

cpb

Five Lisbon Highlights

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Outline

- Objective and method
- Main results
- Five targets
- Conclusions and limitations

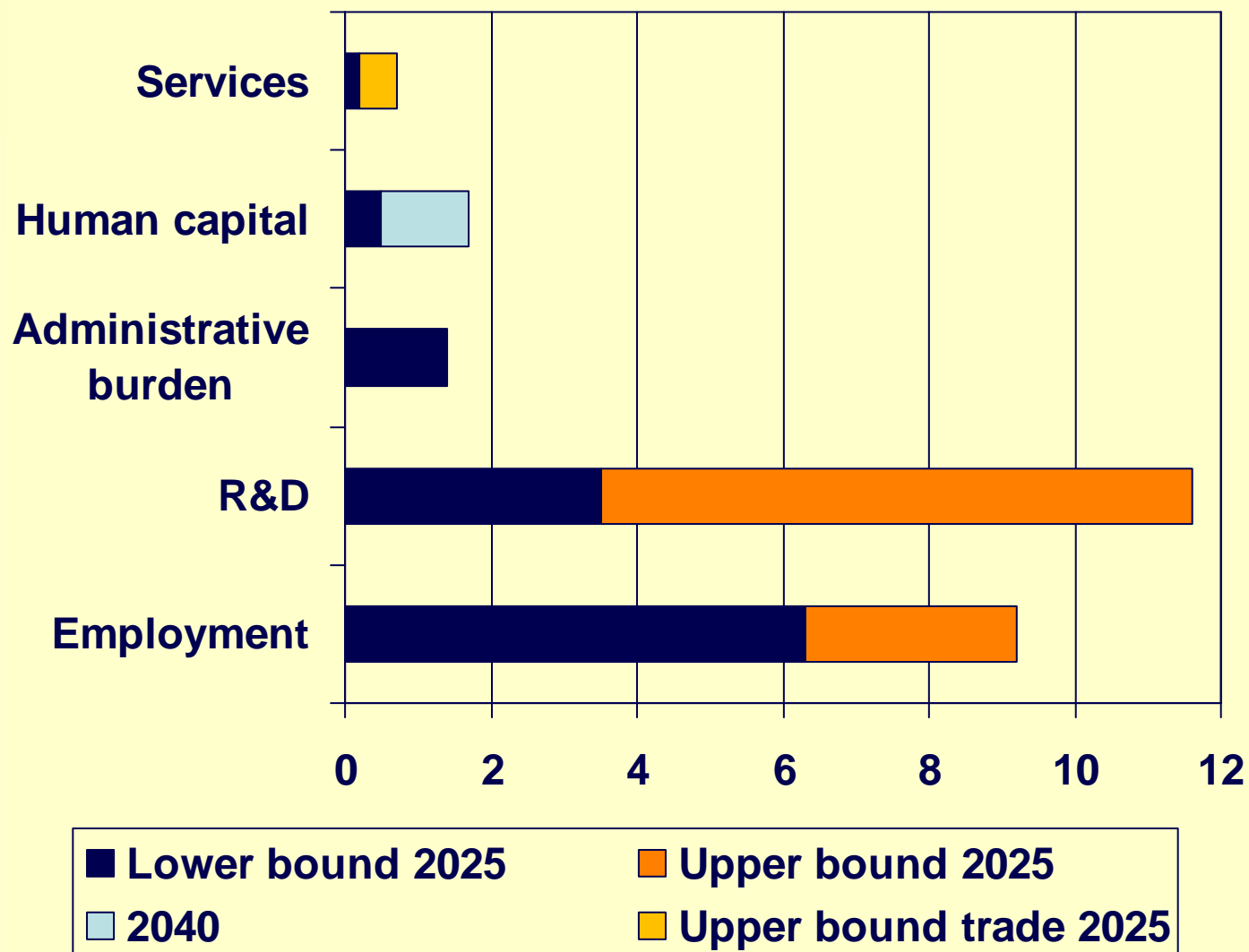
Objective

- Economic effects of reaching Lisbon targets
 - ▶ economic growth: EU and member states
 - ▶ sectoral structure
- Five targets
 - ▶ employment, R&D, human capital, administrative burden, services directive
- What-if: targets reached **by assumption!**
 - ▶ no assessment of realism 2010
 - ▶ costs of policy: only partly included
- Uncertainty: lower and upper bound
 - ▶ employment , R&D

