



Notes: The chart shows how the sensitivity of TFP growth to changes in the frontier leader growth varies with different levels of policy variables. The diamond refers to the estimated frontier spillover effect associated with a 2% TFP growth at the frontier around the average level of the policy. The label “Minimum” (Maximum) indicates the country with the lowest (highest) value for the given structural indicator in a given reference year.

Source: Saia, Andrews and Albrizio (2015).



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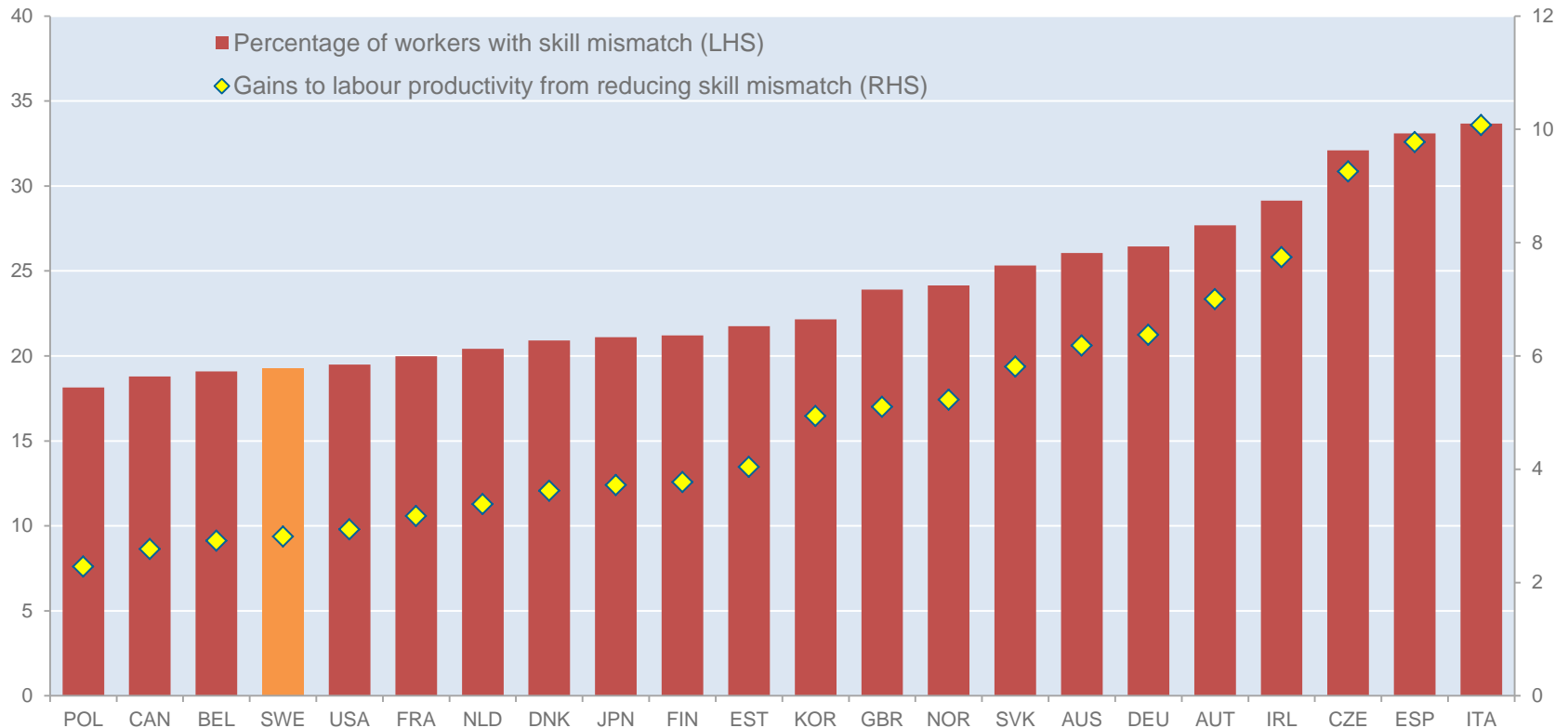
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Skill Mismatches Lower Productivity

better matches ↔ better allocative efficiency

Potential gains from reducing skill mismatch



Note: The figure shows the percentage of workers who are either over- or under- skilled and the simulated gains to allocative efficiency from reducing skill mismatch in each country to the best practice level of mismatch. The figures are based on OECD calculations using OECD Survey of Adult Skills (2012).

