The World Bank
Europe and Central Asia Region

Fostering the Innovation Landscape:

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THE POLICY ENVIRONMENT FOR FINANCING INNOVATION

- Innovation is the main driver of long-term economic growth
- Increasing innovation is a priority for advanced & developing countries
  - Catching up with the countries at the technology frontier requires not only imitating what they have done, but adapting it to the particular country circumstances.
- Several factors contribute to creating an environment that enables innovation activity
  - Educated population and sound institutions
  - However the top ranked barrier is unavailability of finance.

Markets provide less finance for innovation than is socially desirable, which provides a justification for government intervention. Specifically, markets underinvest in innovation for several reasons:

- **Asymmetric information**: The entrepreneur (or firm) has more accurate information about how promising an innovation project is. This can lead both to moral hazard and adverse selection
- **Externalities:** Innovation activities generate spillovers, since inventors rarely can fully appropriate the returns their innovation activities generate. Social return to innovation investment is higher than the private return, and markets invest less in innovation than is socially optimal.
- **Coordination failures:** Innovation activity happens within a "system," with different actors and networks as well as underlying infrastructure and institutions. Most (if not all) parts of the system need to be in place for it to function well and is one reason clusters are so difficult to replicate.
- ***Institutional failures:*** *A*n institutional failure can severely damage access to finance for innovative firms. These include;
  - Property rights, Contract enforcement, Bankruptcy regulation, IPR system

TYPES OF PUBLIC INTERVENTION…

- ***Framework conditions***: Maintaining well functioning institutions that guarantee property rights, contract enforcement, and efficient bankruptcy processes. Tax laws and intellectual property regimes can also facilitate (or hinder) access to finance for innovative firms.
- ***Financial regulation:*** Design of rules such as Basel III has an impact on credit provision. Availability of credit for IP-rich firms will be affected by the ways in which different types of intangible assets are treated when determining required capital ratios. Similarly, growing regulation of crowdfunding can help consolidate it or, alternatively, hamper its development , e.g the change in the regulation of U.S. pension funds allowing them to invest into VC funds

…

- ***Providing funding:*** Governments can also give money to innovative firms, either directly to them or through financial intermediaries. Examples of the former include grants, R&D tax credits, and government VC funds, while examples of the latter include using a co-investment or fund-of-funds model or giving tax credits to early-stage investors.
- ***Providing services:*** This may involve setting up networks of business angels, running investment readiness programs for entrepreneurs and investors, setting up or providing support for accelerators and incubators, or establishing credit mediation services

GOVERNMENT FAILURES…

- **The existence of a market failure is not a sufficient condition for government intervention since not all market failures are fixable, at least not at a reasonable cost to society relative to the benefits**.
  - **No advantage and possible disadvantage** for governments in fixing failure relative to the operations of the market (grant initiatives, governments will probably need to undertake costly due diligence, as would the private sector; but may be worse than the private sector at selecting prospective projects)
  - **Asymmetric information and misalignment of incentives** (public loan guarantee schemes may give banks incentive to be less careful when selecting companies)
  - **Limited additionally and crowding out** (aggregate investment may increase by less than the amount of public funding provided)

…THE RISKS OF GOVERNMENT ACTION

- **Rent seeking and capture** (government action may be captured by special interest groups or established incumbents, leading to inefficient interventions)
- **Political factors** (election cycles may encourage politicians to choose short-term policies)
- **Bad policy design** (governments may copy policies from others that aren't suitable or fail to provide holistic policies that consider the full innovation cycle and ecosystem)
- **Implementation failures** (good policies may fail as a result of inefficient bureaucracies and inexperienced staff)