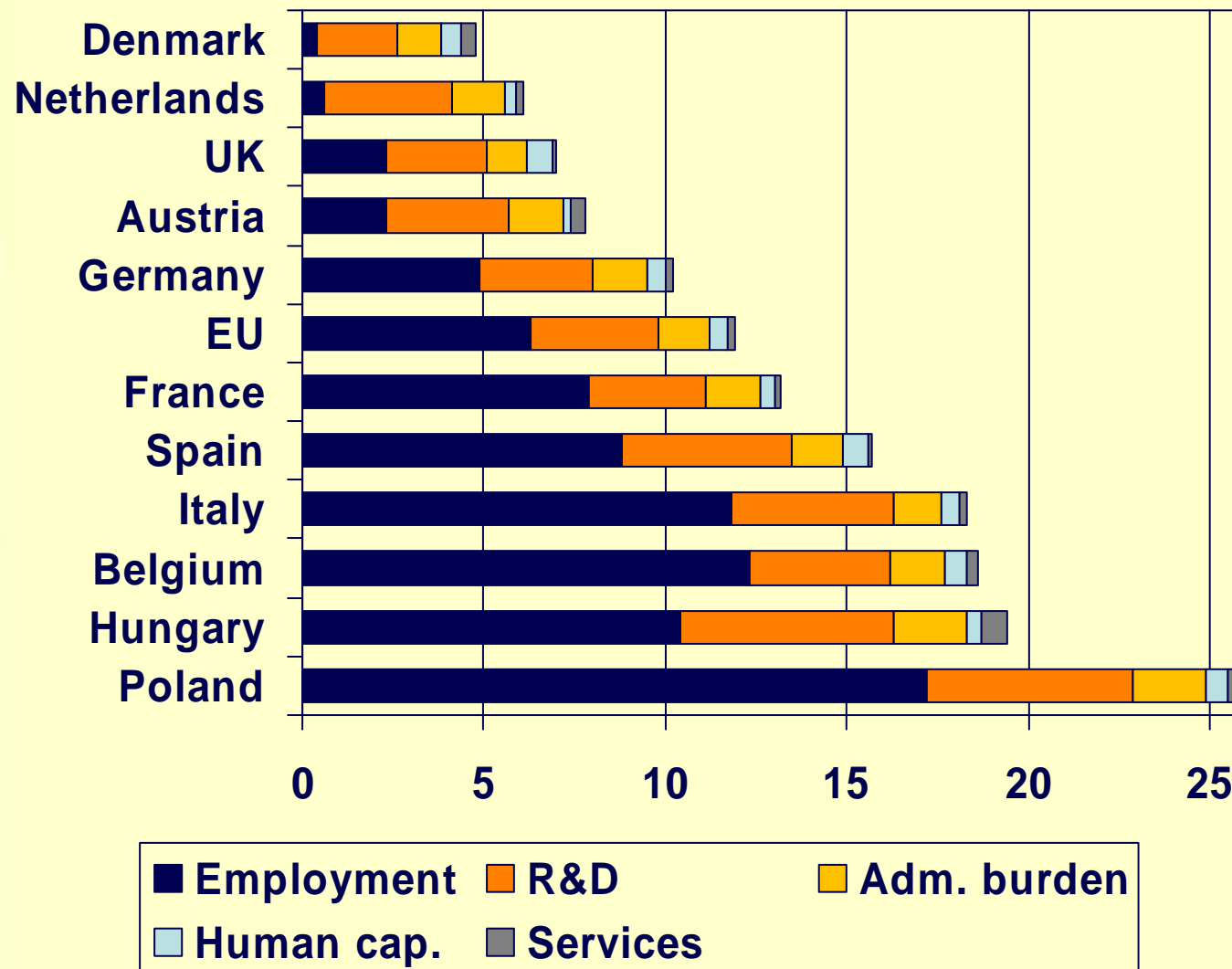
Framework: WorldScan

- General equilibrium and micro foundations
- Interaction: markets, countries and sectors
 - ▶ 23 regions, 10 sectors
- Dynamic model
- Econometrically underpinned
 - ▶ consumer demand, savings, capital mobility, R&D spillovers
- R&D sector and endogenous R&D decisions
- Flexible: easy to integrate satellite models
 - ▶ complex Lisbon policies (education)

