PITFALLS IN INNOVATION POLICY MAKING

UNIVERSITY OF URBINO CONFERENCE 12-13 SEPTEMBER 2017

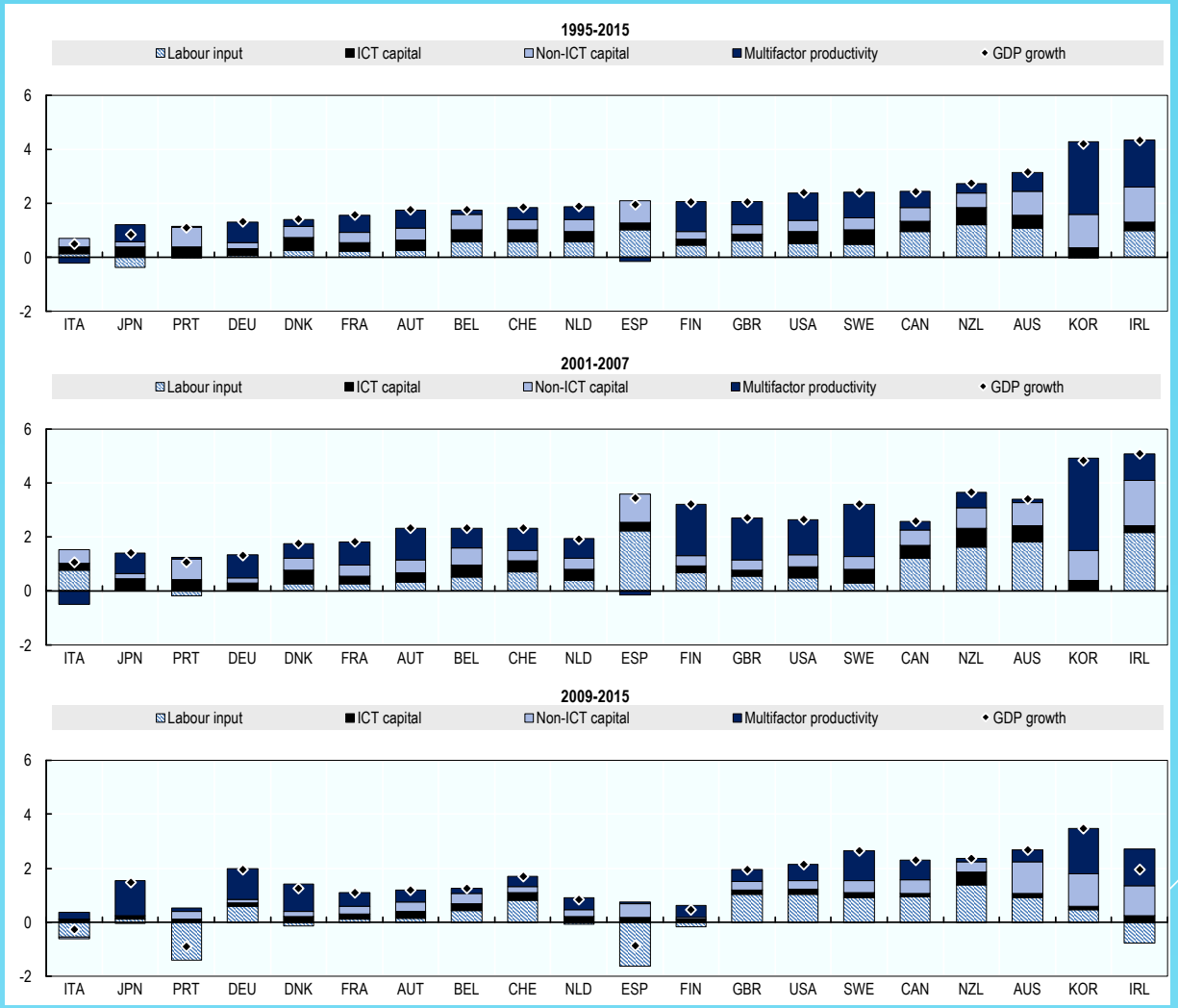
SALVATORE ZECCHINI

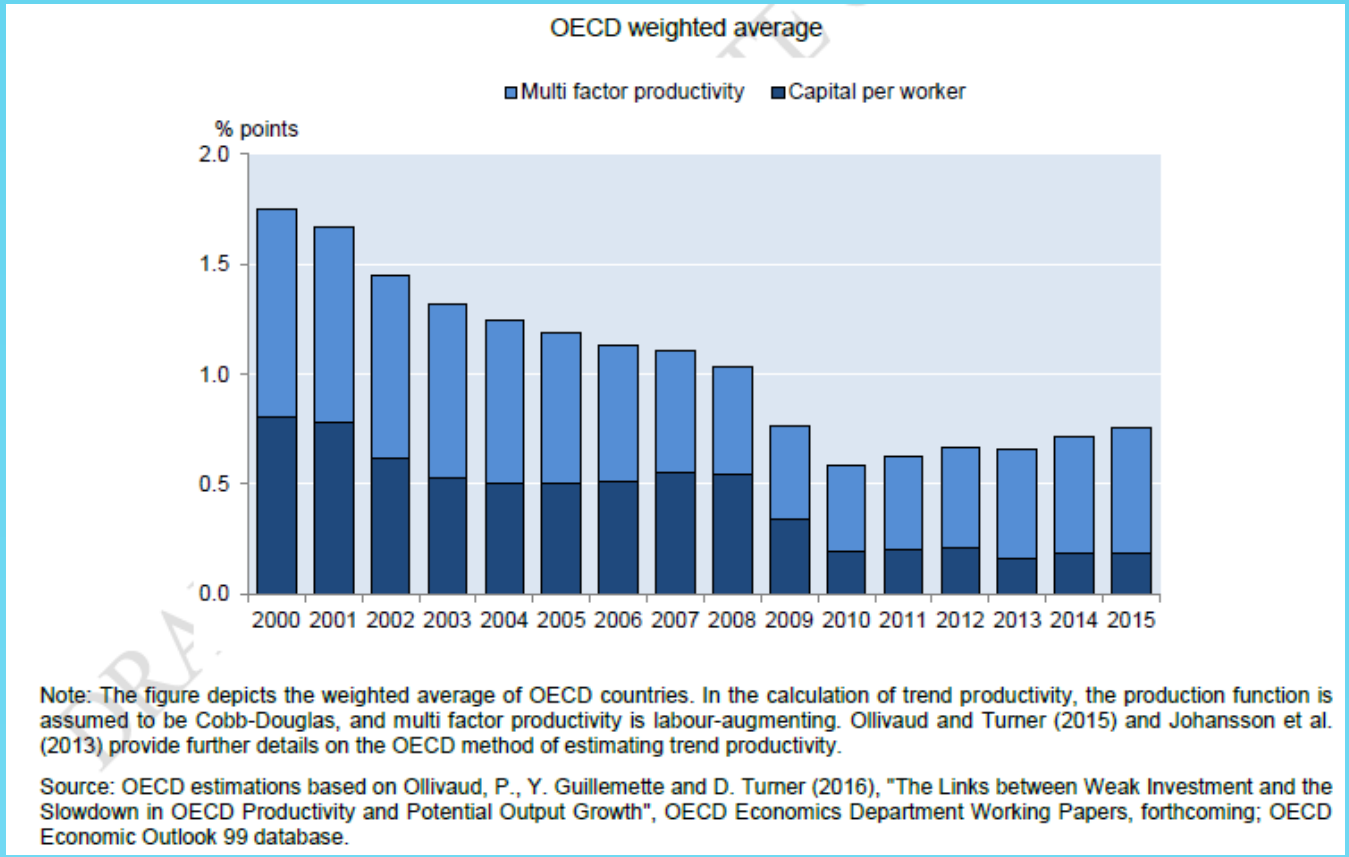
OECD WORKING PARTY ON SMEE

SMEs, INNOVATION, PRODUCTIVITY, ECONOMIC GROWTH

- Innovation and productivity are two crucial factors for economic growth and can explain a good portion of the slowdown of OECDs economies in past decades.
- SMEs have contributed to this performance, being a major component of enterprise systems and the laggards in innovation and productivity
- This should not have been the case in the new «entrepreneurial economy» where R&I are no longer the preserve of large firms
- Size still matters!
- Focus of this presentation: SME concentration in the low innovation/prod.ty end of firm distribution; issues in innovation; pitfalls in innovation policy; Italy as an example.

