tepav

The Economic Policy Research Foundation of Turkey

Discussing innovation in Turkey: **Key issues for the next five years**

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Context

- Acknowledging the progress:

  ➔ **1990s:** "there's R&D and we are falling behind because of instability!"

  ➔ **2000s:** "let's catch up by devoting more resources to R&D…"

  ➔ **2010s:** "now we have the capacity, can we go toward smarter policies?"

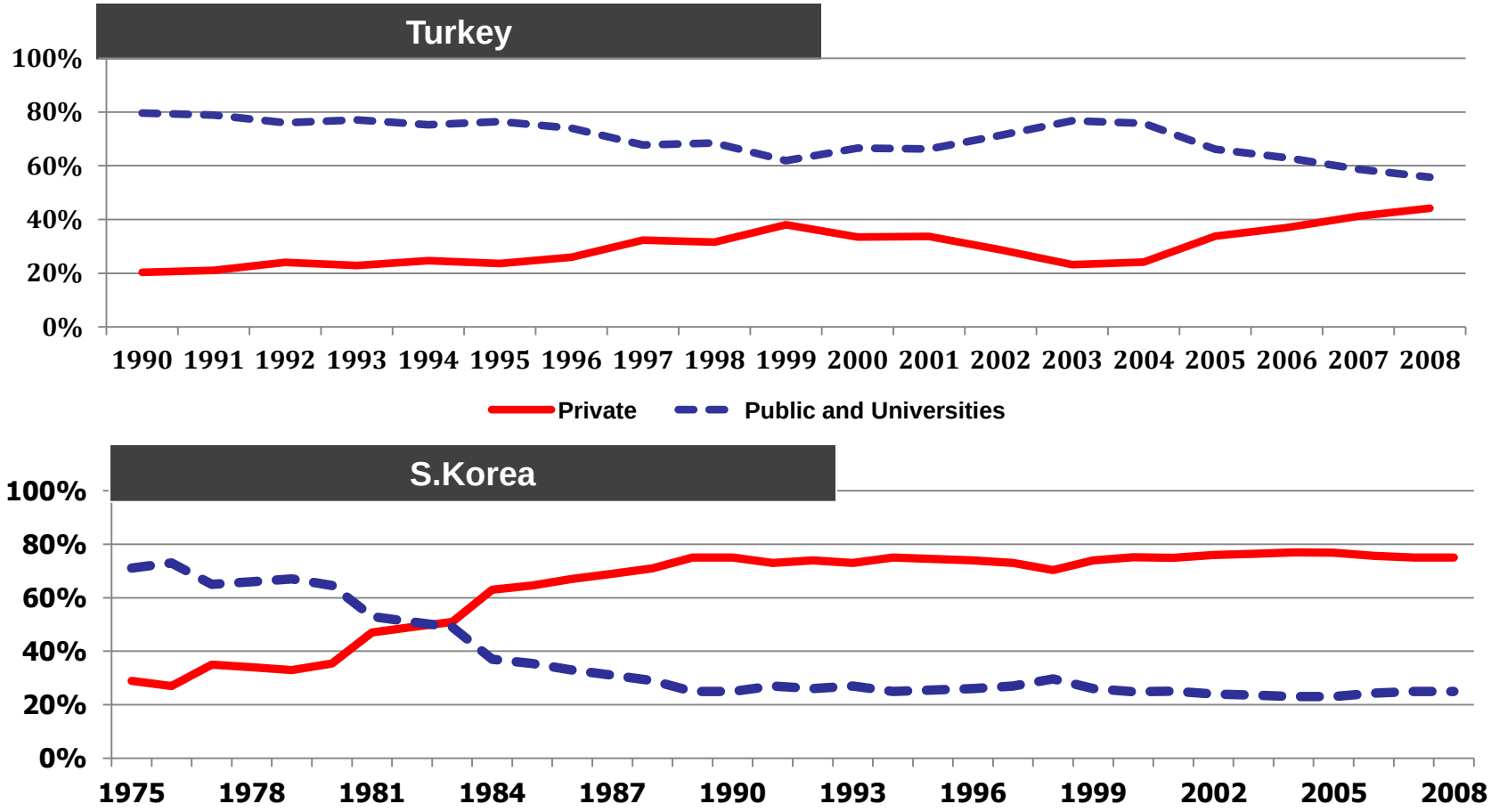
What's TEPAV working on recently?