Innovation is a catch all phrase yet the basic economic eco system is key

Looking at Poland:
It has an elaborate support system…

Figure 6: Public support instruments, 2007-2013

University / RDIs ← → Firms

		Basic and scientific research	Applied research and development	Company formation	Capital investment
Direct support	Grant	OP IE 1.1 OP IE 1.3	OP IE 1.4 OP IE 4.1 OP IE 4.2 Key R&D projects Product of the future Technological Initiative I InTech Regional programmes Voucher for Innovation		OP IE 4.4 OP IE 4.5 Regional programmes
↕	Loan			OP EPD 1.2	Technology Credit (incl. OP IE 4.3) OP EPD 1.2 Loan for innovation Regional programmes
↕	VC/PE			OP IE 3.2 OP IE 3.3 National Capital Fund	
↕	Tax		Tax deduction for innovation (I)		Tax deduction for innovation (II)
Indirect support		Human capital	Research infrastructure	Incubators / tech offices / specialized services	Cooperation and organization
Indirect support		OP IE 1.2 OP HC 2.1 OP HC 4.2	OP IE 2.2 OP IE 2.3 OP EPD 1.1 OP EPD 1.3 Regional programmes	OP HC 2.3 OP IE 3.1, OP IE 5.2 – 5.3 OP EPD 1.3 Regional programmes National Services System National Innovation Network	OP IE 5.1, 5.4 Patent PLUS OP EPD 1.4 Regional programmes

Source: World Bank 2012

… that distributed almost €10 billion euro of EU and national funds until 2013

Figure 7: Total budget for public support instruments, 2007-2013, in PLN

University / RDIs ⟷ Firms

Direct support	Basic and scientific research	Applied research and development	Company formation	Capital investment	
Grant	3 208 865 448 **7,79%**	5 069 928 615 **12,31%**		12 663 851 901 **30,74%**	**49,64%**
Loan				100 432 941 **0,24%**	**0,24%**
VC/PE			967 528 000 **2,35%**		**2,42%**
Tax		56 000 000 **0,12%**		11 400 000 **0,02%**	**0,14%**
Total	**7,79%**	**12,44%**	**2,35%**	**31,01%**	**53,59%**
Indirect support	Human capital	Research and university infrastructure	Incubators / tech offices / specialized services	Cooperation and organization	
	2 646 519 612 **5,50%**	9 043 497 471 **21,95%**	5 914 363 451 **12,36%**	1 516 024 949 **3,68%**	**46,41%**

Source: World Bank 2012

Most spending on low-tech rather than high-tech and on capital investments in large companies

Figure 8: Share of public support for private R&D and capital investment under OP IE in total expenditures, 2008-2010

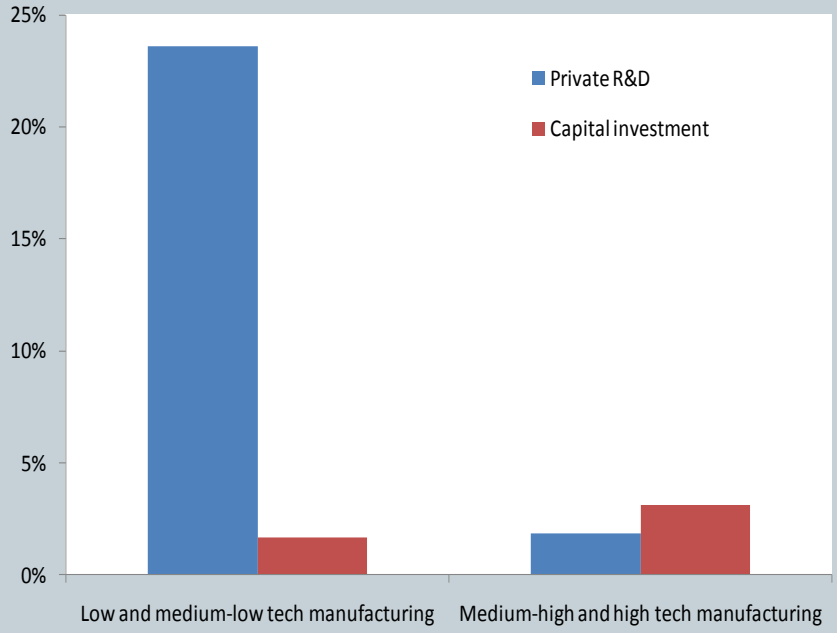
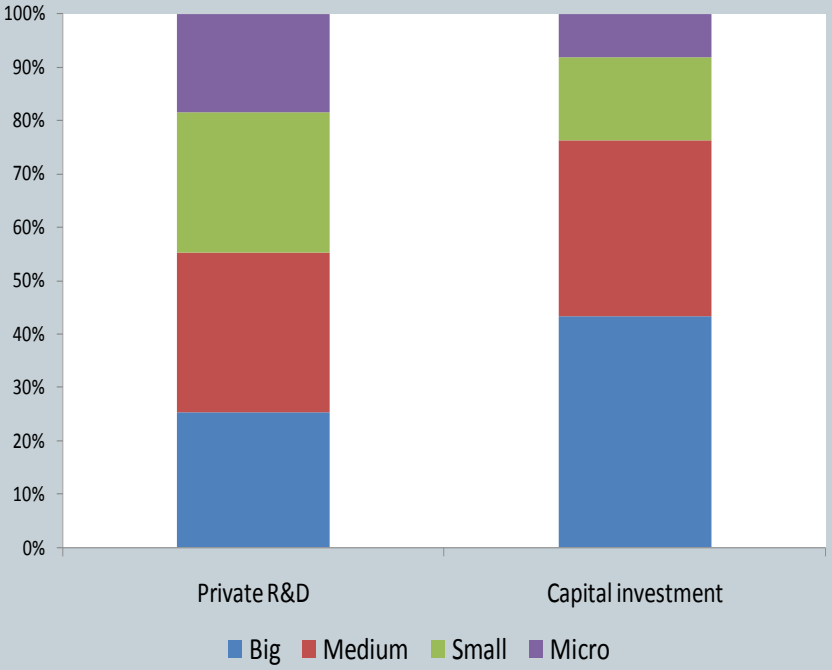