CONTRIBUTIONS TO GROWTH (% POINTS PER YEAR-SOURCE:OECD)

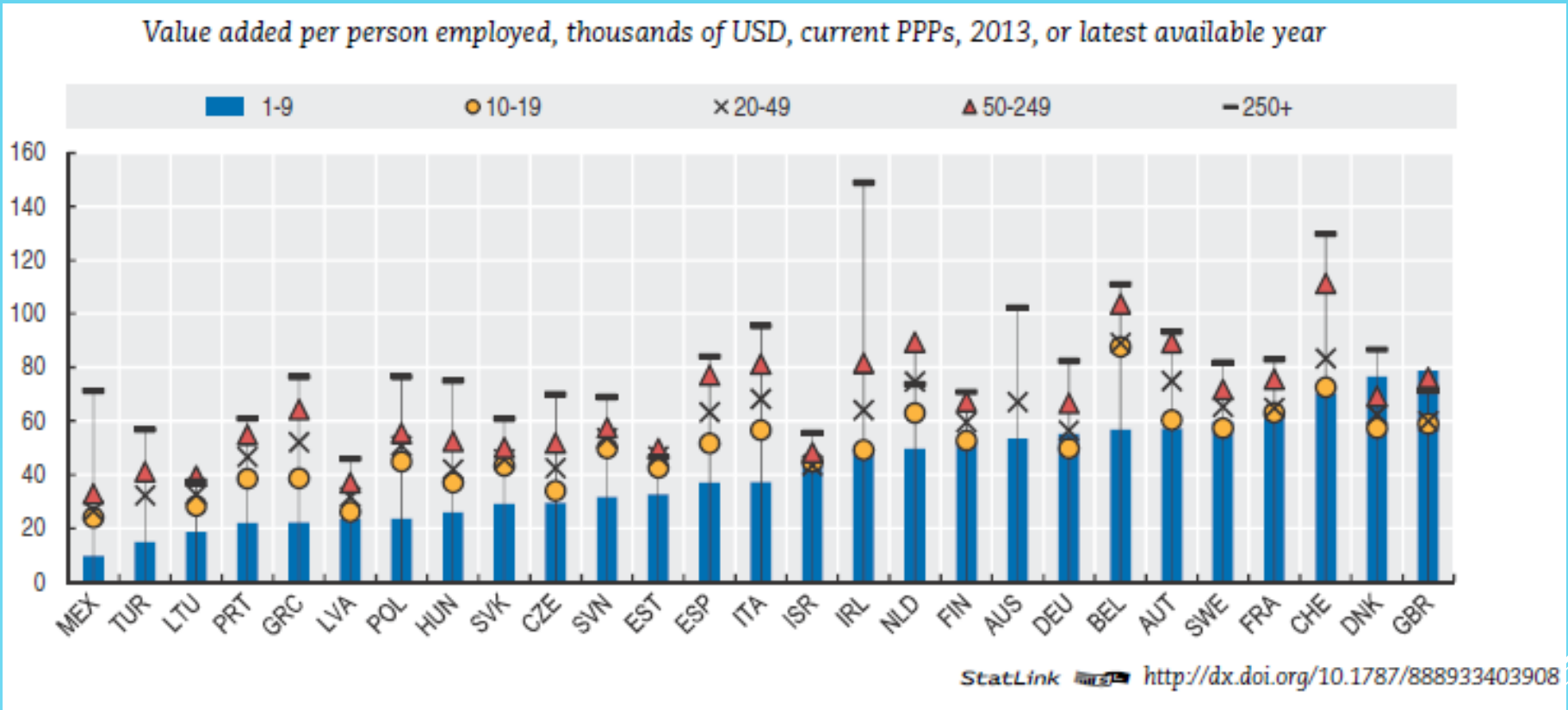




Note: The figure depicts the weighted average of OECD countries. In the calculation of trend productivity, the production function is assumed to be Cobb-Douglas, and multi factor productivity is labour-augmenting. Ollivaud and Turner (2015) and Johansson et al. (2013) provide further details on the OECD method of estimating trend productivity.

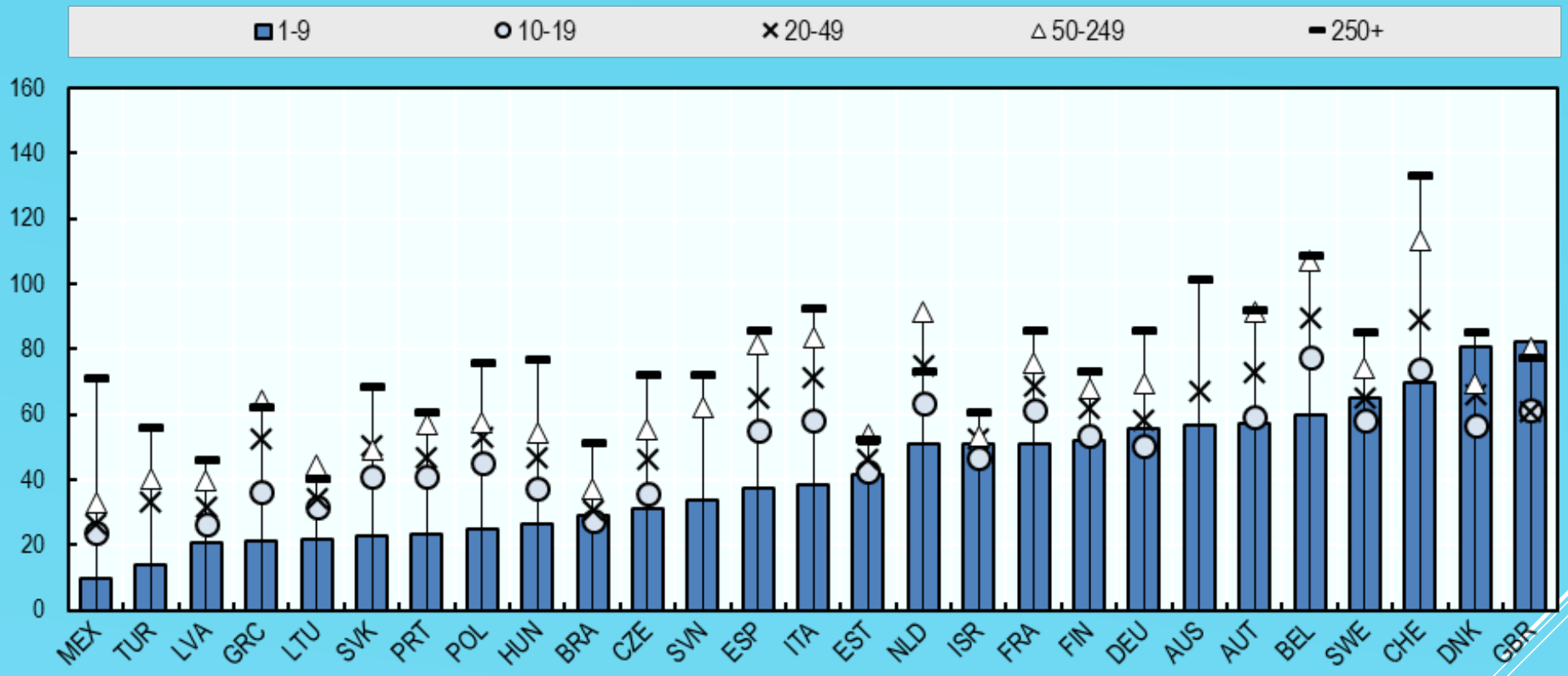
Source: OECD estimations based on Ollivaud, P., Y. Guillemette and D. Turner (2016), "The Links between Weak Investment and the Slowdown in OECD Productivity and Potential Output Growth", OECD Economics Department Working Papers, forthcoming; OECD Economic Outlook 99 database.