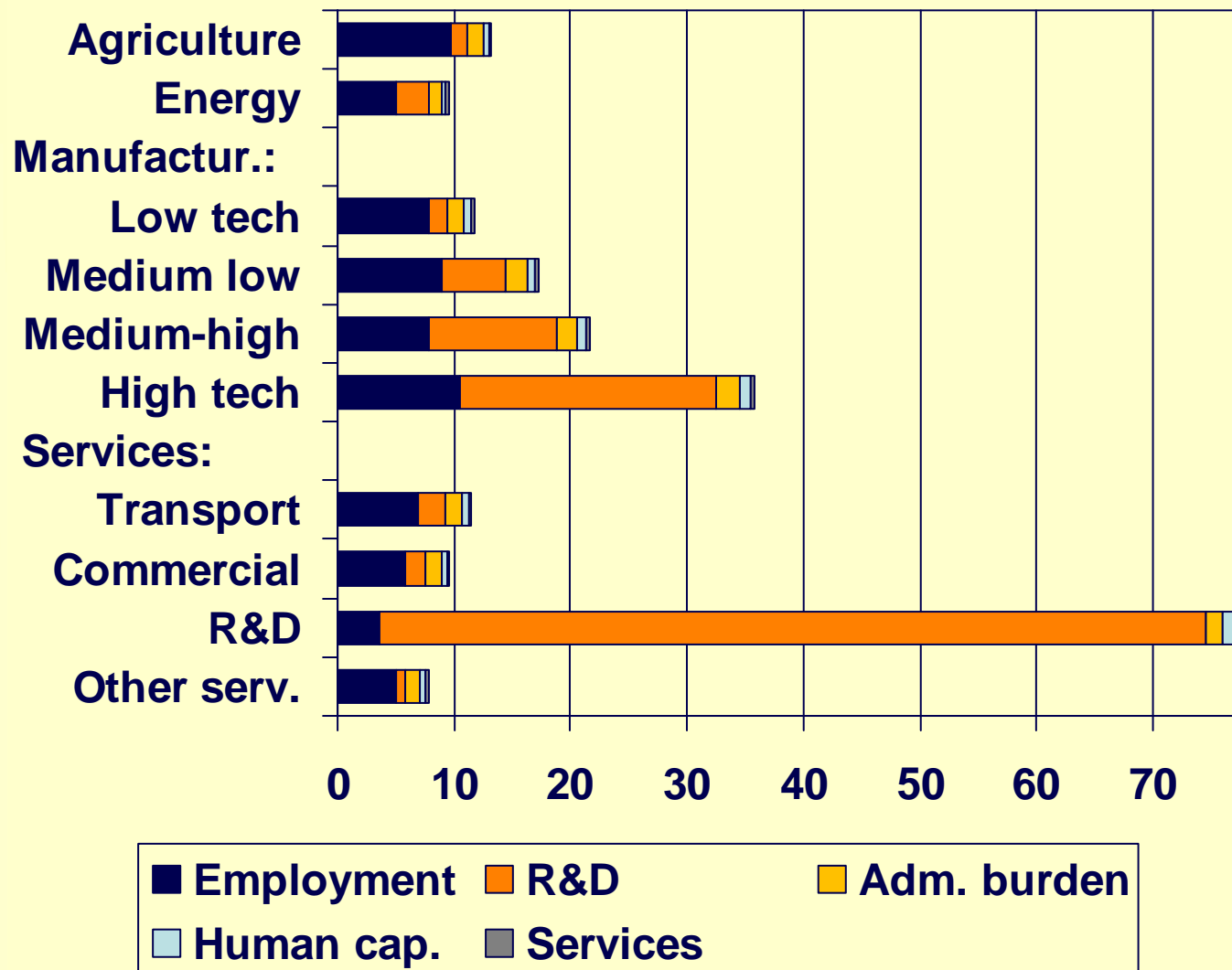
GDP effects of five Lisbon targets, European Union (%)



