Leibniz Institute of Agricultural Development
in Transition Economies



Agricultural development traps in Central Asia

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ReCCA conference - Regional Economic Cooperation in Central Asia: Agricultural Production and Trade

November 24-26, 2014, Halle (Saale), Germany

A snapshot of IAMO

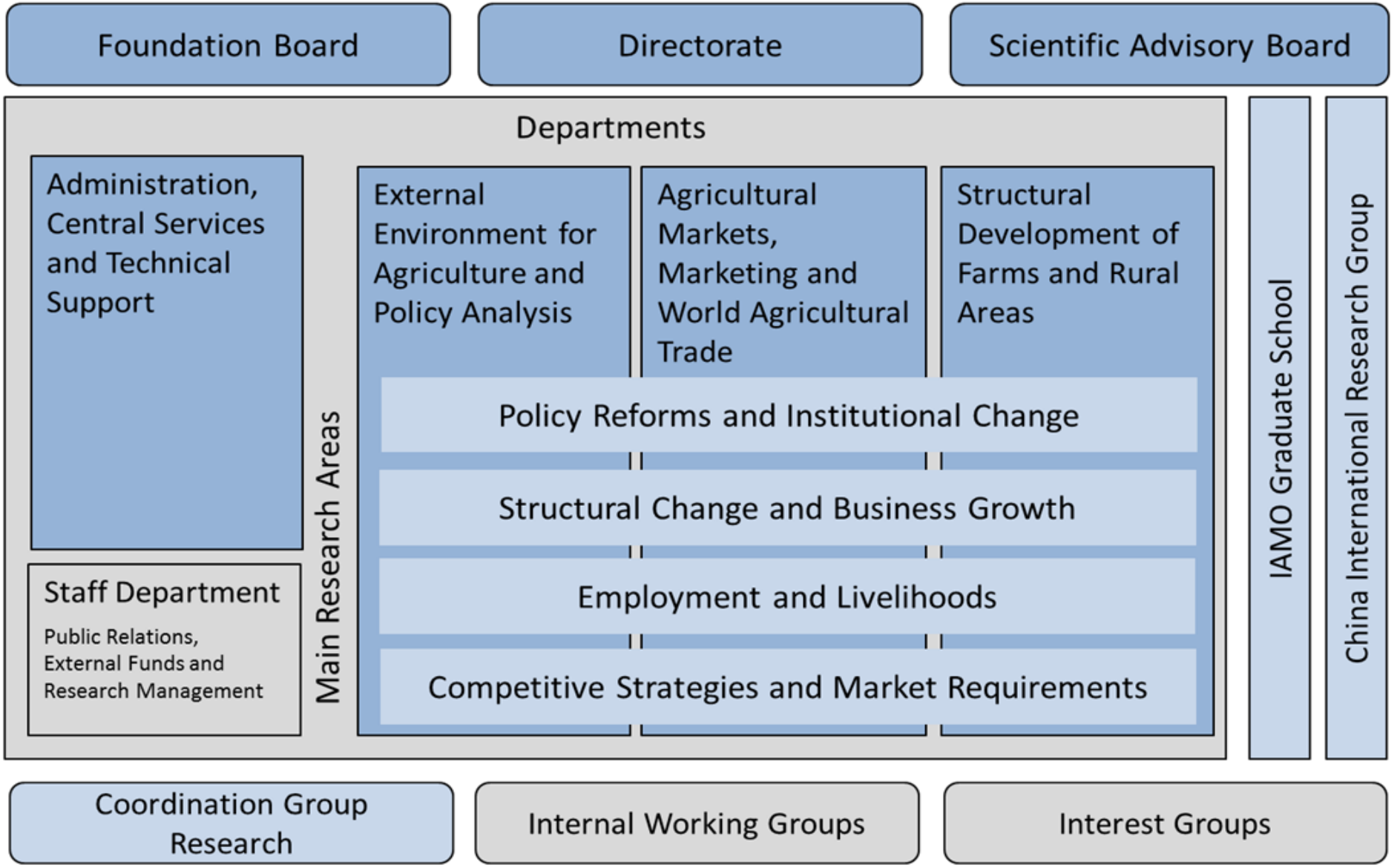
- Founded in 1994 in Halle, Germany
- Member of Leibniz, an association of non-university research centers
- Core funding from Federal & State budgets, ~ 4,6 mln. € annually
- 3 academic departments
- 112 colleagues, approx. 20 nationalities
- 36 PhD students