CONTRIBUTORS TO TREND LABOUR PRODUCTIVITY GROWTH



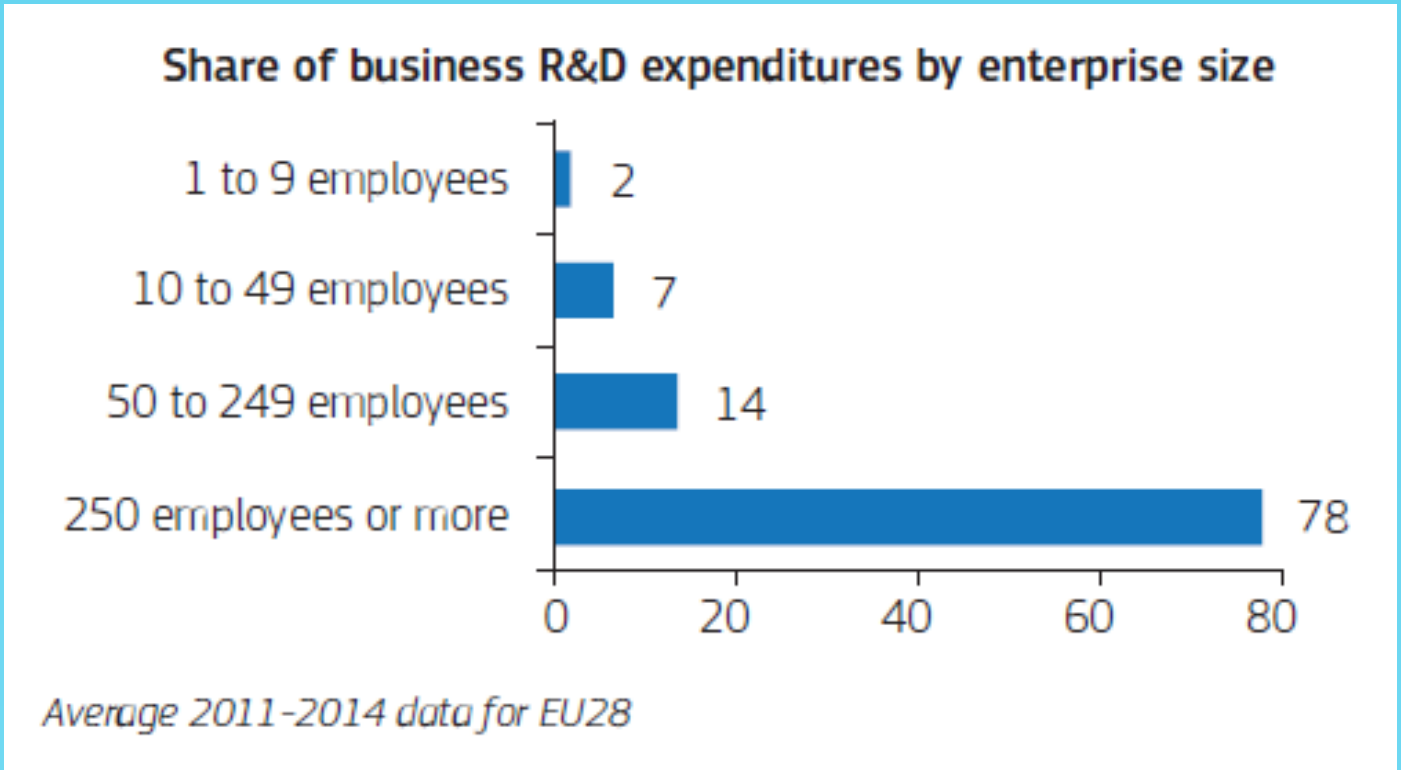
LABOUR PRODUCTIVITY BY FIRM SIZE

(SOURCE: OECD ENTREPRENEURSHIP AT A GLANCE 2016)



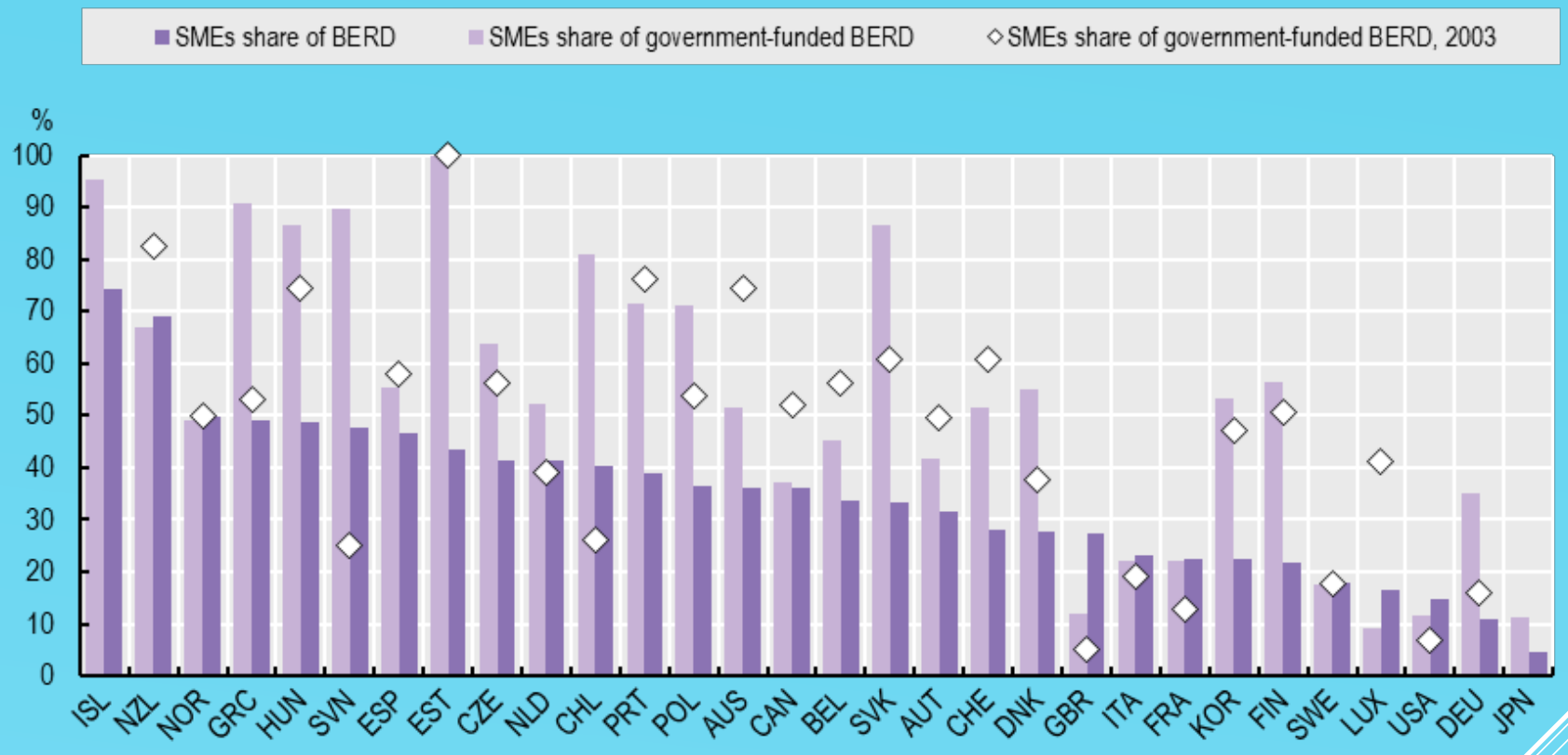
LABOR PRODUCTIVITY BY FIRM SIZE – YEAR 2014