- Design for a Venture Capital Fund of Funds
  - ➔ A co-investment mechanism to bring experienced global investors to Turkey
- "Turkey Fast-Growth 25"
  - ➔ A contest for identifying fastest growing companies
- Global Entrepreneurship Program
  - ➔ A program to catalyze entrepreneurship development
- Framework for Bi-National Research and Development Foundations
  - ➔ A bi-national funding and matchmaking mechanism for joint technology development projects

Critical issues for the next five years

- Private sector R&D, as opposed to R&D
  - ➔ Commercialization process and gain-sharing?
  - ➔ Move from large corporations to SMEs / democratization of R&D?
- Connectivity and technology transfer
  - ➔ Where are we in the era of networked production?
  - ➔ Who will be our connectors?
- Location of innovation
  - ➔ Where will innovation take place?
  - ➔ Decentralization of industrial policy?

Private R&D investments have a direct effect on technological transformation and economic growth

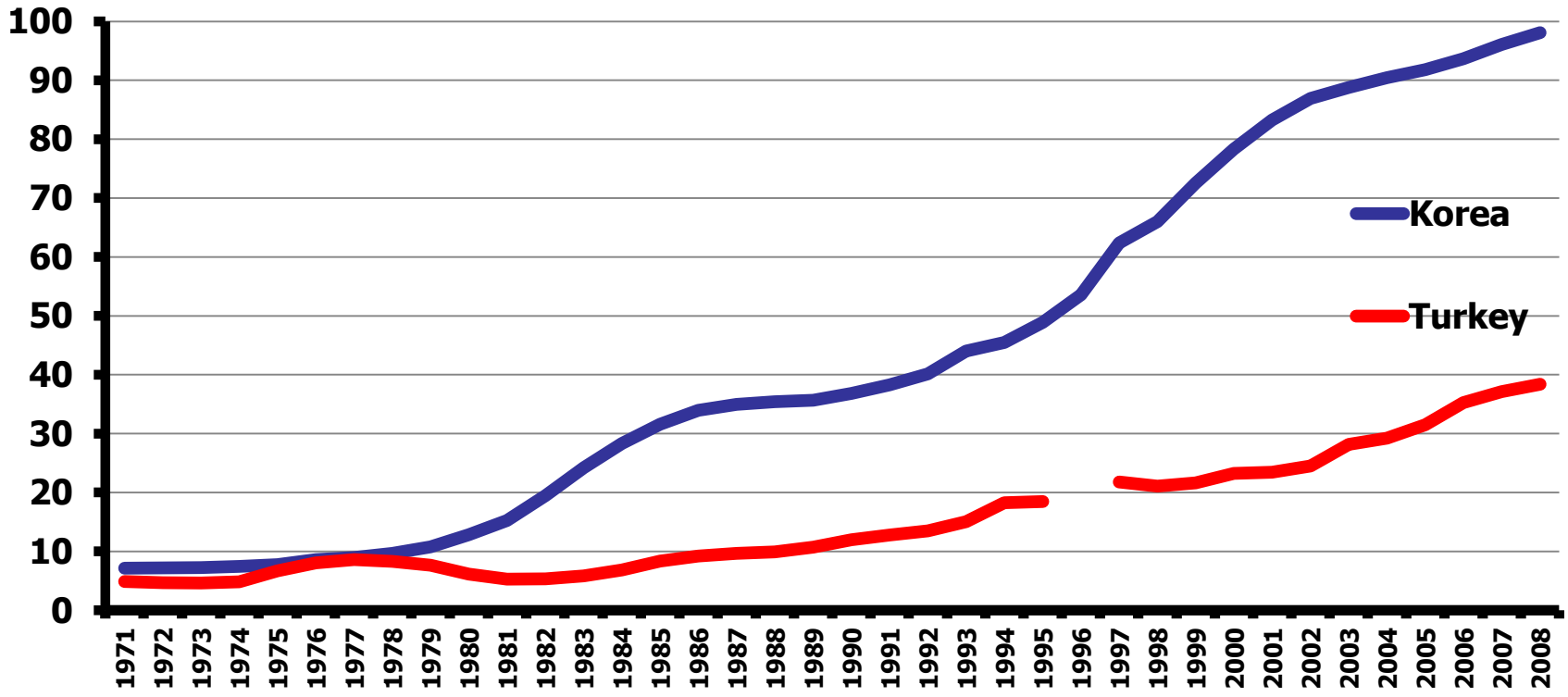


*** GDP share of R&D expenditure is 0.85% in Turkey and 3.37% in S.Korea (2009)**

Source: TURKSTAT R&D expenditure by source of funds - R&D Data of S.Korea Ministry of Science and Technology.

Scarcity of human capital: a constraint?