Key tasks:

- Economic research on the agricultural & food sector in Central & Eastern Europe, Central Asia, China
- Training & promotion of young researchers
- Being a forum of academic exchange

Organisational structure

Leibniz Institute of Agricultural Development in Transition Economies



My presentation

1. Agricultural development traps in Central Asia
   - What is a development trap
   - The water governance trap
   - The agricultural diversification trap
   - The entrepreneurship trap
2. Policy implications
3. The role of the social sciences
4. Future research directions
5. Funding options

Acknowledgements:

DFG Deutsche Forschungsgemeinschaft

Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz

What is a trap?

3 modes of water governance in Central Asia

Collapse:

- Frequent droughts
- Widespread food insecurity
- Degraded natural environment
- Political conflict
- …

Status Quo:

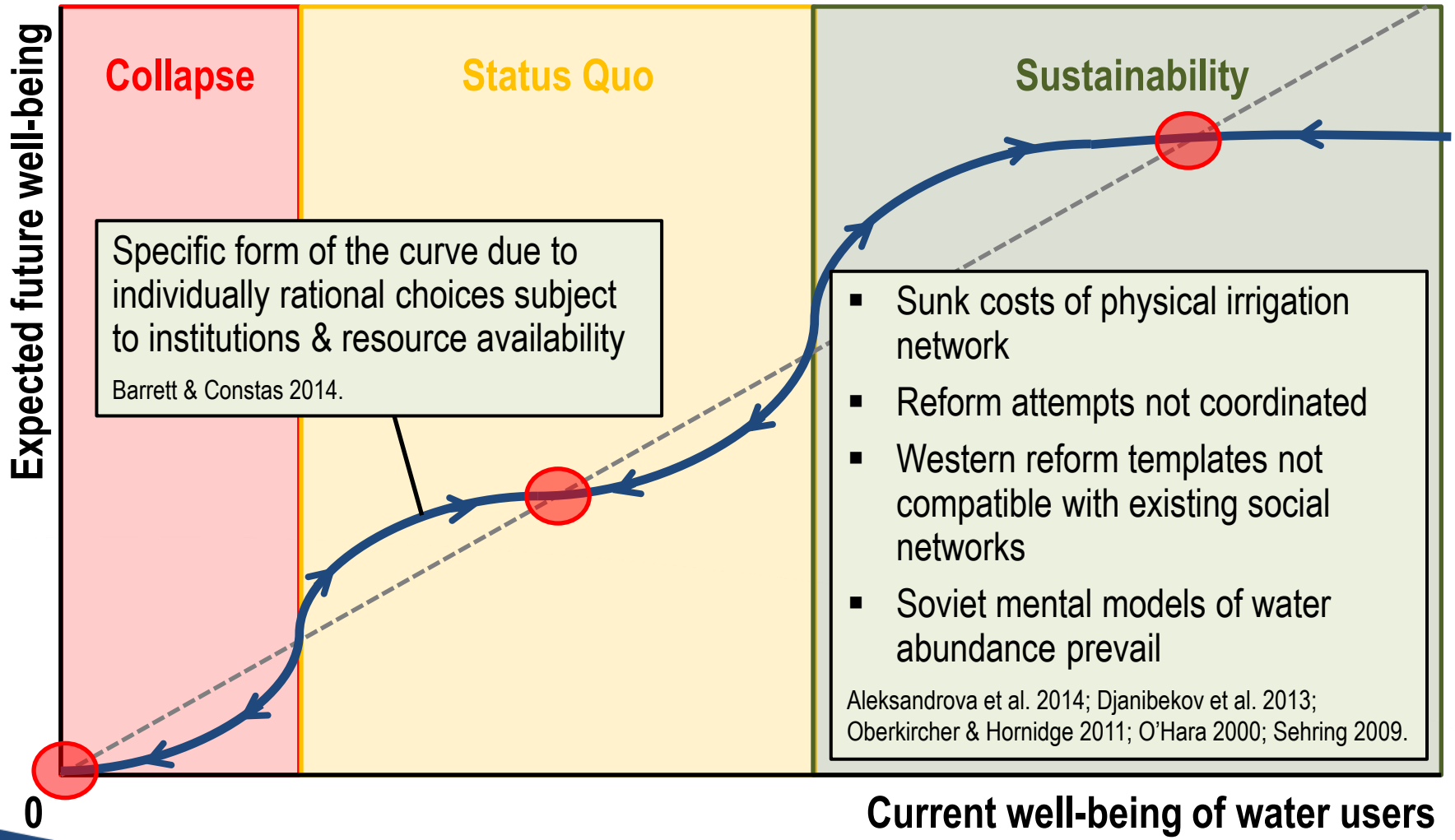
- Irrigated agriculture a main source of employment, food security, export revenue
- Dominance of a few water demanding crops (cotton, rice)
- Dilapidated water infrastructure
- Salinization of soils & water
- Uncertainty over climate change-induced variations in water availability, droughts
- Little real change in rules of water administration after independence
- Water a transboundary political issue