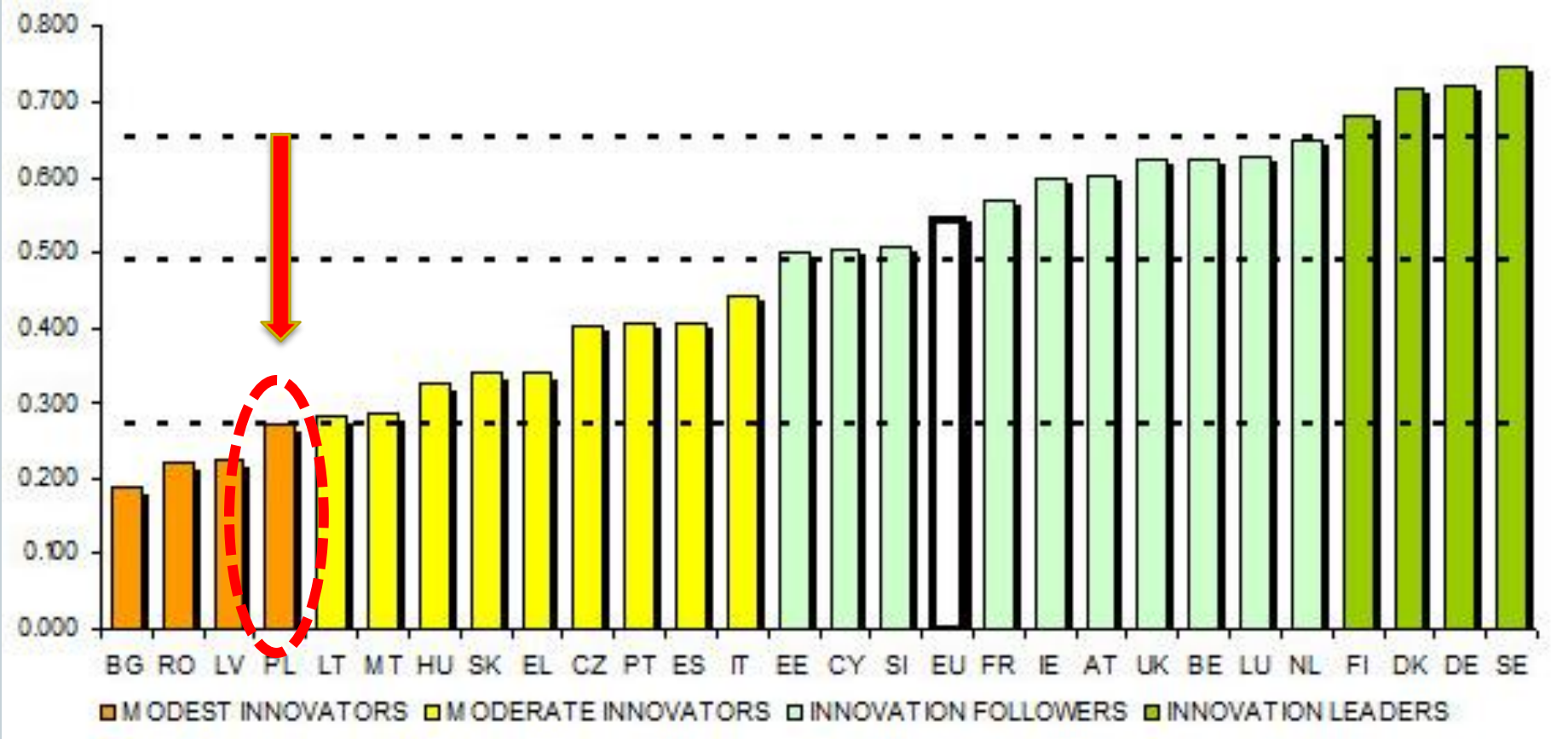
Figure 9: Structure of public support to innovation (OP IE only) with respect to intervention type and firm size