(SOURCE: OECD COMPENDIUM OF PROD.TY INDICATORS 2017)



INVESTMENT IN INNOVATION BY FIRM SIZE

(SOURCE: EU INNOVATION SCOREBOARD 2017)



SME SHARE OF BUSINESS R&D AND GOVERNMENT SUPPORT – 2013 AND 2003

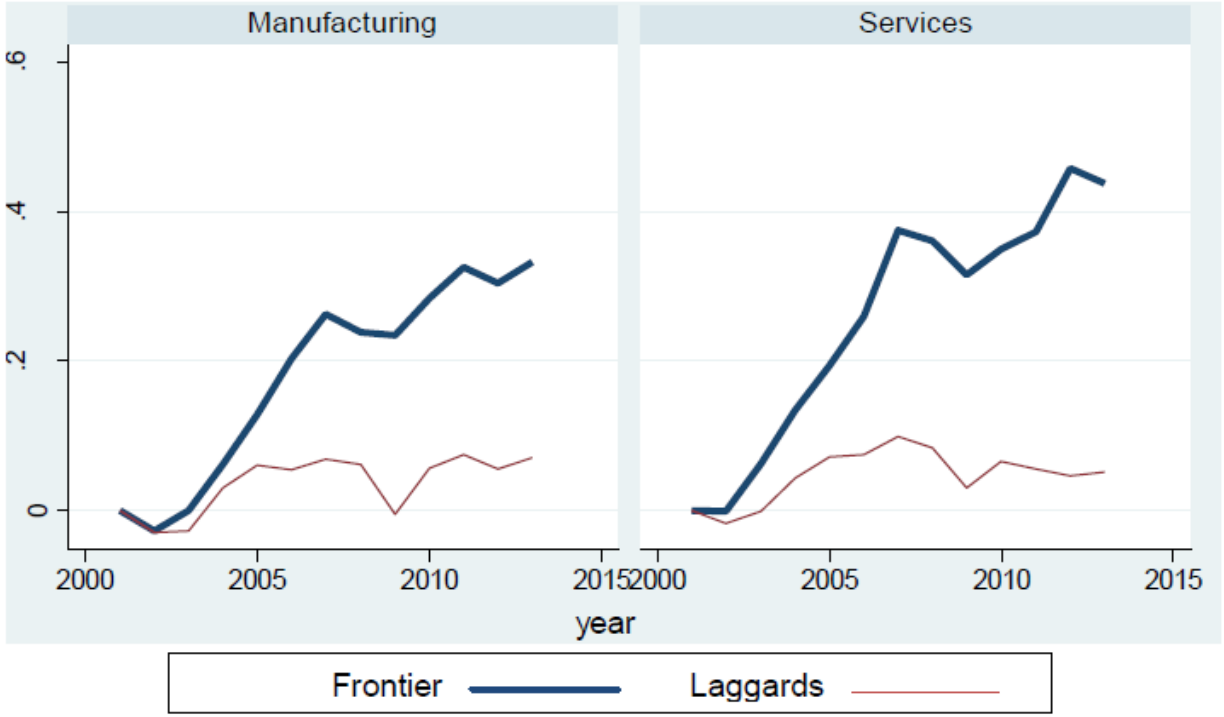
(AS A PERCENTAGE - SOURCE: OECD SMALL, MEDIUM, STRONG, 2017)

FOCUS OF THIS PRESENTATION

- SME concentration in low-innovation and low-productivity end of enterprise distribution
- Issues affecting countries' innovation performance
- Pitfalls in innovation policies
- An example: the case of Italy

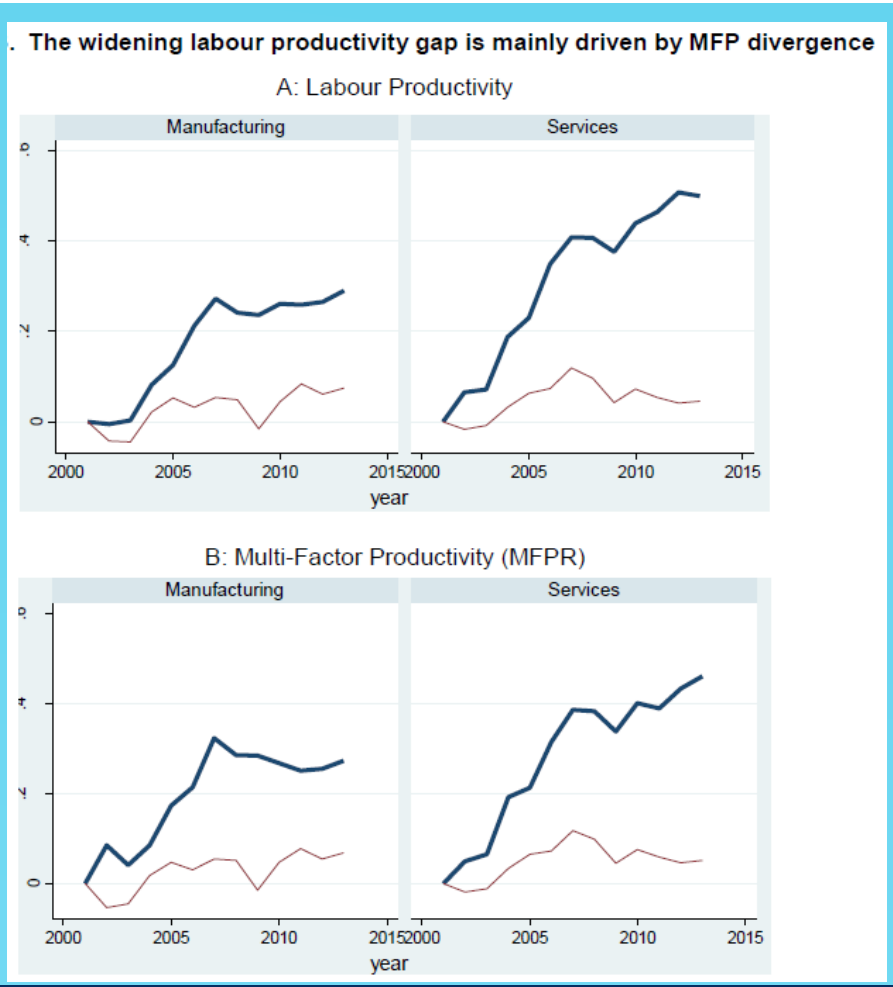
Figure 2. A widening labour productivity gap between global frontier firms and other firms