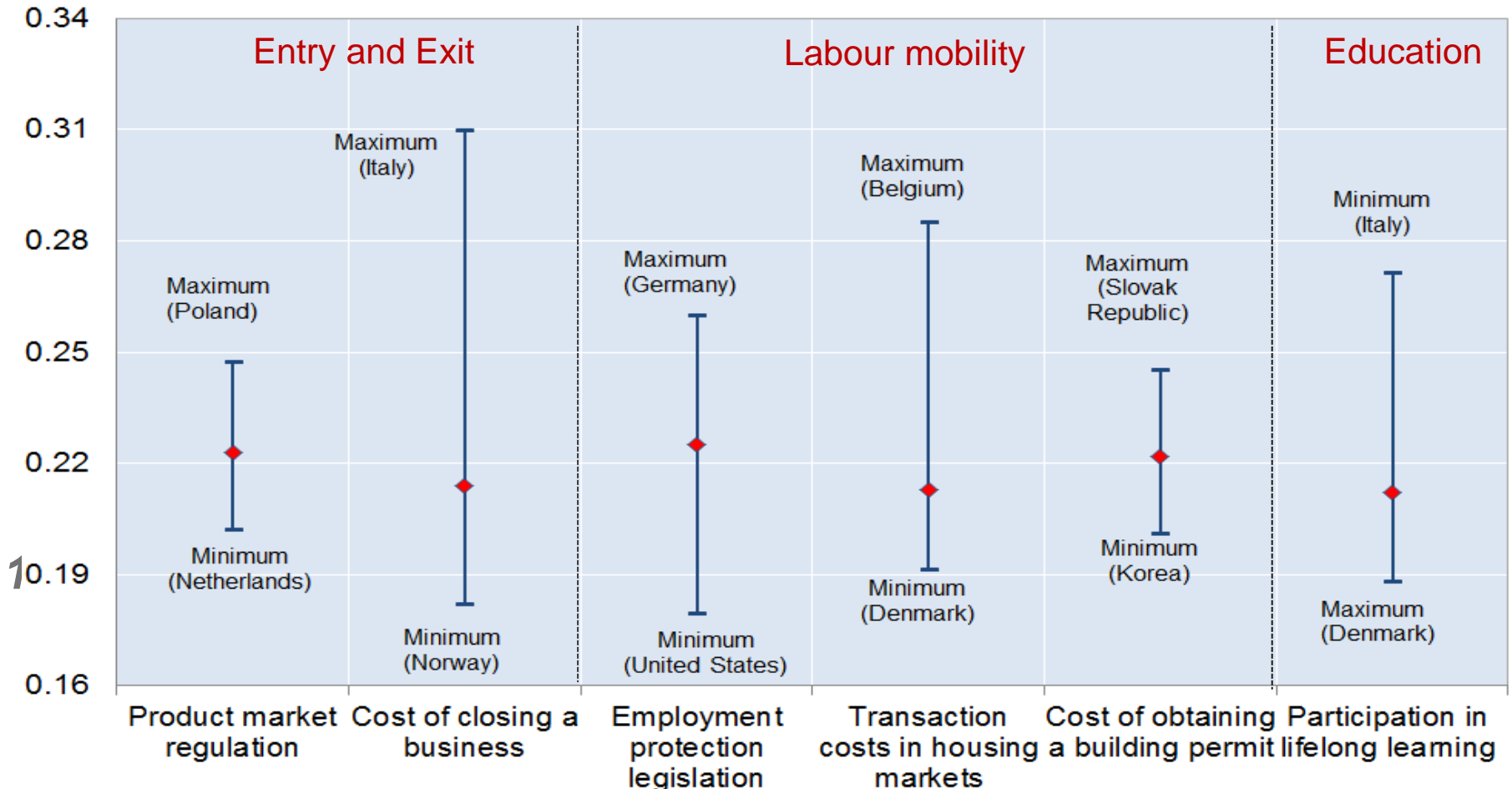
Source: M. Adalet McGowan and D. Andrews (2015), "Labour Market Mismatch and Labour Productivity: Evidence from PIAAC Data" OECD Economics Department Working Paper No. 1209.