School enrollment, tertiary (% gross), 1971-2008, South Korea and Turkey

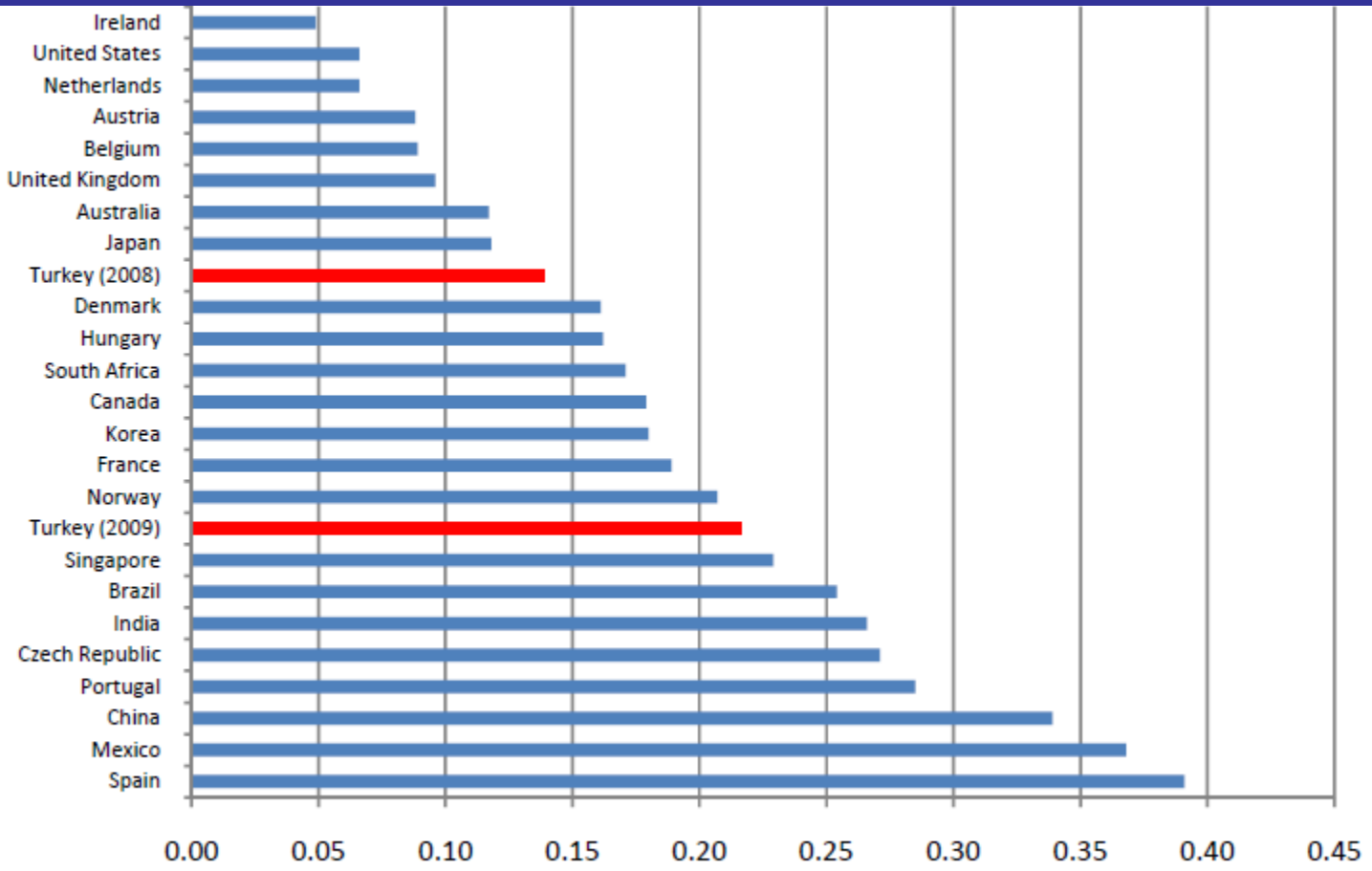


Source: The World Bank, World Development Indicators

There are 2 researchers per 1000 