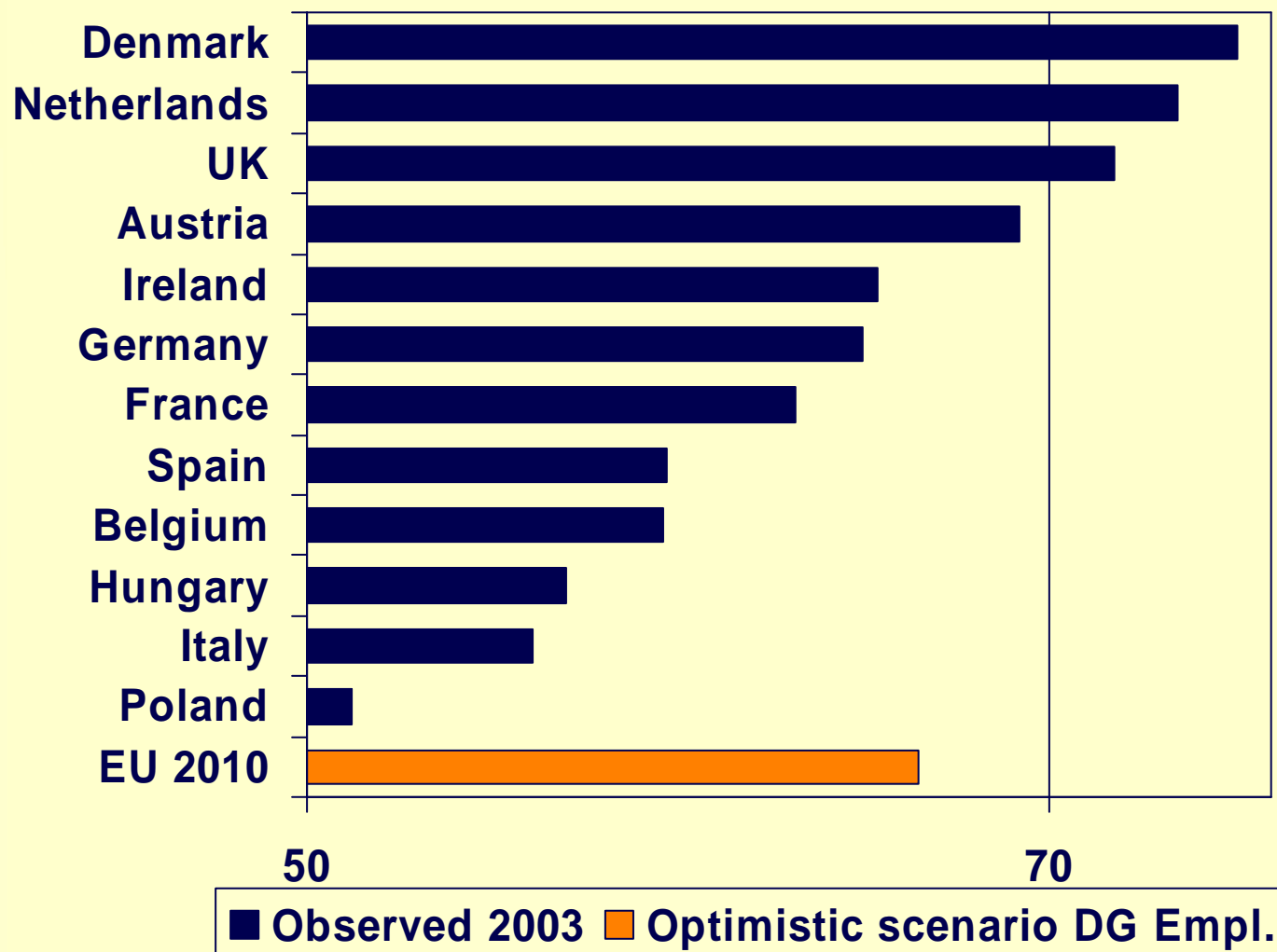
GDP effects five Lisbon targets, 2025, selected countries, lower bound (%)



Sectoral production effects five Lisbon targets, 2025, EU, lower bound (%)



Employment rate in 2003, selected countries (%)



Employment

- Target 2010: employment rate 70% (persons)
 - ▶ applies to EU as a whole
 - ▶ some countries have already met the 70% target
- Country specific target employment rate:
 - ▶ upper limit 75%
 - ▶ Interpolate between 2003 rate and upper limit
 - ▶ countries that meet the 70% still face a (small) target
- Difference lower - upper bound scenario
 - ▶ baseline: autonomous increase of female participation
 - ▶ additional labour inflow is low skilled

Two employment scenarios, 2025 (% difference to baseline)