Labour productivity: value added per worker (2001-2013)



WIDENING DIFFERENCE IN LABOUR PRODUCTIVITY GROWTH BETWEEN FRONTIER AND LAGGING FIRMS

(SOURCE: OECD – ANDREWS, CRISCUOLO, GAL 2016)



WIDENING LABOUR AND MFPR GAPS IN MANUFACTURING AND SERVICES – VALUE ADDED PER WORKER 2001-2013

(SOURCE: OECD - ANDREWS, CRISCUOLO, GAL, 2016)

A: Labour productivity based frontier definition

	Sector: manufacturing								Sector: services							
	Laggard firms			Frontier-firms			Difference		Laggard firms			Frontier-firms			Difference	
Variables	Mean	St.dev.	N	Mean	St.dev.	N			Mean	St.dev.	N	Mean	St.dev.	N		
Productivity	10.7	0.6	21,191	12.0	0.4	825	1.3	***	10.4	0.7	22,053	11.9	0.7	627	1.5	***
Employees	49.3	52.1	21,191	45.1	33.8	825	-4.2	***	59.5	156.6	22,053	38.0	24.8	627	-21.6	***
Capital-labour ratio[1]	86.1	115.3	21,191	274.5	425.5	825	188.4	***	76.4	214.0	22,053	677.5	2,071.1	627	601.1	***
Revenues[2]	11.8	21.6	21,191	39.0	58.8	825	27.3	***	14.8	54.0	22,053	57.9	133.0	627	43.1	***
Markup (log)	0.1	0.4	21,191	0.1	0.4	825	0.05	***	0.1	0.4	22,053	0.3	0.5	627	0.19	***
Wages[1]	34.2	16.7	21,191	54.6	20.1	825	20.4	***	34.5	16.7	22,053	56.6	23.4	627	22.1	***

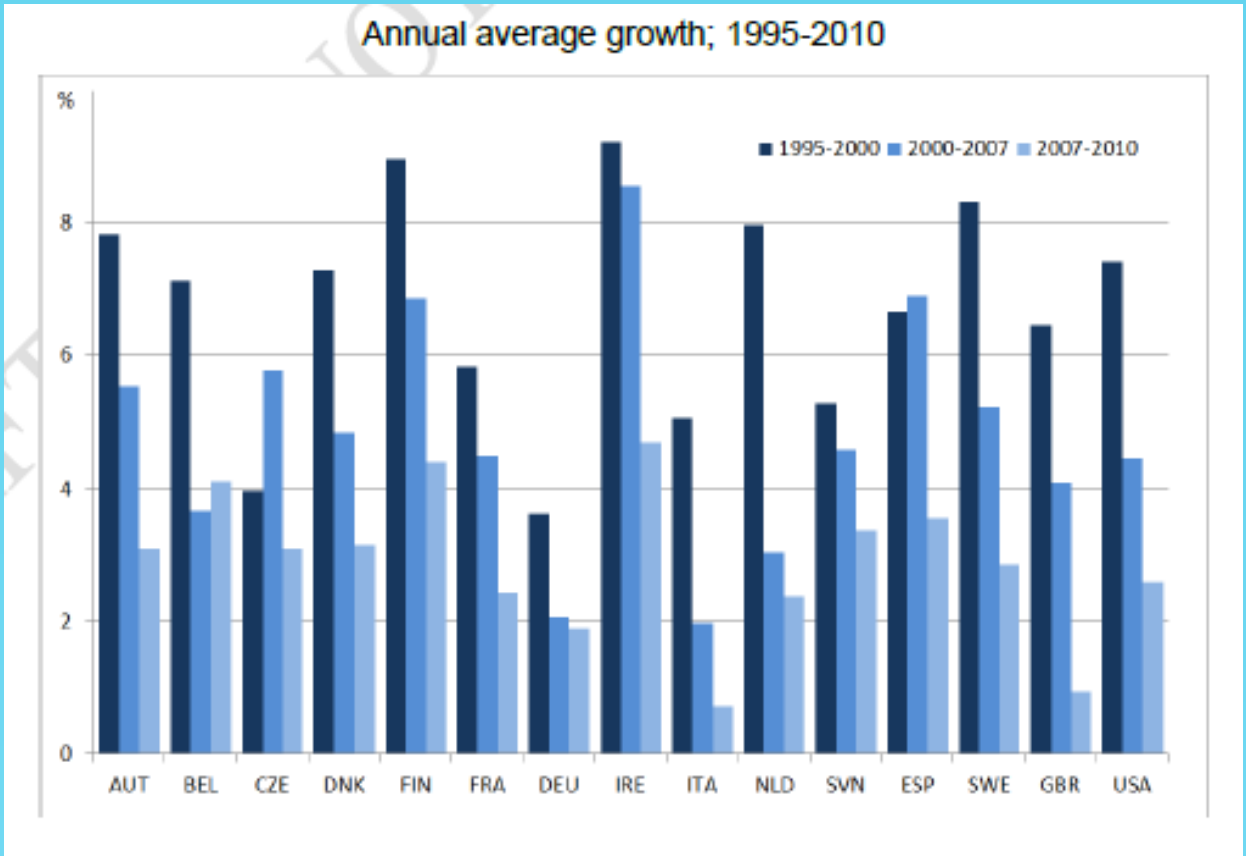
B: MFPR based frontier definition

	Sector: manufacturing								Sector: services							
	Laggard firms			Frontier-firms			Difference		Laggard firms			Frontier-firms			Difference	
Variables	Mean	St.dev.	N	Mean	St.dev.	N			Mean	St.dev.	N	Mean	St.dev.	N		
Productivity	10.4	0.6	21,317	11.6	0.4	706	1.3	***	10.3	0.7	22,147	11.7	0.7	538	1.4	***
Employees	48.3	46.8	21,317	73.7	126.0	706	25.4	***	59.1	155.3	22,147	53.4	115.6	538	-5.6	
Capital-labour ratio[1]	89.3	125.1	21,317	214.3	406.0	706	125.1	***	81.1	245.5	22,147	579.6	2,131.7	538	498.5	***
Revenues[2]	11.5	19.9	21,317	50.5	74.1	706	39.0	***	14.4	40.1	22,147	80.2	268.0	538	65.7	***
Markup (log)	0.1	0.4	21,317	0.0	0.4	706	-0.02		0.1	0.4	22,147	0.2	0.5	538	0.12	***
Wages[1]	34.3	16.7	21,317	56.3	18.9	706	22.0	***	34.6	16.8	22,147	56.8	23.9	538	22.2	***

