Animal husbandry in the rangelands of Central Asia through the lens of the SDGs

Sarah Robinson & Martin Petrick

Developing agricultural value chains in Central Asia: best practices and open questions.

Friday, 6 October 2023

Deutscher Akademischer Austauschdienst
German Academic Exchange Service

The SDG nexus Network is supported by the DAAD with funds
of the German Federal Ministry for Economic Cooperation (BMZ)

SDG nexus network

JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN

The SDG Nexus Network

The Network takes a nexus approach because progress towards SDGs cannot be understood in isolation.

In any given area, progress in some pairs or groups of SDGs is synergistic, whilst others are antagonistic, exhibiting trade-offs with each other.

Understanding these trade-offs and synergies can help to find optimal solutions which balance multiple objectives and minimise harm.

DAAD Deutscher Akademischer Austauschdienst
German Academic Exchange Service

The SDG nexus Network is supported by the DAAD with funds of the German Federal Ministry for Economic Cooperation (BMZ)

Synergies and trade-offs in livestock value chains

Synergy: Inclusive growth

or

Trade-off: Commercialisation may exclude smallholder farmers

Contents of presentation

- Global literature on inclusive growth in livestock sector
- Policies and mechanisms promoting inclusive growth
- Value chain integration in four Central Asian countries through survey data

  - *Extent to which producers engage with markets*
  - *Marketing channels*
  - *Prevalence of mechanisms promoting inclusive growth*

SDG nexus network
JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN
DAAD Deutscher Akademischer Austauschdienst German Academic Exchange Service
The SDG nexus Network is supported by the DAAD with funds of the German Federal Ministry for Economic Cooperation (BMZ)

The livestock revolution

- Projected increase in meat and milk demand of due to increasing wealth and population (Delgado et al. 1999)
- Represents an opportunity for smallholders to increase their incomes.
- New demand comes with higher standards of food safety and packaging.
- Benefits depend on access to increasingly complex value chains.

Value chain development trajectories

Costales et al. (2010) identified three stylized development pathways for livestock value chains:

- **Inclusive growth:** Strong connection between demand and supply benefits majority of rural producers (India).
- **Stagnation and involution:** Change in demand bypasses rural livestock producers, who are left in the informal market. Processors depend on large commercial farms - and imports (Zambia).
- **Inequitable growth:** Sector dominated by small number of capital-intensive firms. Exit of rural producers (Brazil).

SDG nexus network
JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN
DAAD Deutscher Akademischer Austauschdienst German Academic Exchange Service
The SDG nexus Network is supported by the DAAD with funds of the German Federal Ministry for Economic Cooperation (BMZ)

Cooperatives

- *Service cooperatives* can help farmers to access sales channels, and supply inputs, machinery, advisory services and credit.

- Not the same as *production* cooperatives

- Cooperatives **mitigate scale-related obstacles** preventing smallholder participation (Bijman et al. 2016).
- In some European countries, service cooperatives handle about 70% of farm marketing volume.
- Cooperative membership is lower in developing countries but facilitate market access and compliance with technical standards (Otsuka et al. 2016).
- In Central Asia barriers to cooperative development include confusion between service and production cooperatives & poor legislation (Lerman and Sedik 2017).

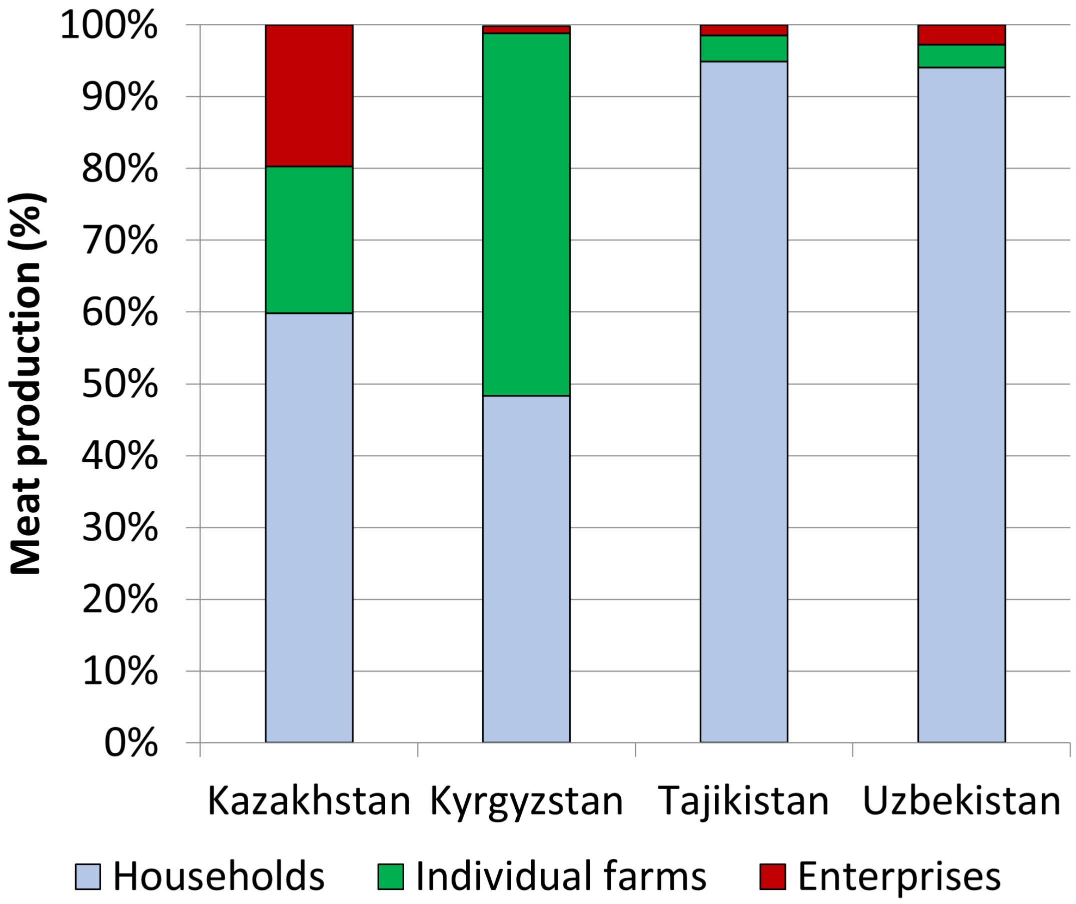
The SDG nexus Network is supported by the DAAD with funds of the German Federal Ministry for Economic Cooperation (BMZ)