Structural Policies to Promote Diffusion & Reduce Mismatches are the Same

The probability of skill mismatch and public policies

◆ Effect at policy median

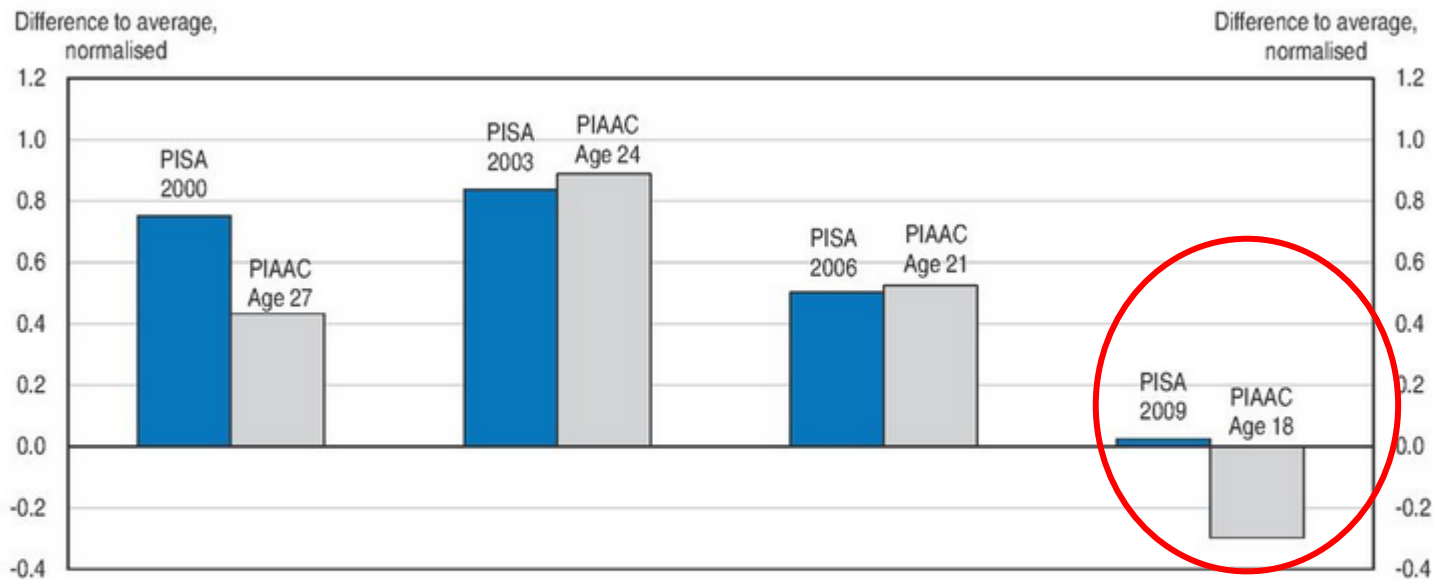


Source: M. Adalet McGowan and D. Andrews (2015),



Labor Skills: Sweden's Challenge

Figure 13. **Young adults show no signs of catching up from low PISA scores**
Comparison of mean reading scores in PISA with literacy scores in PIAAC for the corresponding cohorts¹



1. The test score averages are normalised by the cross-country PISA and PIAAC averages and standard deviations for comparison reasons. A three-year band is used in the Survey of Adult Skills to increase size and reliability of estimates, i.e. the group "adults 24" consists of the age group from 23 to 25. The mix of countries contributing to the average in PISA and PIAAC differs, which may contribute to differences in countries' average scores relative to the overall averages in either study.

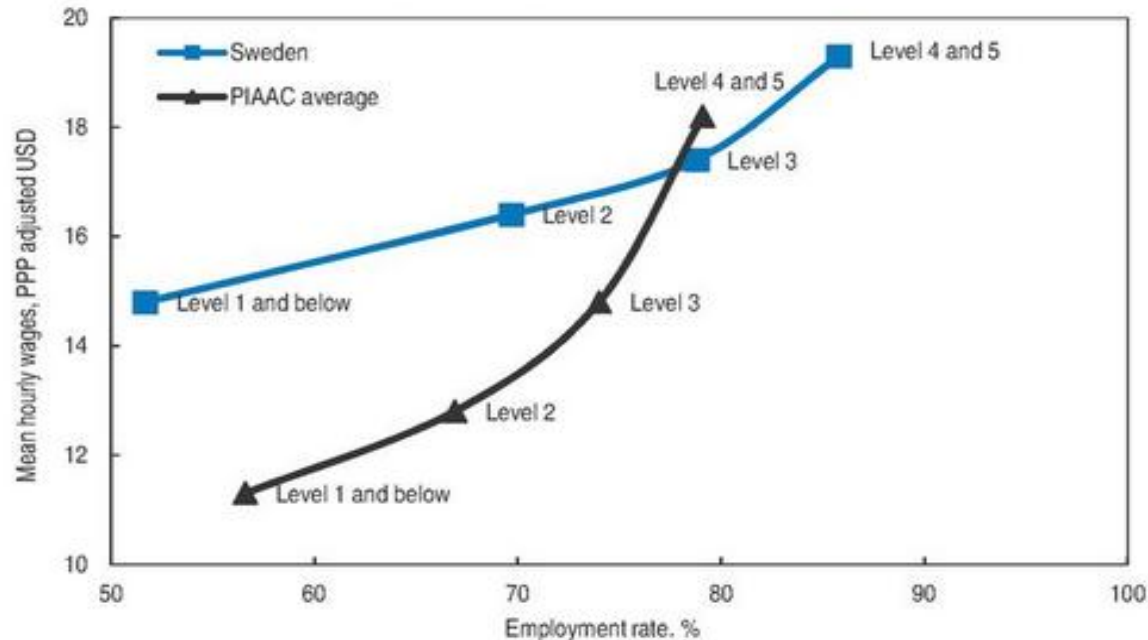
Source: Survey of Adult Skills (2012) and OECD, PISA 2009 Database, Table A5.6 (L).