C: Mark-up corrected MFPR based frontier definition

	Sector: manufacturing								Sector: services							
	Laggard firms			Frontier-firms			Difference		Laggard firms			Frontier-firms			Difference	
Variables	Mean	St.dev.	N	Mean	St.dev.	N			Mean	St.dev.	N	Mean	St.dev.	N		
Productivity	10.3	0.8	19,844	11.7	0.4	887	1.4	***	10.2	0.9	21,823	11.6	0.7	776	1.4	***
Employees	48.6	46.9	19,844	79.1	119.1	887	30.5	***	58.9	156.8	21,823	58.5	73.0	776	-0.4	
Capital-labour ratio[1]	95.1	138.9	19,844	114.1	272.6	887	18.9	**	88.7	330.8	21,823	211.6	1,389.1	776	122.9	**
Revenues[2]	12.0	22.5	19,844	34.7	51.4	887	22.7	***	15.3	58.0	21,823	36.7	59.6	776	21.5	***
Markup (log)	0.1	0.4	19,844	-0.2	0.2	887	-0.3	***	0.1	0.4	21,823	-0.2	0.3	776	-0.2	***
Wages[1]	34.5	16.5	19,844	60.6	15.8	887	26.1	***	34.2	16.5	21,823	60.7	21.2	776	26.5	***

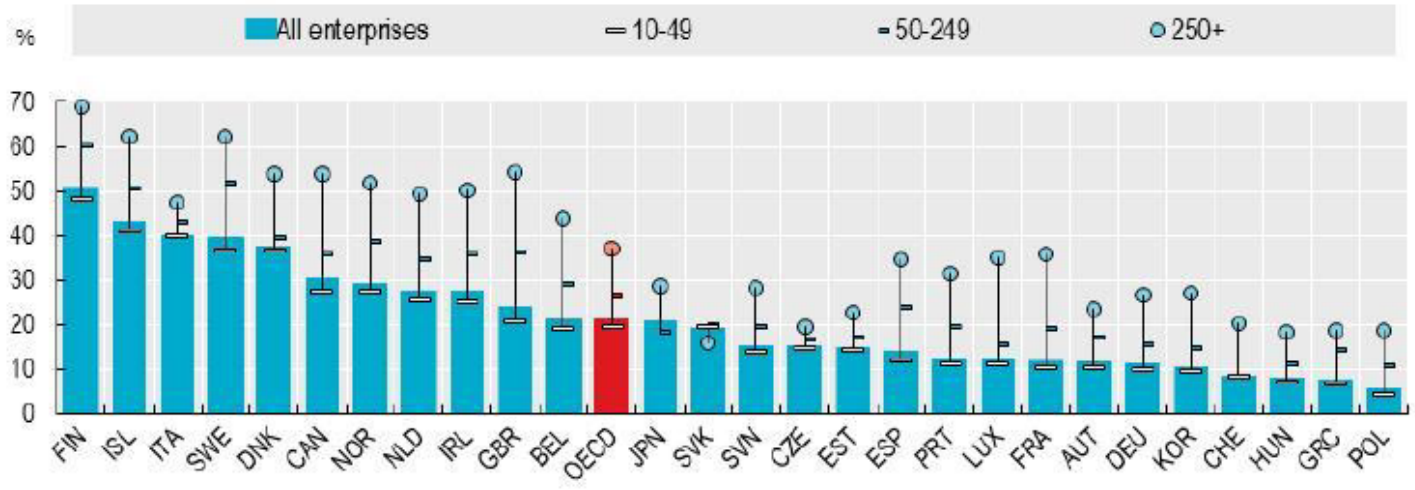
SMALL FIRMS ARE AMONG THE LAGGARDS IN MANUFACTURING, BUT IN SERVICES SIZE MATTERS LESS
(SOURCE: OECD, IBIDEM)



INVESTMENT IN KNOWLEDGE-BASED CAPITAL

(AVERAGE GROWTH PER YEAR 1995-2010 - SOURCE: CORRADO ET AL. 2012 AND OECD, ALBRIZIO, NICOLETTI, 2016.

Enterprises using cloud computing services by size, as a percentage of enterprises in each employment size class, 2014



Notes: Unless otherwise stated, sector coverage consists of all activities in manufacturing and non-financial market services. Only enterprises with ten or more persons employed are considered. Size classes are defined as: small (from 10 to 49 persons employed), medium (50 to 249) and large (250 and more). For Canada, data refer to enterprises with expenditures on "Software as a Service" (e.g. cloud computing). Medium-sized enterprises have 50-299 employees. Large enterprises have 300 or more employees. For Japan, data refer to businesses with 100 or more employees. Medium-sized enterprises have 100-299 employees. Large enterprises have 300 or more employees. For Canada and Korea, data refer to 2012 instead of 2014. For Japan and Switzerland, data refer to 2011 instead of 2014. For Switzerland, data refer to enterprises with five and more employees.

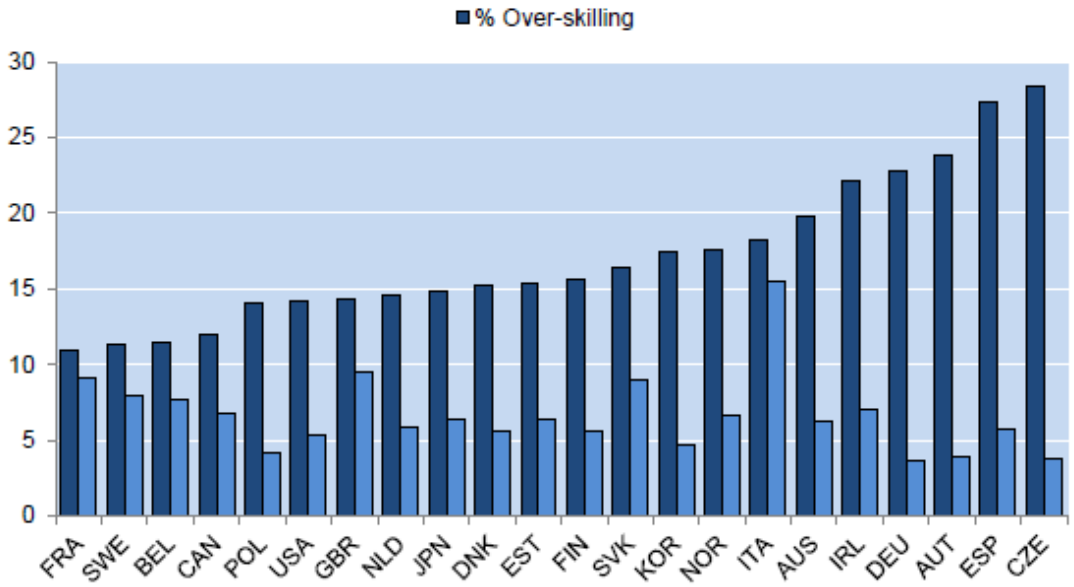
Source: OECD (2015), OECD Digital Economy Outlook 2015, OECD Publishing, Paris.