employees in Turkey, EU-27 average is 6.

In terms of state support for R&D we have come a long way…

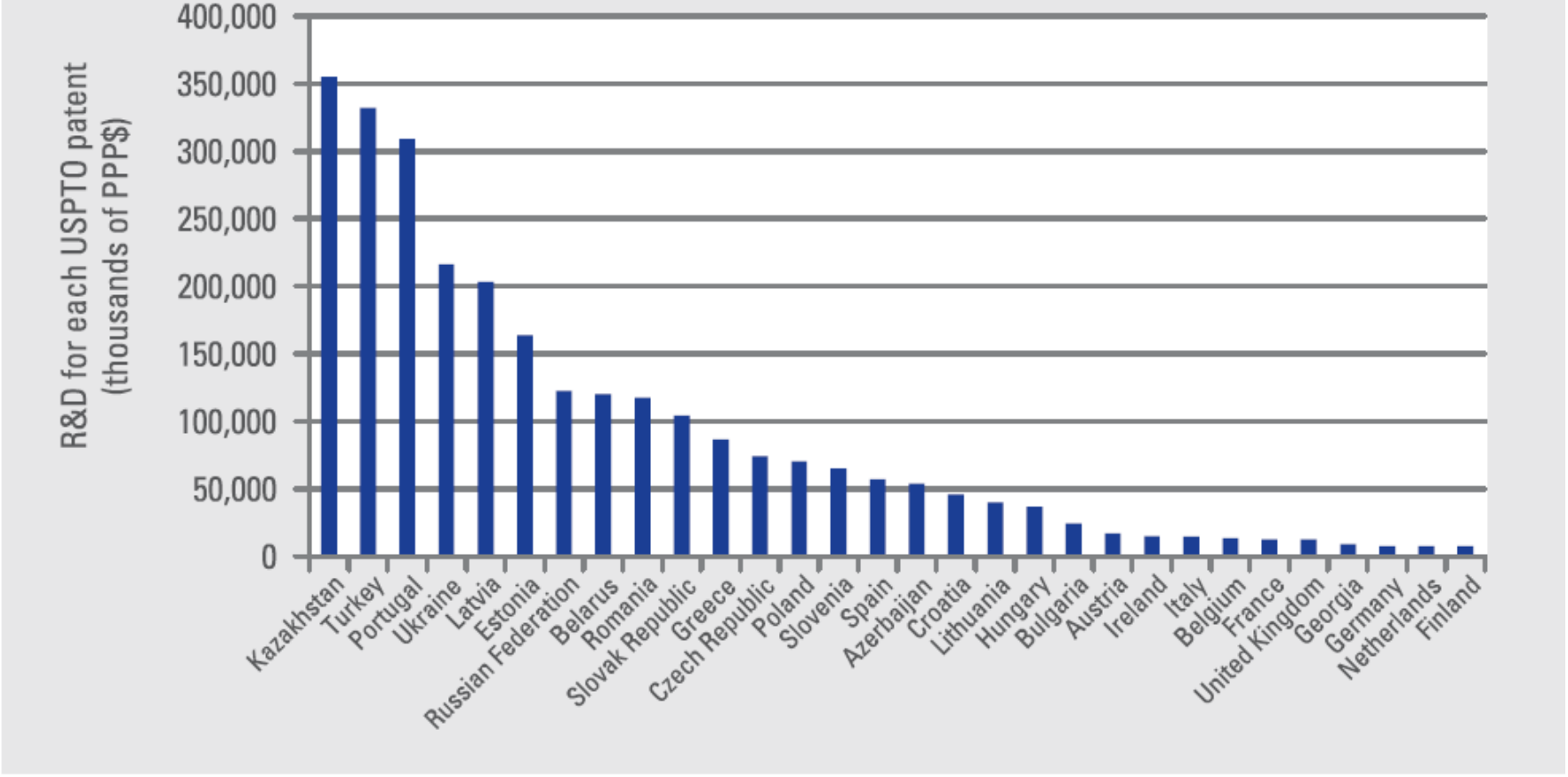
State aid provided for 1 USD of private R&D investment, 2009