StatLink <http://dx.doi.org/10.1787/888933199078>



Tax wedge at lower skills worsens outcomes

Figure 14. **Skills and labour market outcomes**
Mean hourly wages and employment rates by PIAAC skill levels



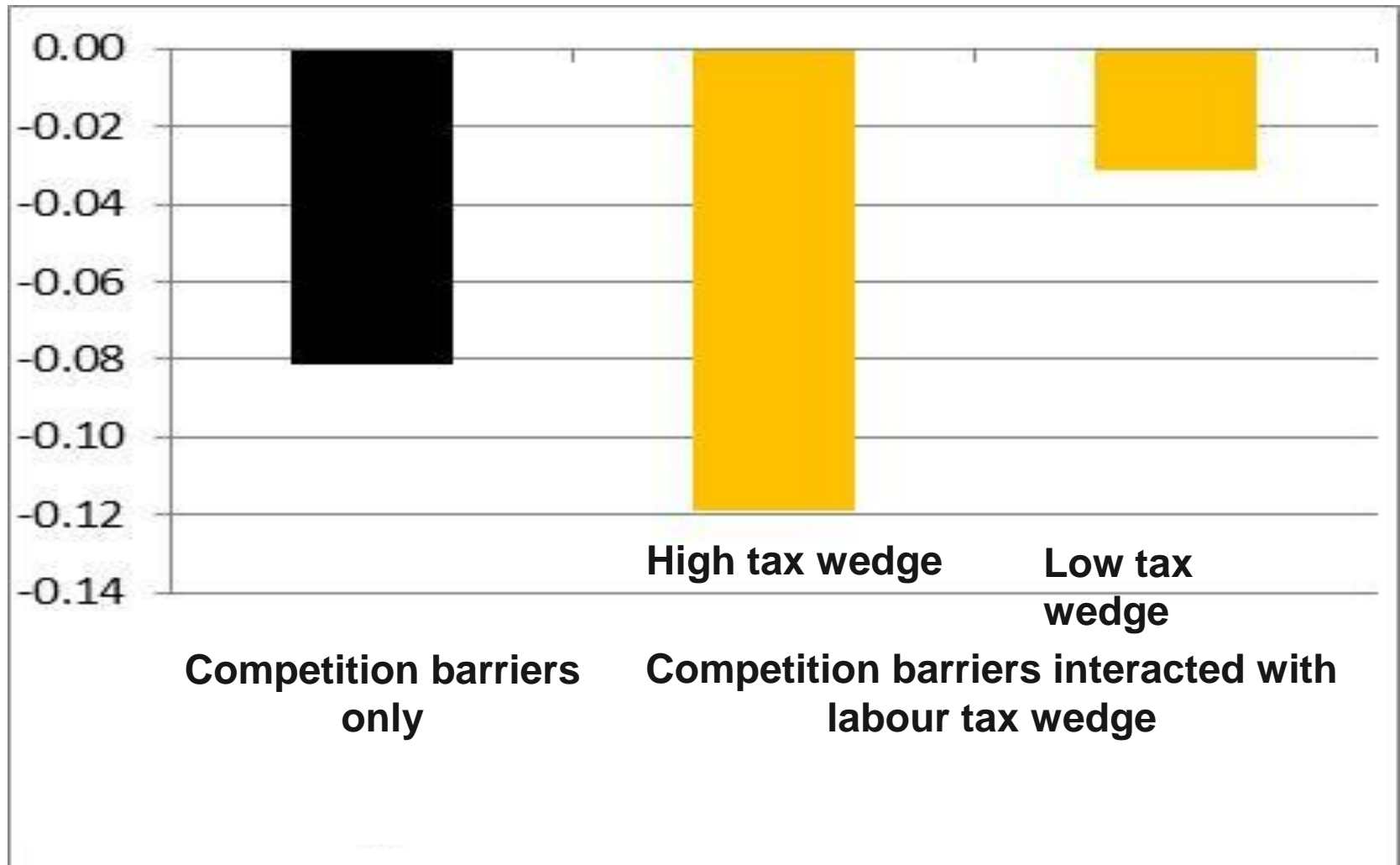
Source: OECD (2013c), *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills*, Tables A6.3 and A6.4, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264204256-en>.