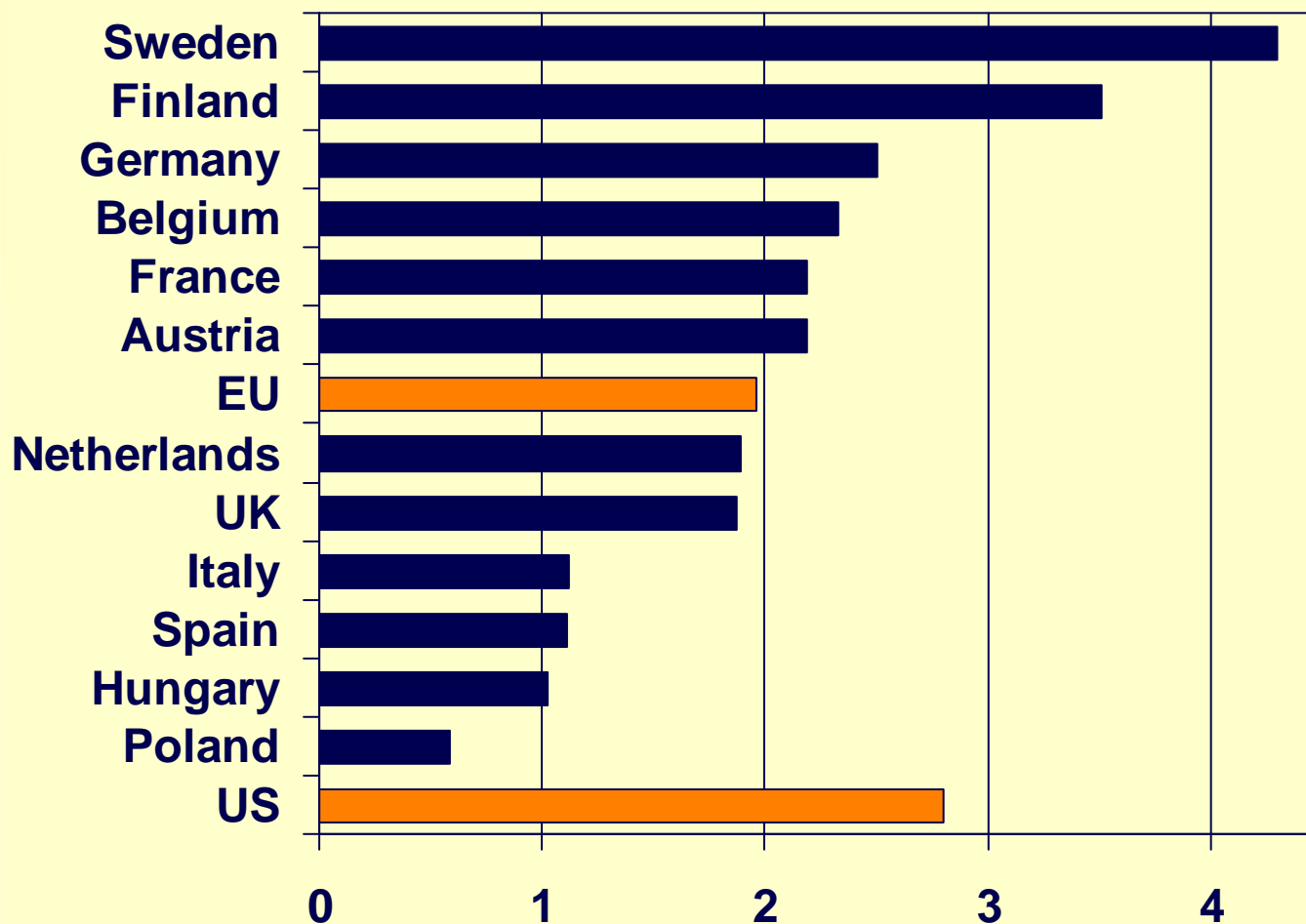
	low	high	
Employment	10.3	11.9	
Real wages	-4.3	-3.4	
GDP	6.3	9.2	capital - labour substitution
Consumption	5.6	8.3	terms of trade: negative
Exports	6.7	9.5	

Costs employment policies

- Back of the envelope, lower bound (EU level)
 - ▶ income tax rate: -8 %-points
 - ▶ replacement rate: -10 to -22 %-points

- Costs not quantified
 - ▶ public goods
 - ▶ equity
 - ▶ leisure

R&D expenditures in 2003, selected countries (% GDP)