Sustainability scenario:

- Improved water-use efficiency (revised norms, water storage, irrigation technology, pricing, …)
- Crop diversification
- Perennial crops
- Rehabilitated soils
- Reliable trade options
- …

Based on Aleksandrova et al. 2014; Bucknall et al. 2003; Martius et al. 2012; Sehring 2009.

The water governance trap



The agricultural diversification trap

Imagine farmers can organise their production in 2 ways:

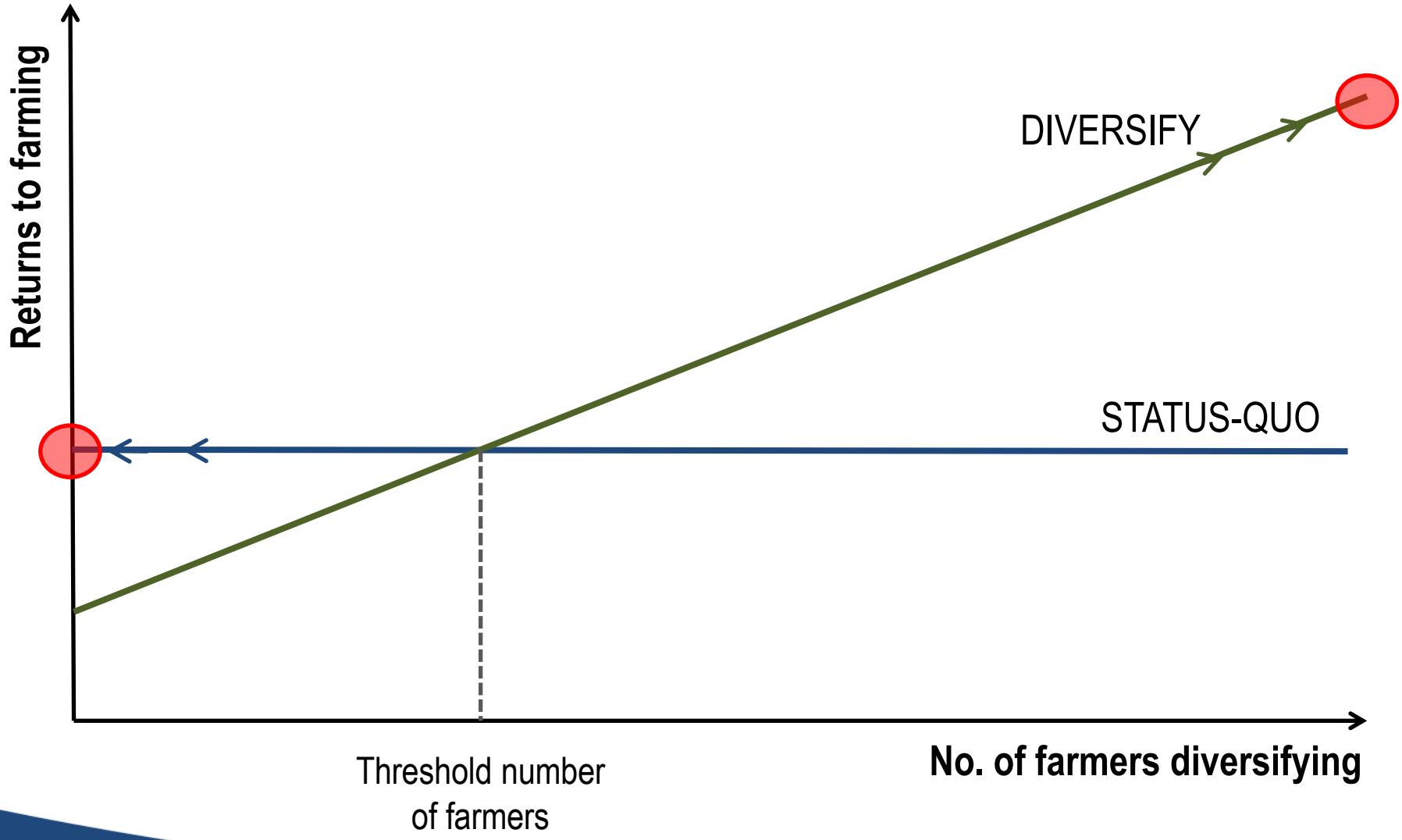
- STATUS-QUO focus on cotton, wheat, rice
- DIVERSIFY into vegetables, potatoes, maize, sorghum