SMES LAG BEHIND IN DIGITALIZATION

(SOURCE: OECD, ENHANCING SMES…2017)

TAXONOMY OF A HOLISTIC INNOVATION POLICY

Knowledge creation (innovation supply)	Investment cost vs. business risk Disconnection between research and business Lack of knowledge and information infrastructures Lack of know-how, quality human resources Difficulties in university/research spillovers into business, start-ups,
Knowledge demand (innovation demand)	System inertia, habits Limited market scope Country's sectoral specialization Bias towards existing technologies and approaches Regulations and standards Difficulty in firm's absorption of new knowledge Lack of public procurement
Knowledge/innovation diffusion across firms	Innovation chains and networks Clusters of innovative firms Innovation/ technology parks Incubators/accelerators Lack of specialized bodies for technology transfer, both private and public ones
Enabling environment	Conducive finance (private and public) Skilled labor, training facilities Barriers to competition (hard market entry, incumbents) Information infrastructures Externalities limiting appropriability of returns, inadequate protection/enforcement of IPRs and "industrial" property (trade-marks, design, etc.) Quality education and research facilities Innovation/entrepreneurial culture in society
Innovation policy governance	Lack of an Innovation Policy and foresight Lack of an Innovation strategy Fragmented policy approach Lack of horizontal and vertical coordination across Government Lack of policy predictability and stability Intricate implementation procedures and bureaucratic hindrances Lack of policy effectiveness Lack of monitoring and periodic evaluation of innovation measures



Note: The figure shows the percentage of workers who are either over- or under- skilled and the simulated gains to allocative efficiency rom 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).

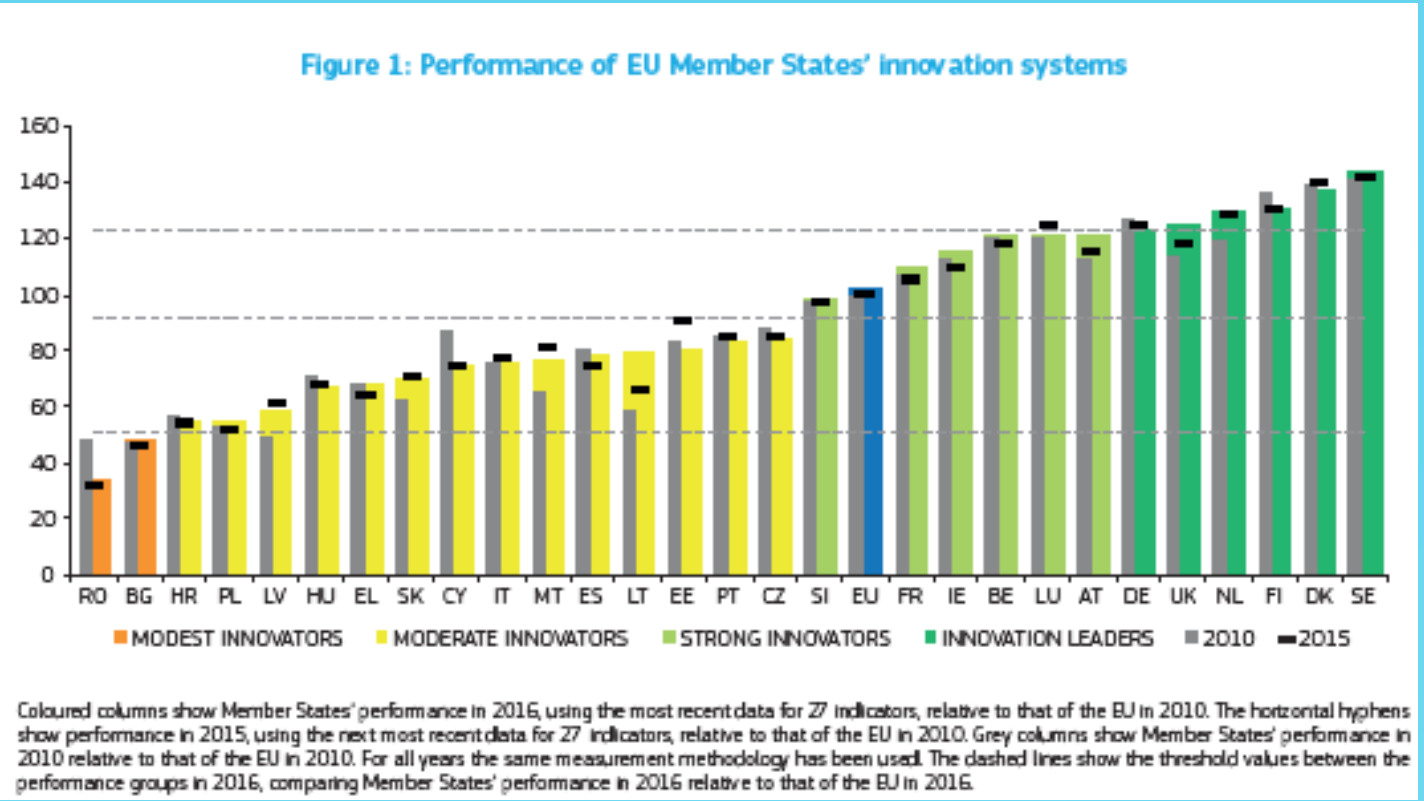
Source: Adalet McGowan, M. and D. Andrews (2015b).

SKILLS MISMATCH 2011-12

(SOURCE: OECD, MCGOWAN, ANDREWS, 2015)

PITFALLS IN INNOVATION POLICY MAKING

- Lack of a long-term vision of goals
- Failure to understand the systemic nature of innovation
- Emphasis on supply-driven policy approaches
- Top-down approach to elicit innovation
- Narrow scope of innovation policy focusing just on industrial policy
- Skills mismatches
- Lack of pro-active policy for innovation diffusion
- Lack of selectivity about beneficiary firms
- Inadequate attention to market competition and factor mobility
- Failure in policy governance and policy evaluation