How to read this figure: Sweden shows high employment rates for middle- and high-skilled individuals, but low employment for the low-skilled (Level 1 and below). At the same time wages are high for those low-skilled individuals who are employed and wages increase less with skills than for the PIAAC average, indicating that high minimum wages reduce employment prospects for the low-skilled in Sweden.

StatLink <http://dx.doi.org/10.1787/888933199086>



Productivity Gains at Intersection of Competition and Labor Tax Wedge





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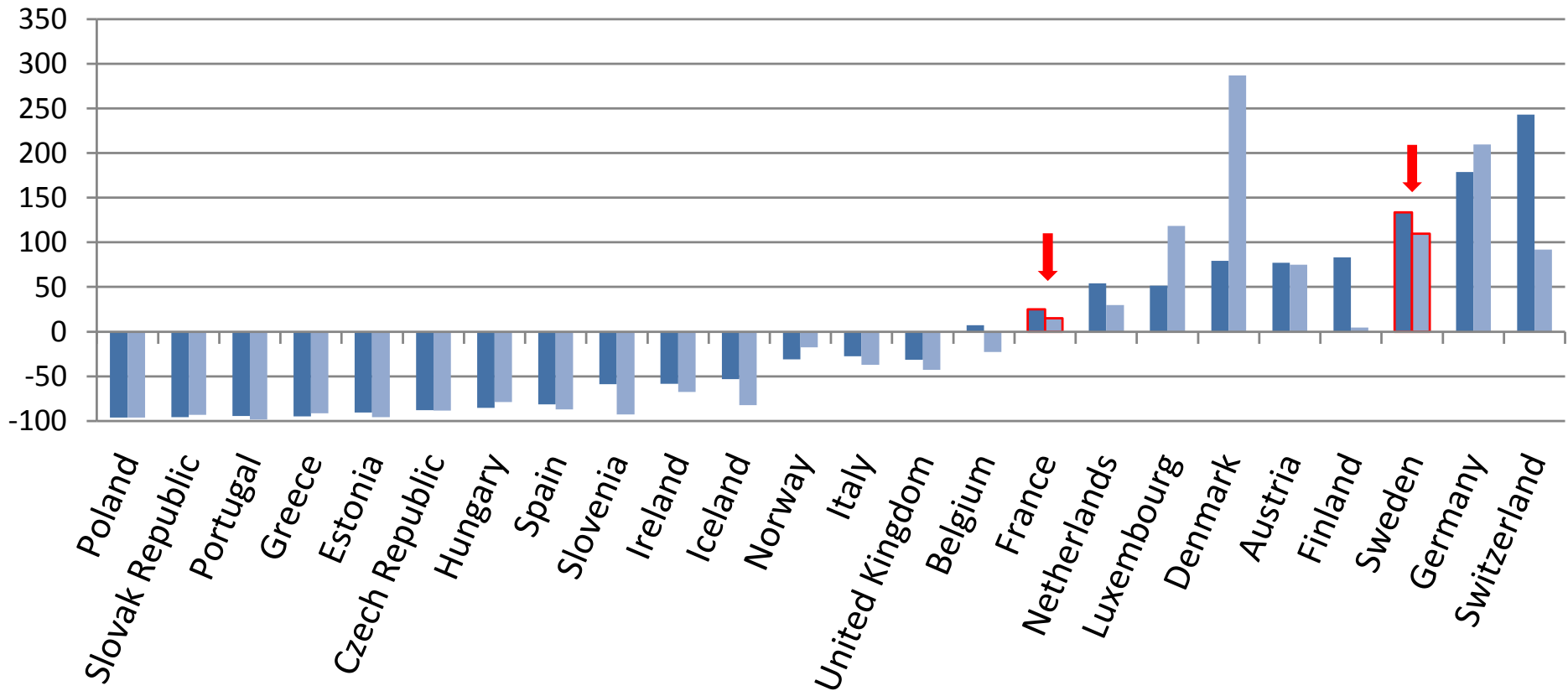


Sweden is a Green Innovation Leader (although not *the* leader)

Number of patents (2010-2013) per million of people
(% difference with respect EU average)