Assume returns to DIVERSIFY **increase** with the number of farmers diversifying because of:

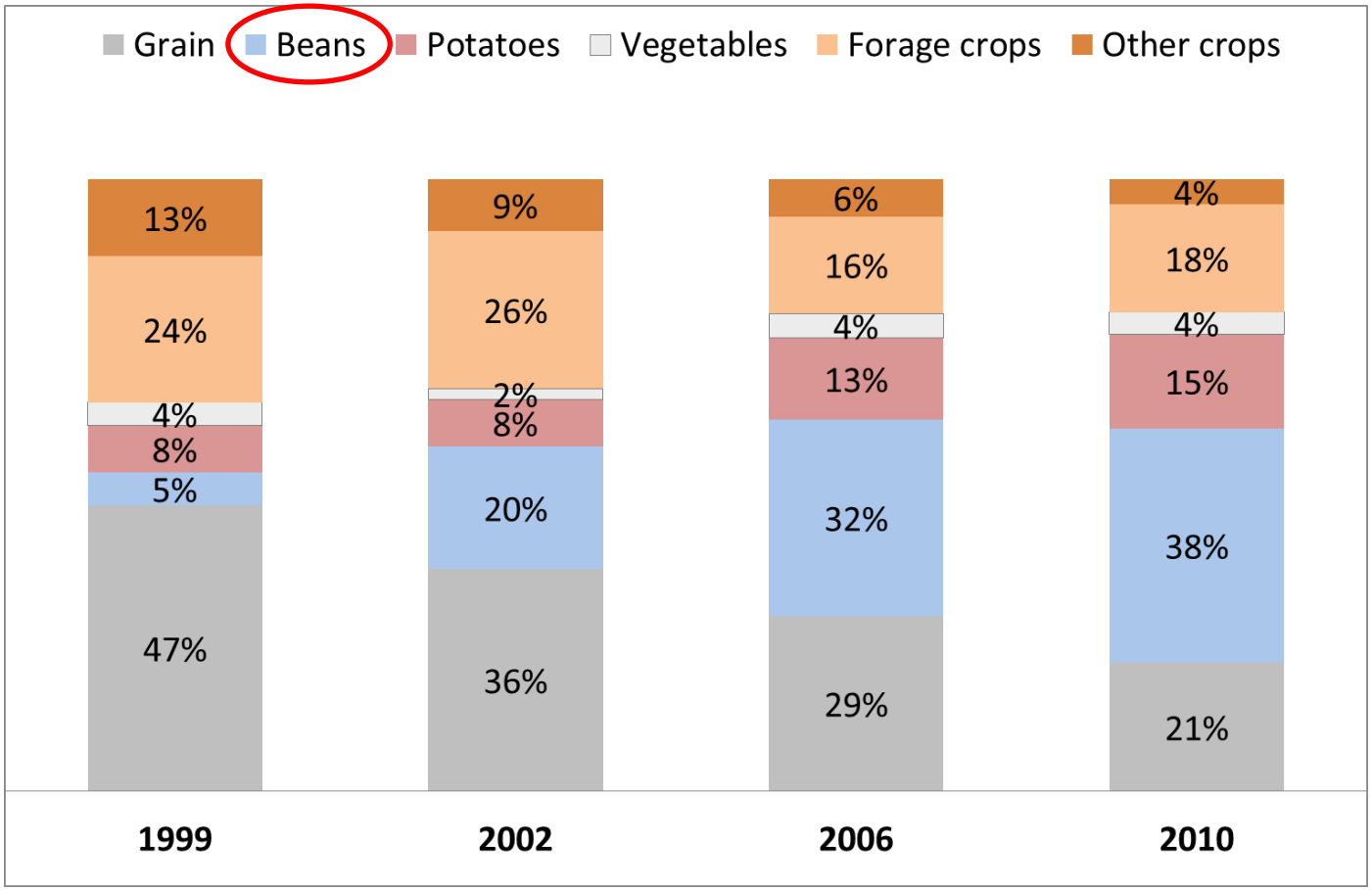
- High fixed costs in setting up a new value chain
- Making upstream- & downstream-traders interested requires critical mass of producers
- Positive learning externalities reduce risk exposure