R&D in WorldScan

- R&D expenditures cumulate in R&D stock
- Firms decide on optimal R&D stock
- R&D produced in separate R&D sector
- R&D spillovers in productivity
 - ▶ own sector
 - ▶ other sectors
 - ▶ foreign sectors
- R&D intensity falls in baseline
 - ▶ services economy
 - ▶ larger share of new member states

R&D simulations

- Target: EU expenditure at 3% GDP in 2010
 - ▶ Country: interpolate with upper limit of 4.5% GDP
 - ▶ Proportional increase in R&D stock: 2020
 - ▶ After 2020: falling R&D (services economy)
- Spillovers in two scenarios
 - ▶ lower bound: social return to R&D 30%
 - ▶ upper bound: social return to R&D 90%
- Instrument: subsidy
 - ▶ 3% expenditure target met over 2010-2020
 - ▶ proportionally to sectoral R&D spending

Two R&D scenarios, 2025 (% difference to baseline)

	low	high	
R&D stock	66.1	74.1	country range: 0 - 300%
GDP	3.2	10.1	= productivity
Consumption	1.2	7.0	terms of trade: negative
Exports	5.9	16.0	R&D intensive sectors tradable
Real wages	3.1	9.5	

Qualifications

- No diminishing returns
 - ▶ Some countries: increase R&D stock 150 - 300%
- Subsidy 100% effective
 - ▶ no additionality problem
- No disincentives effects of taxation
- Ignore crowding out, scarcity of scientists
 - ▶ Interaction skills and R&D target
- No other policy instruments

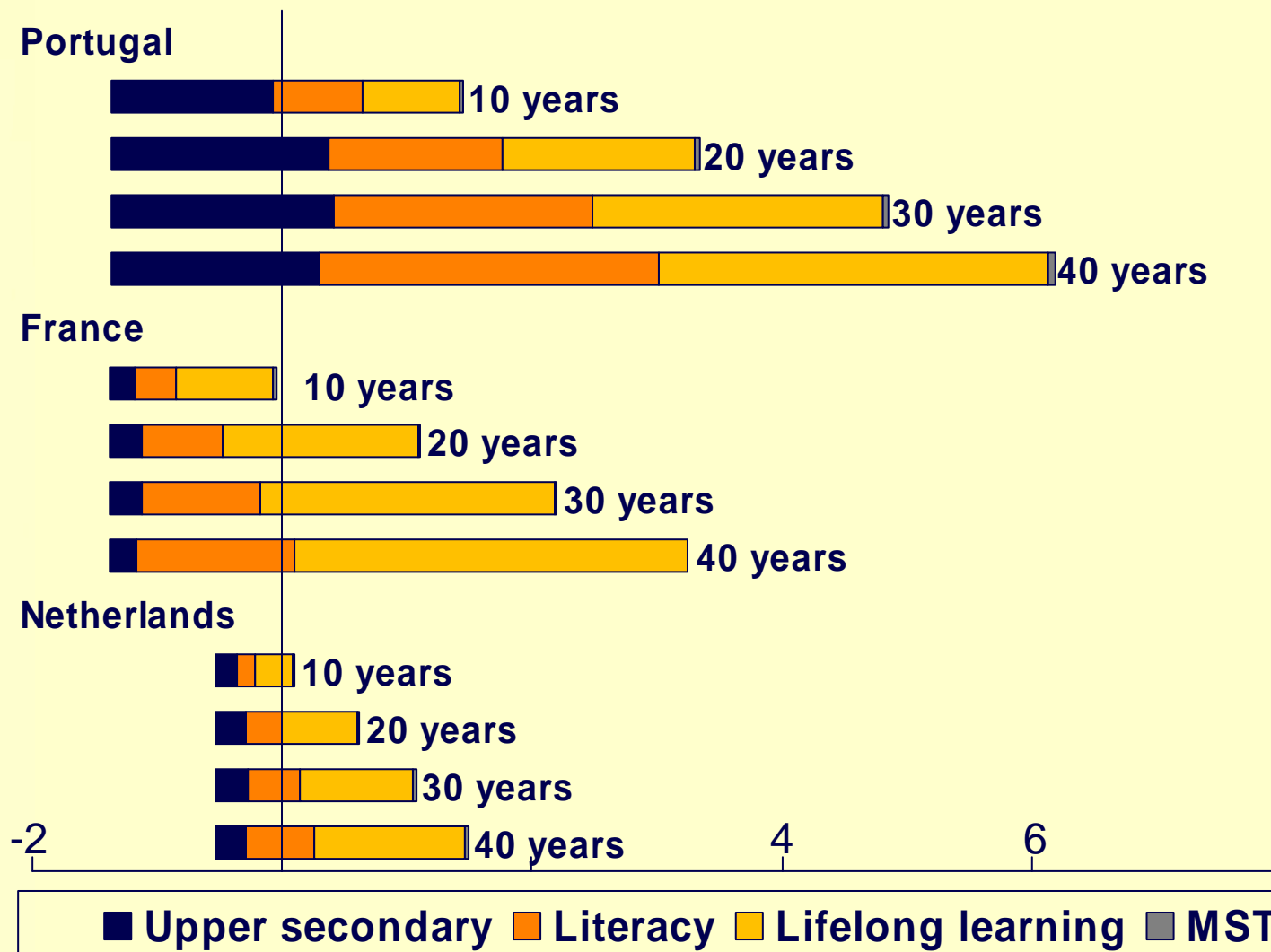
Human capital targets and implementation