Source: World Bank 2012

...however, overall innovation outcomes are low

Figure 5: EU Member States' innovation performance, 2013



Source: Innovation Union Scoreboard 2013

Main Reasons

- Focus on absorption, not results
- Institutional fragmentation and duplication of efforts
- Deep risk aversion
- Weak involvement of the private sector and
- Not entirely friendly business environment
- Low capacity of public support institutions
- Lengthy and bureaucratic selection processes
- Scarcity of skills for commercializing R&D, insulation from global knowledge
- Weak monitoring and evaluation systems

World Bank support on innovation Poland

1. (2011) "*Europe 2020: Fueling Growth and Competitiveness in Poland through Employment, Skills, and Innovation*"
2. (2012) *"Poland Enterprise Innovation Support Review*"
3. (2013) Technical assistance on the assessment of quality, coherence, and fulfillment of ex ante conditionalities for national and regional Research and Innovation Strategies (RIS3), request of the Ministry of Infrastructure and Development (MID)
4. (2013-2014) Review of the national *Smart Growth Operational Program* for the Ministry of Infrastructure and Development (MID),
5. (2013) RIS3 review for Swietokrzyskie Voivodship
6. (2014) Monitoring and evaluation (M&E) and entrepreneurial discovery process with MID
7. (2014) External evaluation of selected innovation support programs with NCBR
8. (2014) Business needs assessment with the MoE

Bulgaria- Support the development Strategy for Smart Specialization (RIS3).

- The program, aims to improve the competitiveness of Bulgaria's private sector, stimulate the production and export of higher value-added goods and services, and increase the economy's knowledge intensity in line with Europe 2020 targets and national goals.
- Outcomes/Results
  - Specific policies, innovation governance models, and innovation instruments were proposed. These policies are designed to encourage Bulgarian firms to develop new products and processes, invest in innovation and efficient production processes, and increase the share of high value-added products and services in total exports.
  - Five reports were presented that: (i) provide detailed analysis and recommendations to develop Bulgaria's Smart Specialization Strategy; (ii) outline the reforms needed to strengthen existing institutions in Bulgaria's research and innovation system; (iii) suggest how to make innovation instruments to be funded under the Operational Program "Innovation and Competitiveness" 2014-2020 more effective; (iv) develop a pre-feasibility study for innovation infrastructure projects; and (v) set out a long-term action plan to strengthen innovation commercialization services.
- Recommended instruments to upgrade the innovation infrastructure include: a consortium of technology transfer offices to foster collaboration between business schools, industry and research; "proof of concept" laboratories focusing on selected priority sectors across Bulgaria's regions; a network of innovation-based accelerators and incubators; establishing the Plovdiv Agro-Food Tech Park by building on exiting agri-business cluster initiatives to create a platform for the promotion of business-centric R&D activities in collaboration with universities.