Based on ideas in Bobojonov et al. 2013; Petrick & Carter 2009.

The agricultural diversification trap



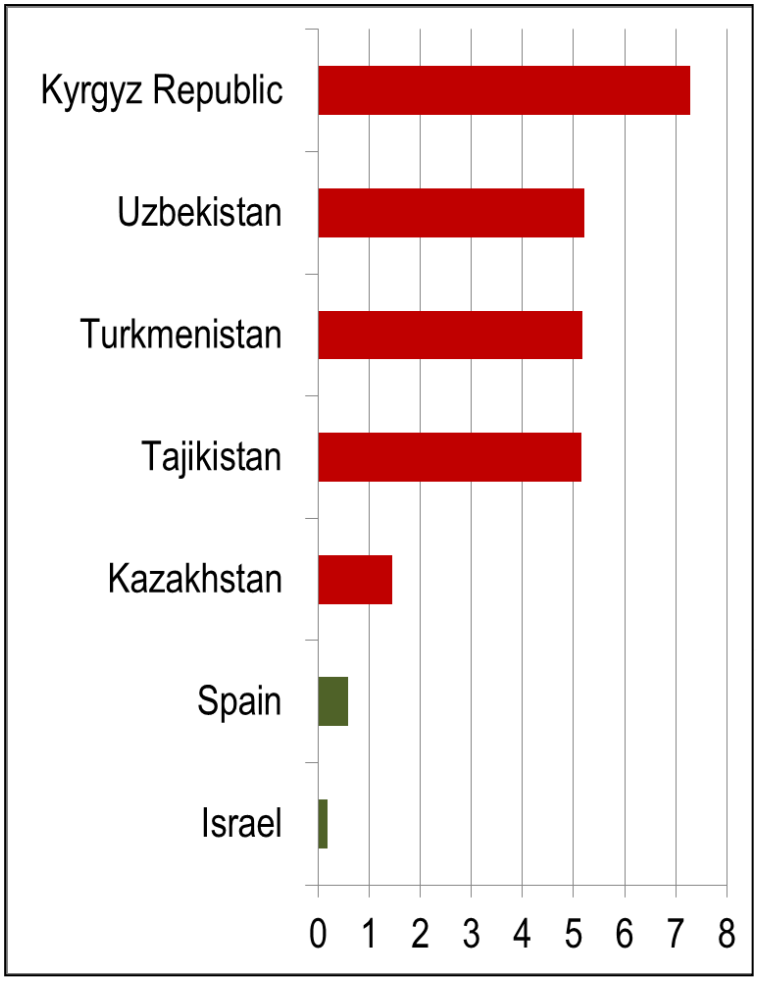
Land use dynamics by crop in Talas (Kyrgyz Rep.)