Source: OECD and TEPAV calculations

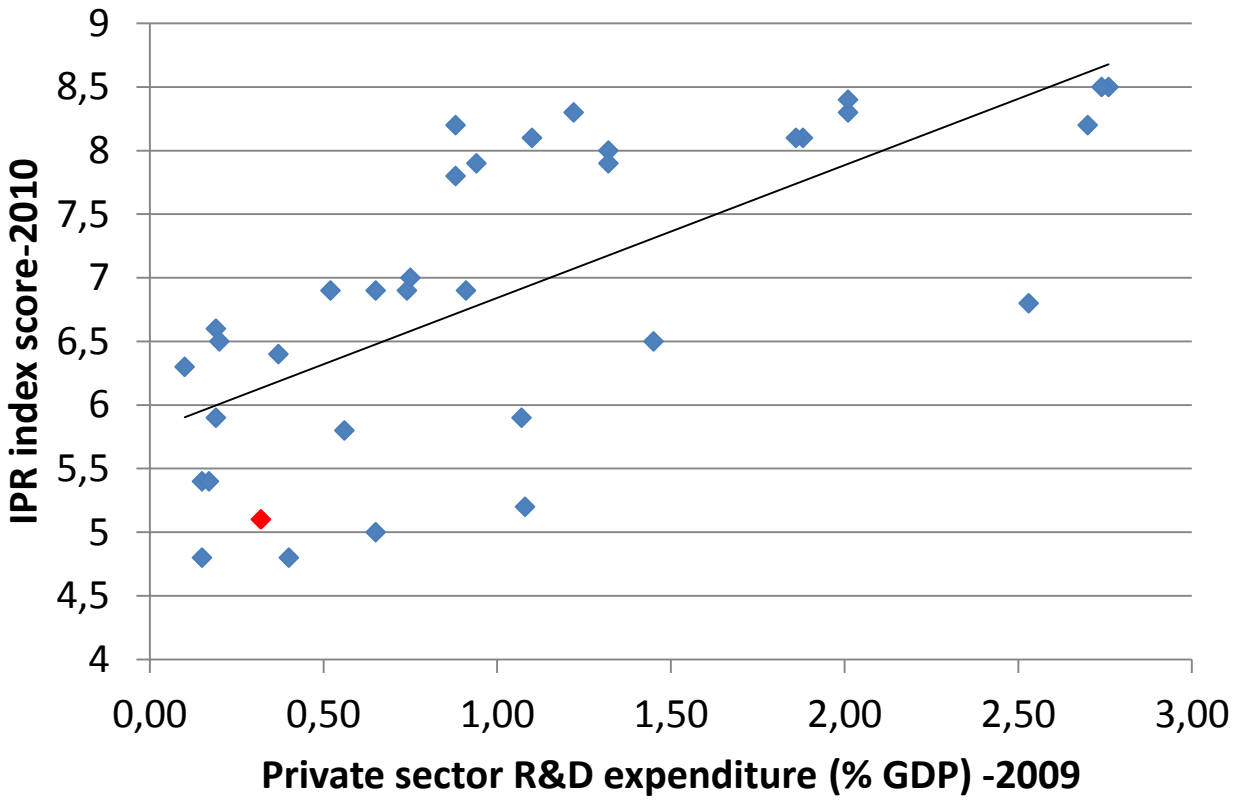
But Turkey needs to tackle efficiency problems in R&D