- Early school leavers: less than 10%
 - ▶ Not included, second target overlaps
- At least 85% upper secondary education
 - ▶ Shift from lower secondary to upper secondary
- Low achieving 15 year olds: falls by 20%
 - ▶ Higher scores on Pisa literacy test
 - ▶ Improves quality of human capital
- Lifelong learning of population 25-64 years
 - ▶ At least 12.5% are training in four week period
- Mathematics, science and technology graduates
 - ▶ Increase by 15%
 - ▶ Shift from other tertiary studies

Human capital satellite model

- Production function with five skills groups
 - ▶ three low skilled, two high skilled
- On the job training
 - ▶ takes labour time
- Quality of education
 - ▶ Literacy target
- Stylized cohort model
 - ▶ time lag: education \Rightarrow skill structure labour force
- Country specific targets
 - ▶ Interpolate between 2003 rate and upper limit
- Calculates labour efficiency time path

Labour efficiency effects skills targets after 10, 20, 30 and 40 years (%)



Human capital scenarios, 2025 and 2040 (% difference to baseline)

	2025	2040	
GDP	0.5	1.7	= productivity
Consumption	0.4	1.6	terms of trade: slightly negative
Real wages	0.5	1.6	

Costs human capital investment

- Included
 - ▶ more high skilled implies less low skilled
 - ▶ longer education implies less labour time available
 - ▶ training reduces labour time
- Excluded
 - ▶ direct costs of education and training
 - ▶ policy costs
 - ▶ complementarity MST workers and R&D
- Model parameters: optimistic values

Administrative burden

- Lower costs: labour efficiency rises
 - ▶ more efficient administration
 - ▶ less labour to comply with regulations
- Benchmark: Dutch data
 - ▶ Burden of 3.7 % GDP falls by 0.9 %-points (25%)
 - ▶ Equals labour efficiency increase of 1.6%
- Country effects
 - ▶ for 60%: World Bank study on start-up costs
 - ▶ for 40%: uniform due to EU regulations

Lower administrative burden, 2025 (% difference to baseline)

Efficiency	1.3	Impulse
GDP	1.4	R&D spillovers: +0,2
Consumption	1.3	terms of trade: -0,1