Croatia – Smart Specialization, VC and R&D

- **Second Science and Technology Project**
  - support Croatia to absorb EU funds in the research and innovation sector by capacitating selected public sector organizations and stimulating the demand for those funds from the business and scientific communities.
- **Smart Specialization Strategy**
  - provide selected inputs to assist the Government of Croatia in the preparation of the Research and innovation strategy for smart specialization (RIS3).
  - The activity provided an in-depth analysis of Croatia's economic structure and was organized around three complementary components: (i) a competitiveness assessment drawing on analysis of trade outcomes, firm-level productivity, and economic geography, (ii) examples of potential areas for research and innovation specialization; (iii) an analysis of the innovation performance and governance framework (FY14).
- Preparation of a VC project and assistance in implementation of RIS3 underway.

Romania – Functional review of the R&D sector and Smart Specialization

- "Competitiveness Enhancement and Smart Specialization Policies in the West Region"
  - In-depth competitiveness and smart specialization assessment of services and goods producers in the West Region of Romania to the Regional Development Agency for the West Region (RDA West).
    - an assessment of the main drivers of the region's economy in terms of: trade and firm-level competitiveness, territorial development, and logistics;
    - providing examples of sector cases and the potential for sector smart specialization, using extensive interviews with public and private stakeholders.
- A functional review of Romania's research, development and innovation (RD&I) sector. Objective of the Review was to propose actions over the short to medium term to tangibly strengthen effectiveness and efficiency in the RD&I sector.

Serbia - Innovation Fund (SIP)

- Managed by World Bank and financed by the EUD, the objective of the ongoing SIP is to assist in building the institutional capacity to stimulate innovative activities in the enterprise sector by:
  - Support the operationalization and institutional capacity building of the Serbia Innovation Fund (IF);
    - Solid governance structure w/ international peer review + independent Investment Committee
  - Piloting financial instruments for technological development and innovation by enterprises;
  - Encouraging selected public RDIs to engage in technology transfer and assisting in formulating a RDI sector reform policy.
- Serbia Technology Transfer Project (STTP), will also focus on defining incentives for commercialization, greater linkages between research and domestic as well as international industry, and strategic planning for a more efficient national innovation system

Regional Work – Partnership with EU

- Western Balkan EDIF project which includes support for three critical components :
  - **Enterprise Innovation Fund (ENIF)** - early development stage equity financing in innovative SMEs
  - **Enterprise Expansion Fund (ENEF)** - provision of development and expansion capital to established high growth potential SMEs
  - **Regional Guarantee Facility**

Our recommendations

"I'll be happy to give you innovative thinking. What are the guidelines?"

Change Mindsets: Outputs not Inputs

- Focus on the economic impact, not inputs/research results
- Reduce public sector's risk aversion: praise "good failures", involve the private sector
- Consider setting up a National Innovation Fund to safeguard resources for later
- Link public pay with results: private R&D spending

Put Business in the Driving Seat & Improve business environment

- Ensure that no public money is spent without real private money
- Listen to business: move from supply driven to demand driven support
- Expand professional expert panels/face to face interviews in the selection process
- Invest in the capacity of public support institutions to manage R&D and innovation
- Import skills from abroad, whenever needed
- Use English in all application processes, integrate international peer review
- Promote friendly taxes: tax on IP assets, tax credits

Monitor and Evaluate

- Introduce robust monitoring and evaluation: ROI
- Use independent evaluators (no conflict of interest)
- Ensure robust feedback from policy makers: make it mandatory to respond to M&E publicly
- Strenghten business-science collaboration: measure university's spin-offs, revenue from IPR
- Who is asking tough questions?

Thank you!

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