R&D for each USPTO patent (thousands of PPP$), ECA countries, 2007



Source: the World Bank's "Igniting Innocation" Report

Critical importance of IPR: Turkey needs stronger intellectual property environment to attract private R&D investments + internalization by the gov't



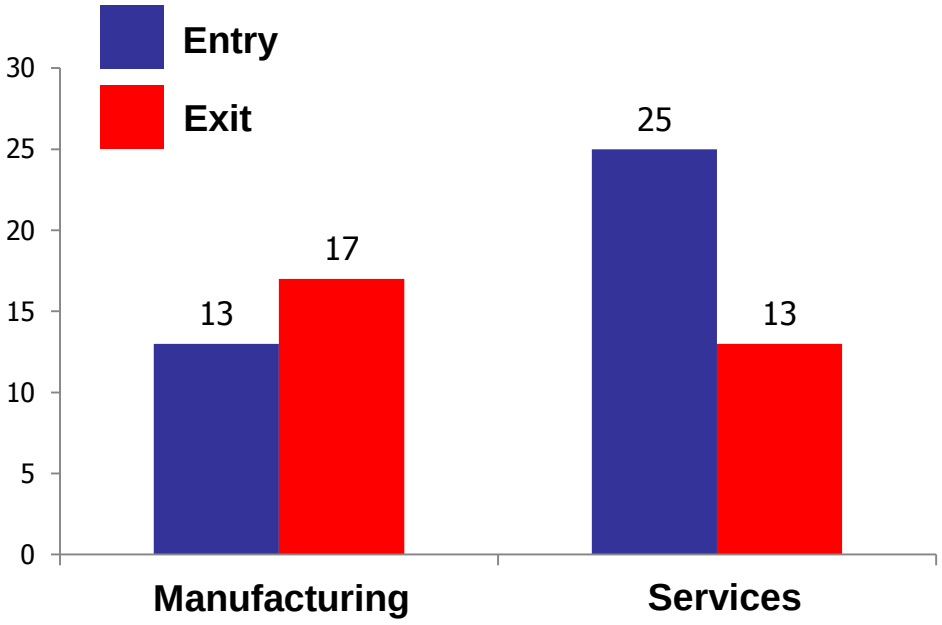
- EU standards achieved in regulation
  - ➔ implementation, enforcement?
  - ➔ IP courts?
  - ➔ TPE capacity?

Score: International Property Rights Index 2011, http://www.internationalpropertyrightsindex.org/ and WDI, 2011

Democratization of R&D... Which firms?

- Current system favors large companies
  - ➔ R&D is done predominantly by large firms in Turkey
  - ➔ Hard to see R&D focused, fast-growth SMEs
- Challenge is increasing the number of firms performing R&D, as opposed to volume per firm

Acquisitions of the largest Turkish conglomerates (2007 – 2010)