Internal market for services

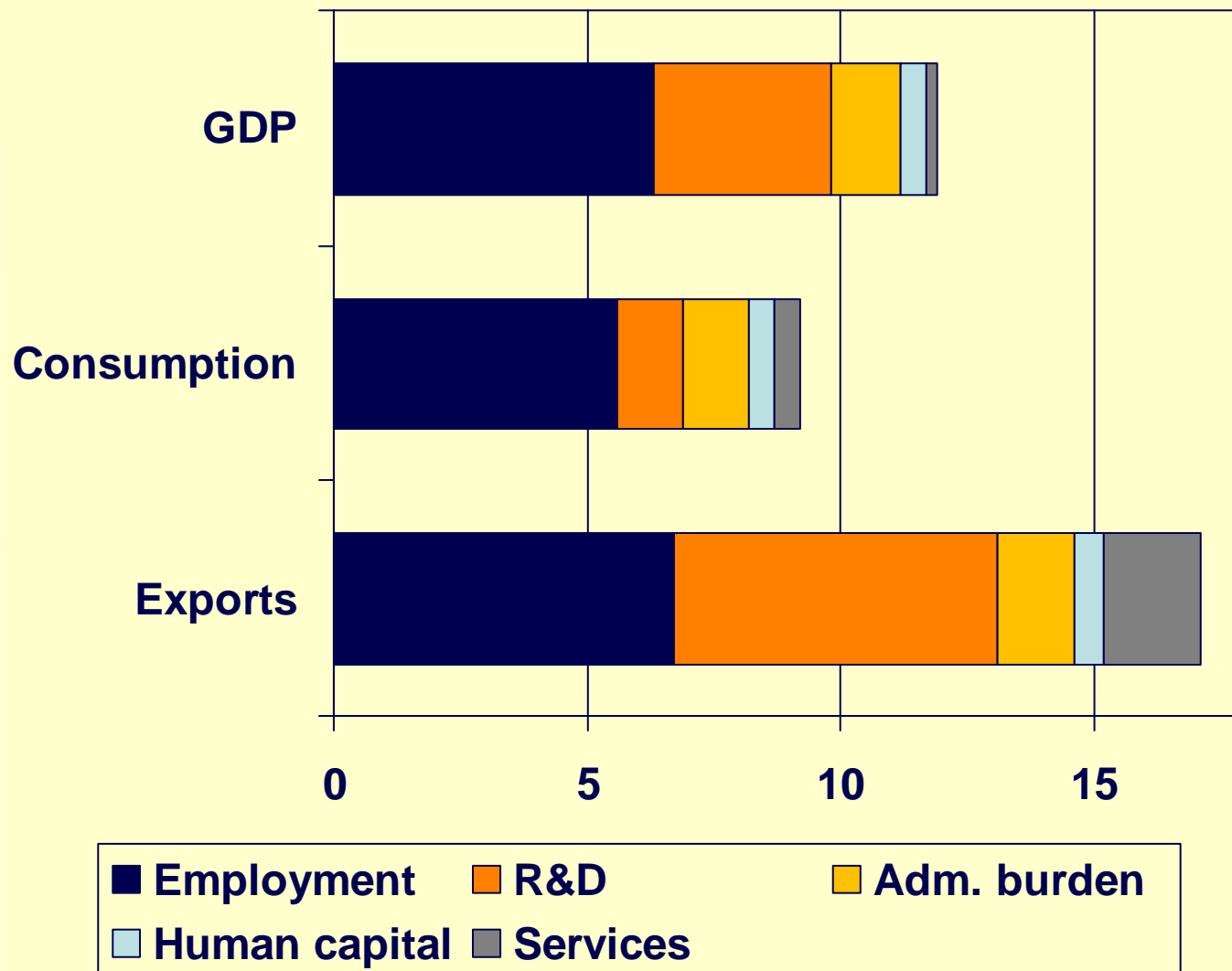
- Heterogeneity in regulation between countries
 - ▶ additional transaction cost
- Services directive
 - ▶ commercial services trade: 30 - 60 %
 - ▶ FDI in commercial services: 20 - 35%
- WorldScan: trade induced effects
 - ▶ no FDI in model
- Lower bound
 - ▶ 30% trade effect
 - ▶ no economies of scale

Internal market for services, 2025 (% difference to baseline)

	low	high	
GDP	0.2	0.7	
Consumption	0.4	1.2	lower import prices and lower consumer prices
Exports	1.7	3.6	lower trade barriers
Real wages	0.5	1.3	

Upper bound scenario from De Bruijn, Kox and Lejour, 2006, The trade-induced effects of the Services Directive and the country of origin principle, CPB Document 108

Conclusion: effects of five Lisbon targets, EU, lower bound, 2025 (%)



GDP versus welfare effects

- GDP effects from “what if” analyses
 - ▶ not all costs are taken into account
- GDP is not consumption
 - ▶ largely due to (negative) terms-of-trade effects
- Consumption is not welfare
 - ▶ ignore less leisure time
 - ▶ ignore inequality
 - ▶ ignore environment

Message

- What if a miracle happened?
 - ▶ GDP increase: 12 - 23 %
 - ▶ Consumption increase: 9 - 19%
 - ▶ Lisbon has large potential
- But miracles do not exist
 - ▶ targets very ambitious
 - ▶ no policy instruments specified
 - ▶ not realized in 2010
 - ▶ yet, worthwhile to pursue
- Further research:
 - ▶ policy instruments
 - ▶ costs and time paths