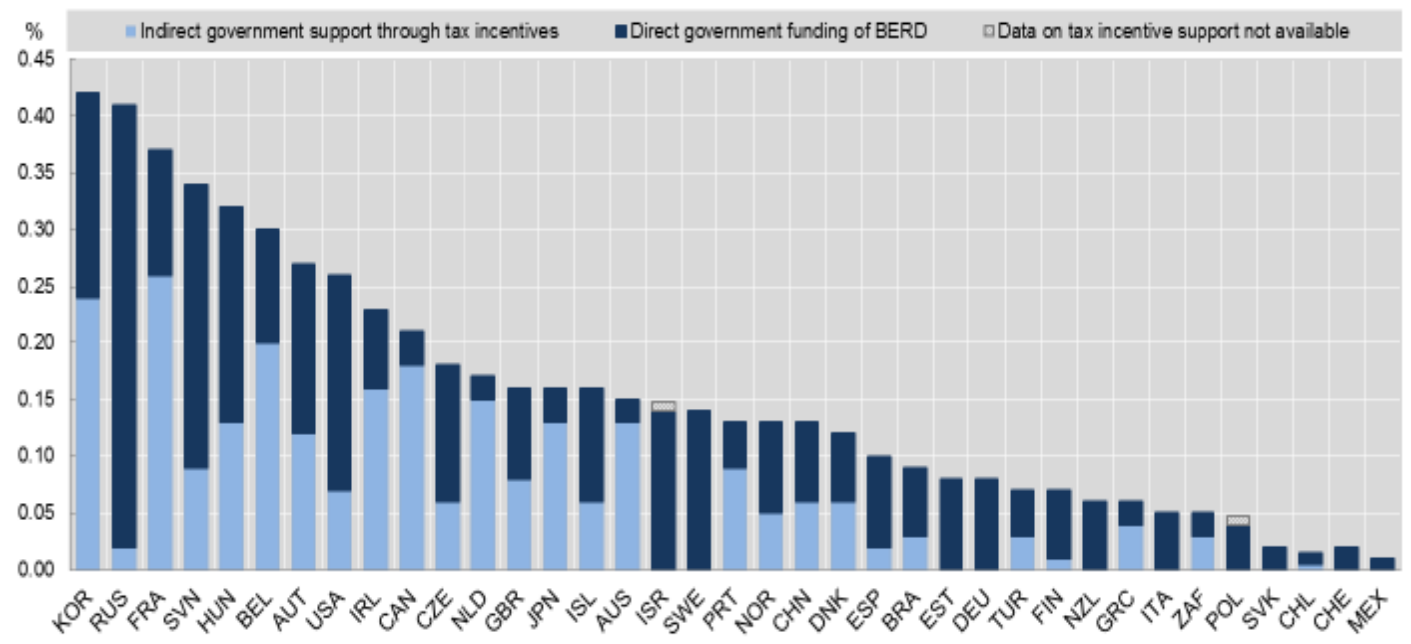


IN 2010-2015 ITALY'S INNOVATION PERFORMACE WORSENS COMPARED TO PARTNERS

(SOURCE: EU INNOVATION SCOREBOARD 2017)

ITALY'S INNOVATION POLICY PITFALLS IN 2000-2015

- Incentives without a plan or strategy
- National Plan for R&D didn't deal adequately with innovation
- Fragmentation of measures and policy makers
- Policy coordination was missing: duplications and gaps
- Inadequacy of measures on the innovation framework conditions
- Inefficiencies in selecting beneficiaries
- Lenghty and complex procedures to disburse financial support
- Focus mainly on manufacturing, while little attention to services
- Failure of Industria 2015 program
- Instrument choice not attuned to needs of different firm classes
- Amount of resources inadequate and below those committed by partners
- Lack of measures to provide innovation supporting services

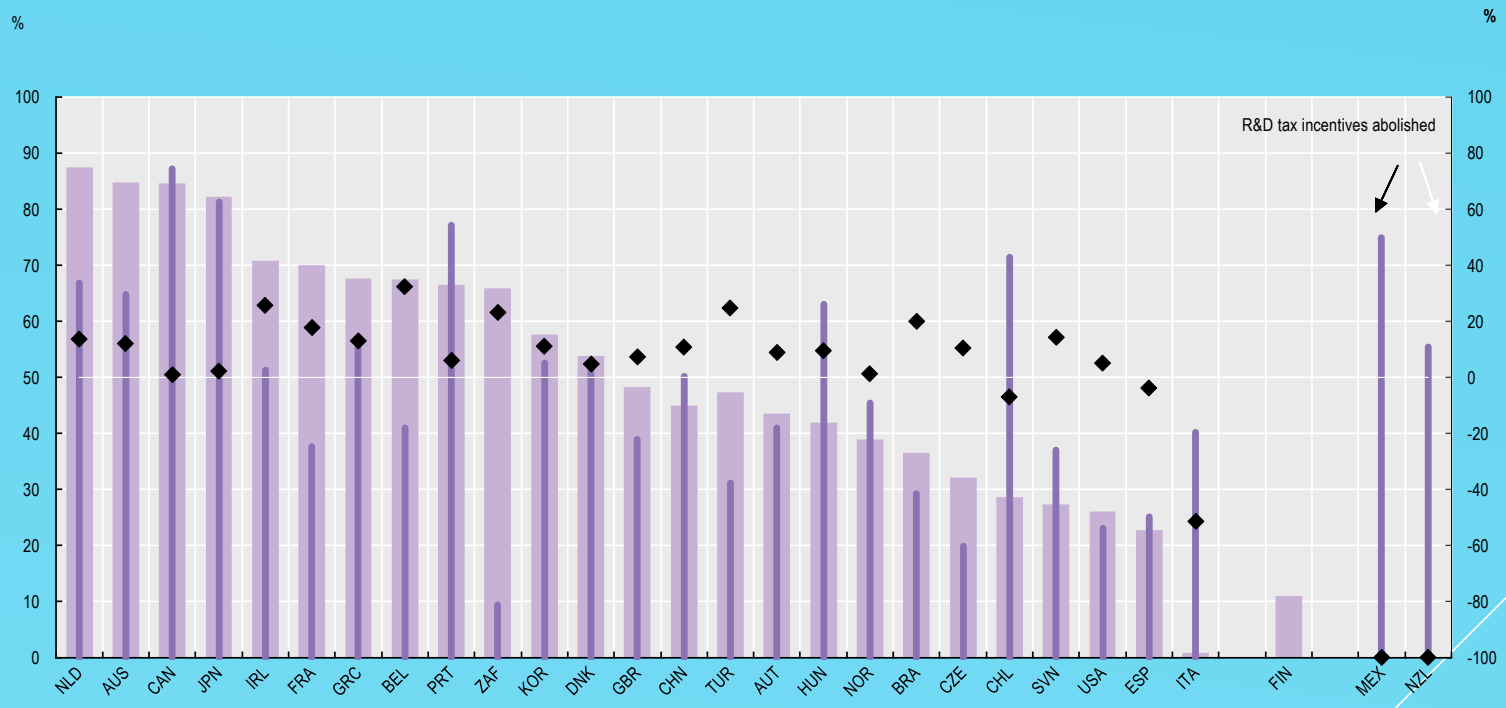


PUBLIC DIRECT FINANCING AND TAX BENEFITS FOR ENTERPRISE INVESTMENT IN R&D

(YEAR 2013 – AS A PERCENTAGE OF GDP)

SOURCE: OECD, R&D TAX INCENTIVES: DESIGN AND EVIDENCE, 2016

TAX BENEFITS for ENTERPRISE INVESTMENT in R&D
(as a percentage of total support to firms – annual growth rates)
Source: OECD, R&D Tax Incentives: Design and Evidence, 2016



INDUSTRIA 4.0 PROGRAM: PROS AND CONS

- PROs:
  - Multifaceted approach
  - A broad program, but not a strategy
  - Support to key enabling technologies
  - Some degree of interministerial coordination
  - Incentives boosted in intensity and continuity
  - New instruments to support R&I
  - Significant increase in public funds
- CONS:
  - Inadequate coordination with all public bodies
  - Modest incentives to university/business collaboration
  - Weak connections between education system and enterprises for skills dvpt.
  - Inadequate return on investing in continuing education
  - Insufficient spread of new techniques across SMEs («competence centers» few and not operational yet)
  - Lack of measures for innovation supporting services other than «competence centers»
  - Financing constraint on Innovation funding still critical for not-yet-innovative small firms
  - Inadequate boost to market competition
  - Burden of bureaucracy still heavy
  - Labour reallocation constraints not eased enough
  - Innovation in services sector is scarcely addressed
  - Public procurement of innovative product still missing

- No optimal policy model fits all countries
- Each country should analyze strenghts and weknesses beforehand, and strenously focus on the latter
- Determine general policy orientation
- Apply an all-encompassing approach
- Boost financial support to SMEs since they invest less in innovation
- Choose appropriate tools according to different firms' needs
- Monitor implementation
- Evaluate results and make adjustments

ON TOP, BREED INNOVATION CULTURE ACROSS SOCIETY
WITHOUT IT, WIDESPREAD INNOVATION WILL ALWAYS BE A MIRAGE