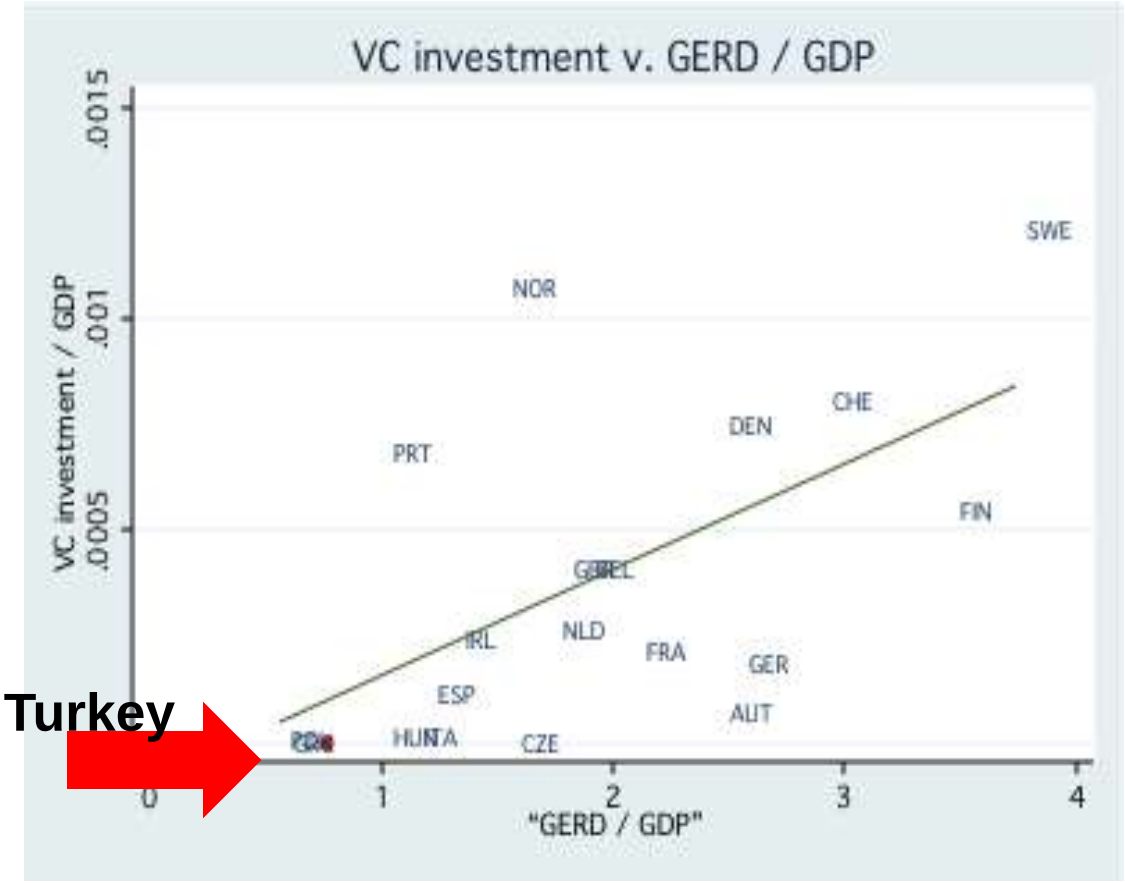


The M&A activities (2007-2010) of ISO1000 conglomerates subject to Competition Authority decision

Source: TEPAV

Venture capital activity is highly critical for high growth R&D focused SMEs

Venture Capital Investments vs. R&D/GDP , 2009 in OECD countries



Source: OECD and TEPAV calculations

Commercializing knowledge, rather than generating it, seems to be a bottleneck

- How to foster spin-offs from universities?
  - ➔ A new IPR legislation necessary but not sufficient
- Technology Transfer Offices experience is very new
  - ➔ Patent filing services vs. “connecting”
  - ➔ Learning from OTAM and Inovent (scaling up?)
- Revisiting the technopark regime
  - ➔ Do they connect, really?

Do technoparks actually contribute to innovation?

- 39 TDZs of which 27 are operational
  - ➔ 927 companies & 3.080 R&D projects
- Technology transfer in TDZs?
  - ➔ Real estate development vs. technology development: rent costs three times the market rate
  - ➔ Value added services highly limited
- What to do with the program?
  - ➔ Tax incentives expire in 2023. Extend again?

Leveraging international networks

- Foreign direct investment strategy
  - ➔ Going beyond marketing departments
  - ➔ Preparing the labor force and physical infrastructure in line with sectoral needs
- Tapping into international knowledge flows and cross-national technological cooperation
  - ➔ Turkish diaspora may be a good starting point
    - Turkey has the highest rate of nationals staying in the US (60%) after completion of PhDs, after China, India, Iran and Argentina

Location of innovation

	Private sector & access to finance	Knowledge generation capacity	Quality of life and climate
İstanbul ?	✓✓✓	✓	?
Ankara ?	✓	✓✓✓	?
İzmir ?	✓	?	✓✓✓

Conclusions: Turkey ready for a jump?

- We have build decent capacity for knowledge generation. Next challenge will be commercialization capacity:
  - ➔ Private sector R&D + high growth, hi-tech SMEs
- Time for smarter policies
  - ➔ Newly established Ministry of Science, Industry and Technology, a step in right direction
- Time for better connectivity
  - ➔ Right connectors in right places will make the difference…