% difference with respect to EU-28

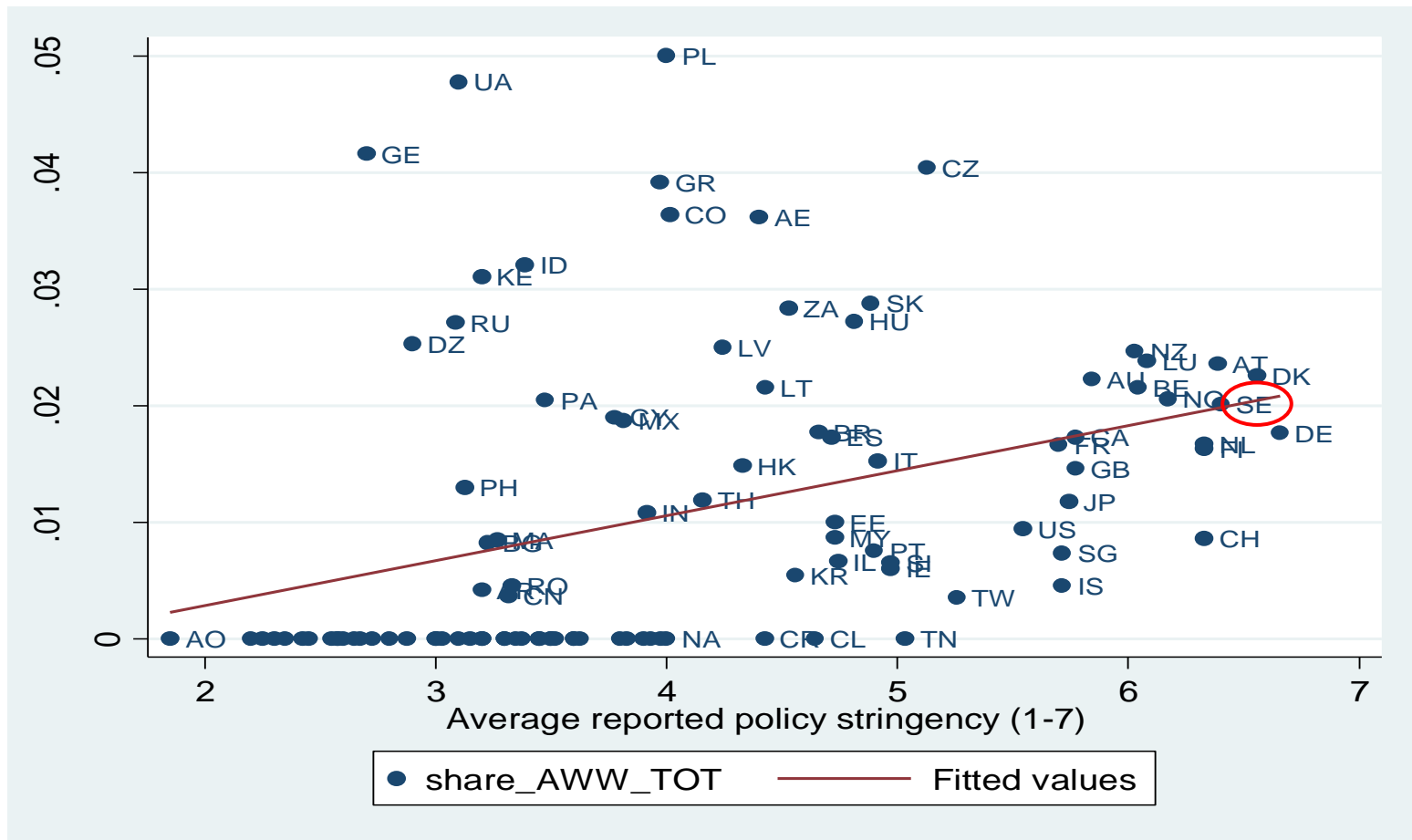
■ Total patents ■ Environmentally related patents





Stringent policies ↔ Faster innovation in environmental technologies

Stringency of environmental policy regimes and innovation in environmental technologies
(mean value over 2001-2007)