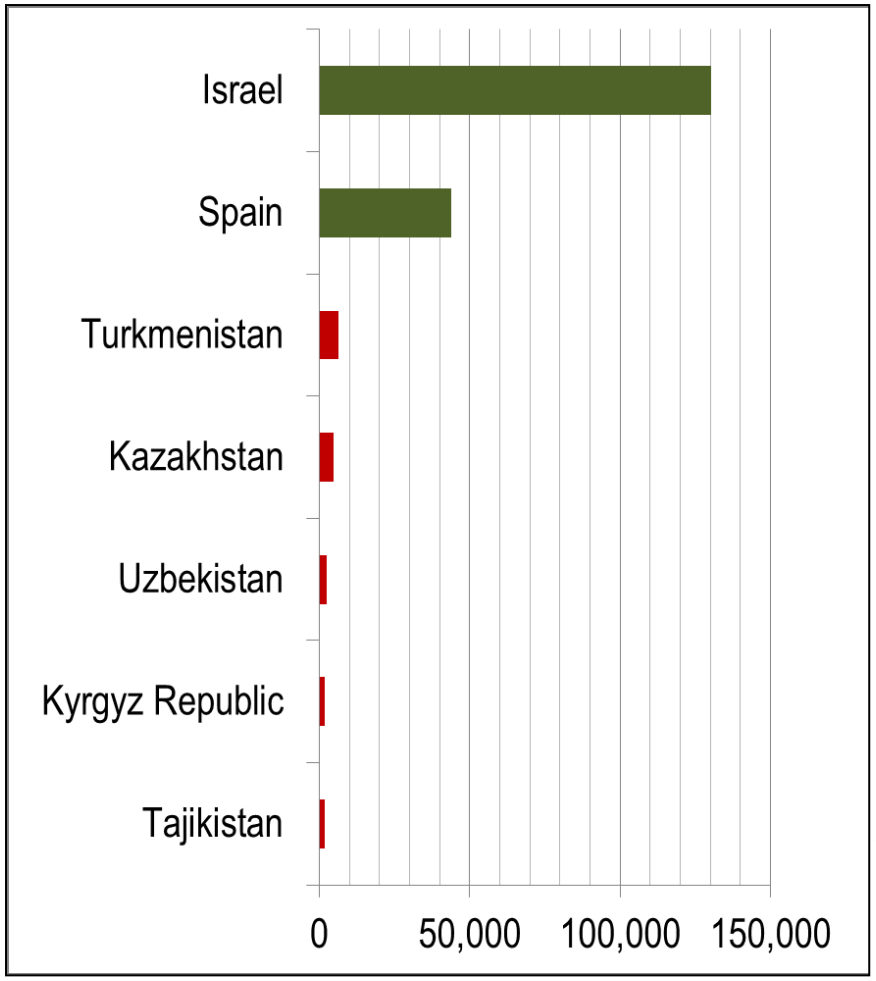
Source: Tilekeyev 2013, University of Central Asia.

Water wasting & disguised unemployment in agr

Water use (m^3) per US$ agr. GDP



GDP per agr. worker (US$)



Data for 2012 or latest available. Sources: FAO Aquastat, ILO, World Bank.

The entrepreneurship trap

Hypothesis: Development of the non-agricultural sector provides jobs to farmers & pulls them out of water-consuming activities.

Imagine 2 types of entrepreneurs:

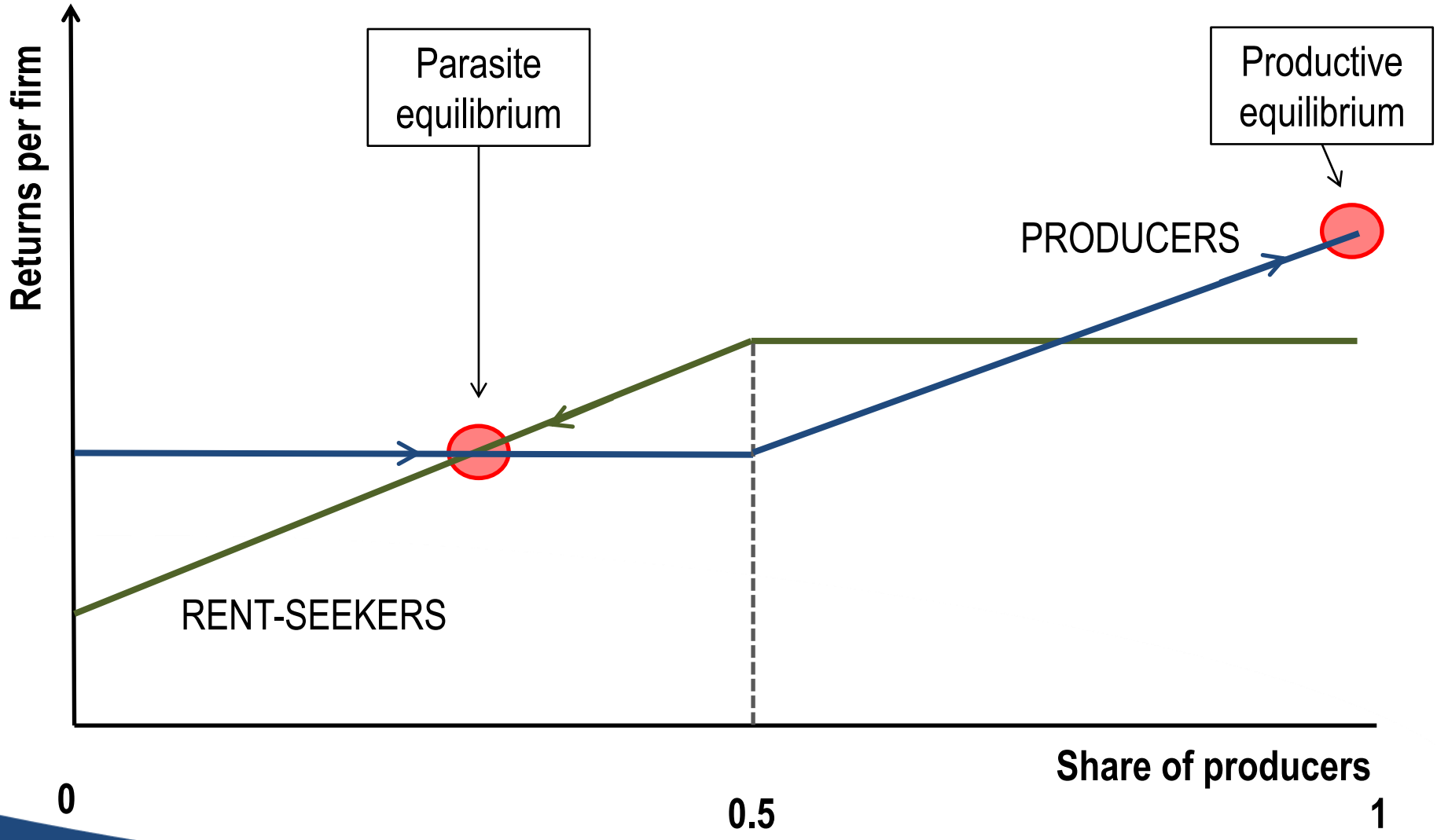
- PRODUCERS create value,
- RENT-SEEKERS live on the proceeds of others, e.g. petty corruption, organised criminals, political insiders, Mafia, "parasites"

Assume returns per firm **increase** with an increasing share of PRODUCERS in the economy:

- For RENT-SEEKERS: as long as there are more rent-seekers than producers, because the likelihood of finding a rent-seeking target goes up
- For PRODUCERS: once there are more producers than rent-seekers, because the likelihood of extortion falls

Based on ideas in Mehlum et al. 2006; Varis 2014.

The entrepreneurship trap



Commonalities among examples

- Existence of **multiple equilibria**
- Attracting states are dynamically stable, or self-reinforcing
- Traps cannot be left by marginal perturbations of the system
- Outcomes are **historically contingent**, or path dependent
- Local homogeneity potentially coexists with global heterogeneity
- There are **"good" & "bad" equilibria**
- Pareto inferior ("bad") situations may persist for a long time
- **Vulnerability** may be defined as a threshold-sensitive probability of falling into a worse state
- **Resilience** may be defined as the ability to stay in a "good" equilibrium Barrett & Constas 2014

Policy implications

Three main policy approaches:

1. Shift to new equilibrium by large resource transfer ("big push")
2. Insure vulnerable groups against downside risks (e.g. by social policies)
3. Change underlying parameters of dynamic evolution,
   i.e. conduct fundamental institutional reforms

Practical consequences:

- Marginal improvements (e.g. induced by donor projects) unlikely to overcome self-stabilising traps
- Grave shocks may have lasting consequences
- Potential coordinator role for the government, but
- Massive information & incentive problems to be expected
- Change unlikely unless a sufficient fraction of actors behave differently

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THANK YOU!

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