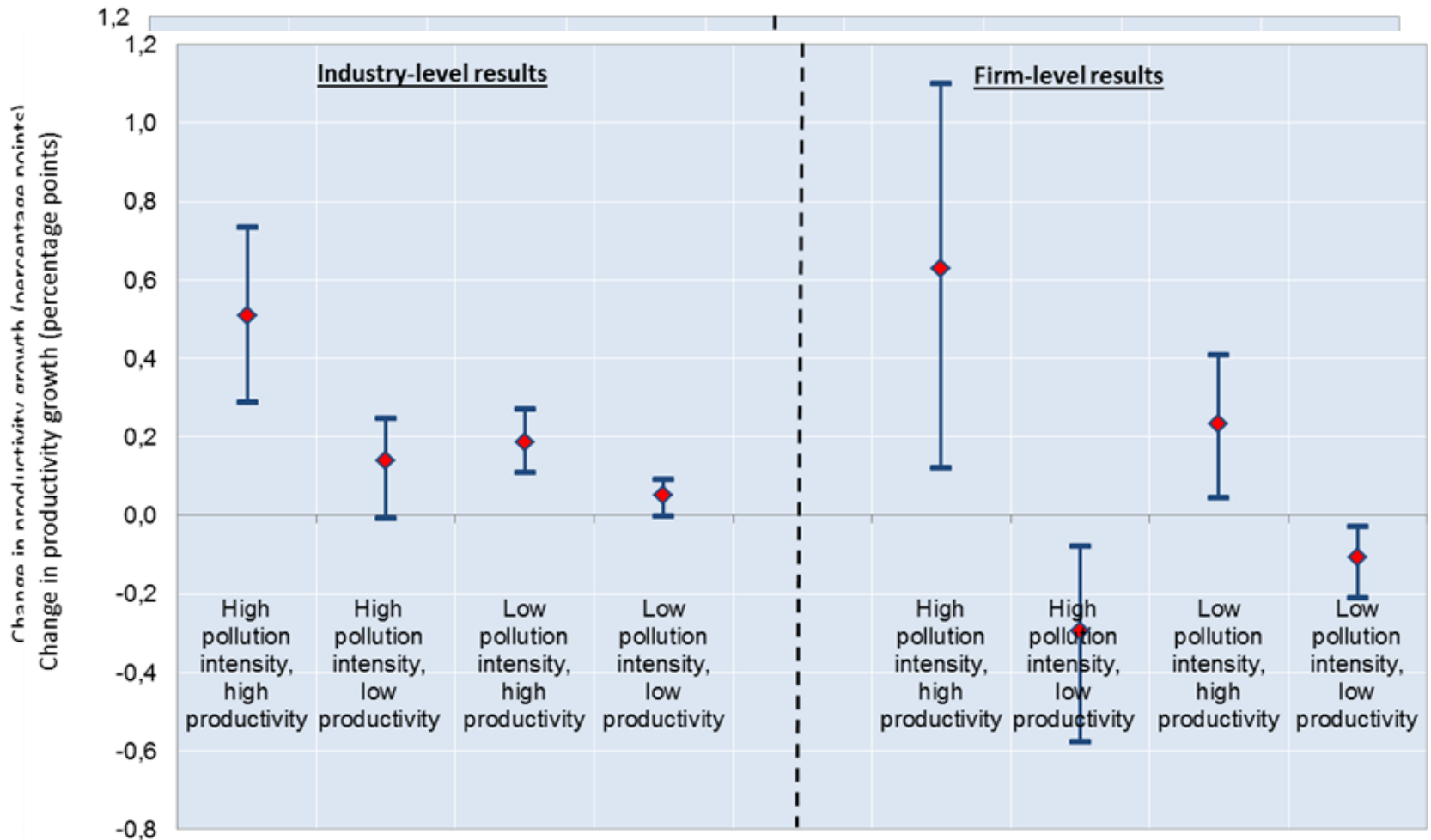




Environmental Stringency affects Productivity

high productivity firms do better; low productivity firms do worse

Effect of average EPS tightening on MFP growth





Key messages

Post-crisis slowdown of current and potential growth in both advanced and emerging economies... we can't keep our promises

Weak recovery of investment in advanced economies, so slower capital deepening.... Negative feedback loop

Some evidence that *diffusion* of innovation was breaking down even before crisis... misallocation by financial markets to housing/low return?

Structural policies help boost investment, better match skills, and improve diffusion. Interplay between policies matters; each country unique

As Sweden shows, vigorous environmental policies can be compatible with robust investment and rapid innovation, but also requires high skills



THANK YOU!



The Future of Productivity





For more detail (productivity):

- OECD (2015), “[The Future of Productivity](#)”. OECD, Paris
 - Adalet McGowan, M. and D. Andrews (2015a), “[Labour Market Mismatch and Labour Productivity: Evidence from PIAAC Data](#)”, *OECD Economics Department Working Papers*, No. 1209.
 - Adalet McGowan, M. and D. Andrews (2015b), “[Skill Mismatch and Public Policy in OECD Countries](#)”, *OECD Economics Department Working Papers*, No. 1210.
 - Andrews, D., C. Criscuolo and P. Gal (2015), “[Frontier Firms, Technology Diffusion and Public Policy: Micro Evidence from OECD Countries](#)”, *OECD Mimeo*, forthcoming.
 - Saia, A., D. Andrews and S. Albrizio (2015), “[Public Policy and Spillovers From the Global Productivity Frontier: Industry Level Evidence](#)”, *OECD Economics Department Working Papers*, No. 1238.



For more detail (interplay of policies)

- Gal and Theising (2015), “The macroeconomic impact of structural policies on labour market outcomes in OECD countries: a reassessment”, OECD Economics Department working paper (forthcoming)
- Egert (2015), The impact of product and labour market regulations on aggregate productivity: new evidence from OECD countries, OECD Economics Department working paper (forthcoming)
- Egert (2015), Aggregate investment in OECD countries: the impact of structural policies, OECD Economics Department working paper (forthcoming)



For more detail (Labour market)

- Economic Survey of Sweden, March 2015
- Bussi, Margherita and Jon K. Pareliussen (2015) Skills and Labour Market Performance in Sweden, OECD Economics Working Paper, no. 1233
- Jon K. Pareliussen, Margherita Bussi, Christophe Andre, Vincent Koen (2015), Skills and Inclusive Growth in Sweden, OECD Economics Department Working Paper, no 1232.



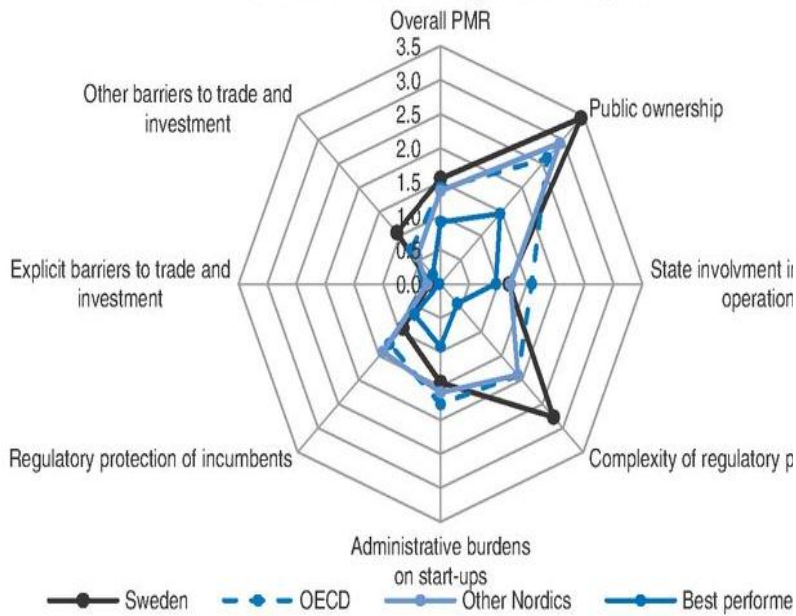
For more detail (environmental):

- Environmental Policies and Productivity Growth (<http://oe.cd/OOQ>)
 - Albrizio et al. (2014), *Do Environmental Policies Matter for Productivity Growth? Insights from New Cross-Country Measures of Environmental Policies*, OECD ECO Working Paper.
- “Green” patents
 - Johnstone and Hascic (2009), *Environmental Policy Framework Conditions, Innovation and Technology Transfer*, OECD ENV Directorate Paper.
- Trade in Environmental goods and services
 - Sauvage (2014), *The Stringency of Environmental Regulations and Trade in Environmental Goods*, OECD TAD Working Paper

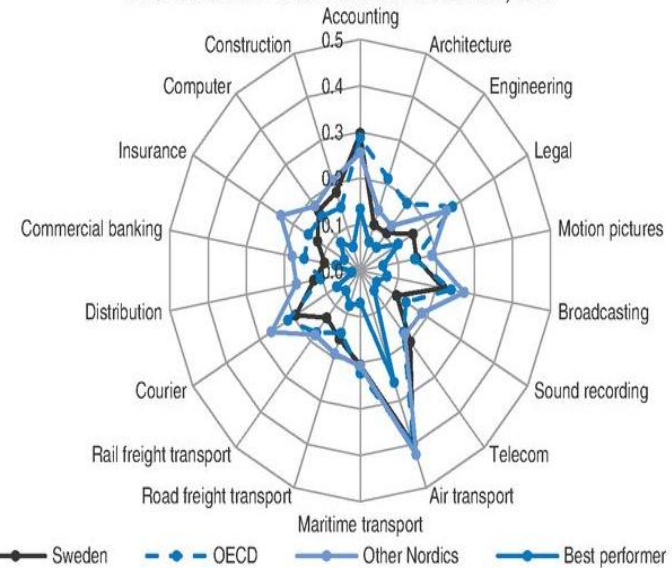


Basic Structural Indicators

A. OECD Product Market Regulation Index, 2014¹



B. OECD Service Trade Restrictiveness Index, 2014²



1. Index, scale of 0-6 from least to most restrictive.

2. STRI indices take values from 0 to 1, where 0 is completely open and 1 completely closed.

Source: Product Market Regulation Database, www.oecd.org/economy/pmr and Services Trade Restrictiveness Index Regulatory Database, www.oecd.org/tad/services-trade/regulatory-database-services-trade-restrictiveness-index.htm.

StatLink <http://dx.doi.org/10.1787/888933199059>

Source: Economic Survey of Sweden, March 2015