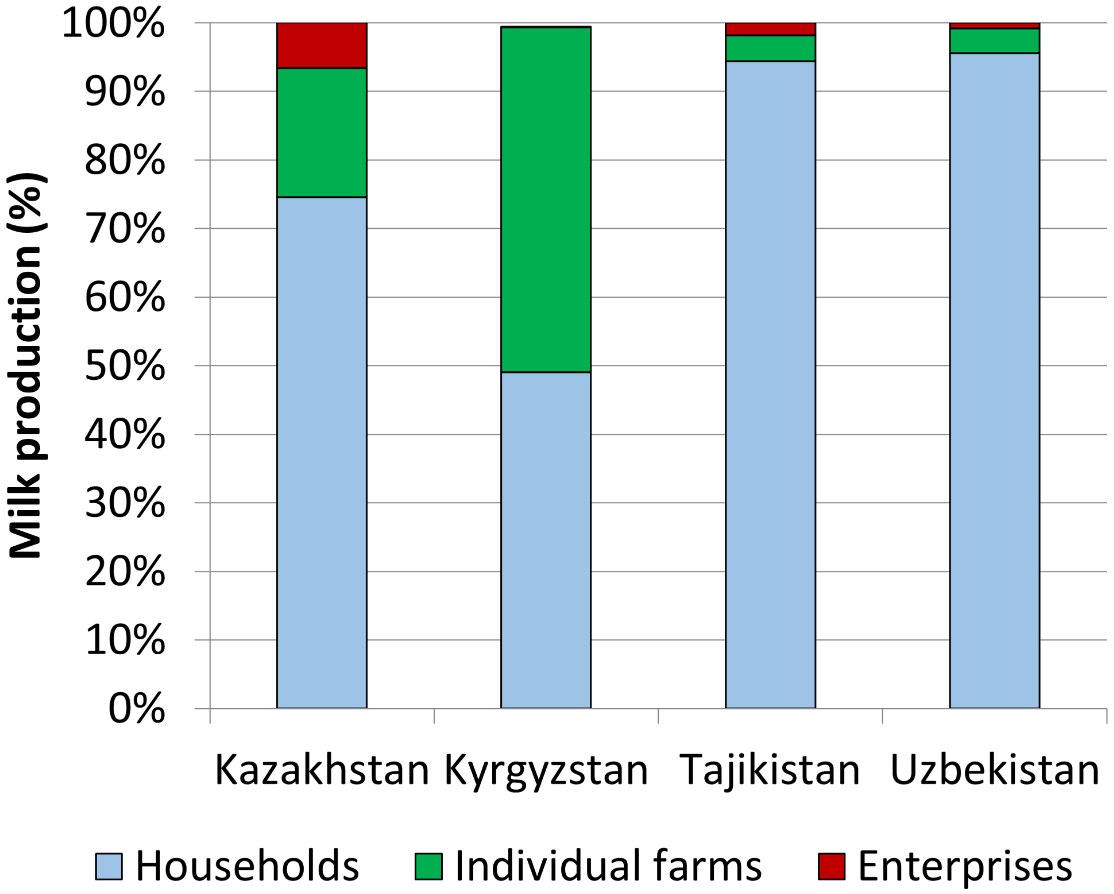
Vertical coordination

- Contracting of producers by processing companies (also called contract farming)
- Differs from *vertical integration* which production and processing steps are performed by the same company

- **Processors may invest in contracted producers** through credit, inputs, extension & veterinary services, transport and equipment.
- Contract farming may **improve production efficiency, output, productivity** (Otsuka et al. 2016; Swinnen and Maertens, 2006).
- Contract farmers receive **higher prices and have higher profits per unit of output** than independent farmers (Delgado et al. 2008; Sauer et al. 2012).
- By 1990 60% - 85% farmers sold animal products on contract in some Eastern European countries (Swinnen and Maertens 2006) .
- Even very small farmers benefitted (Dries and Noev 2005, Dries et al. 2009).

In Central Asia smallholders dominate production



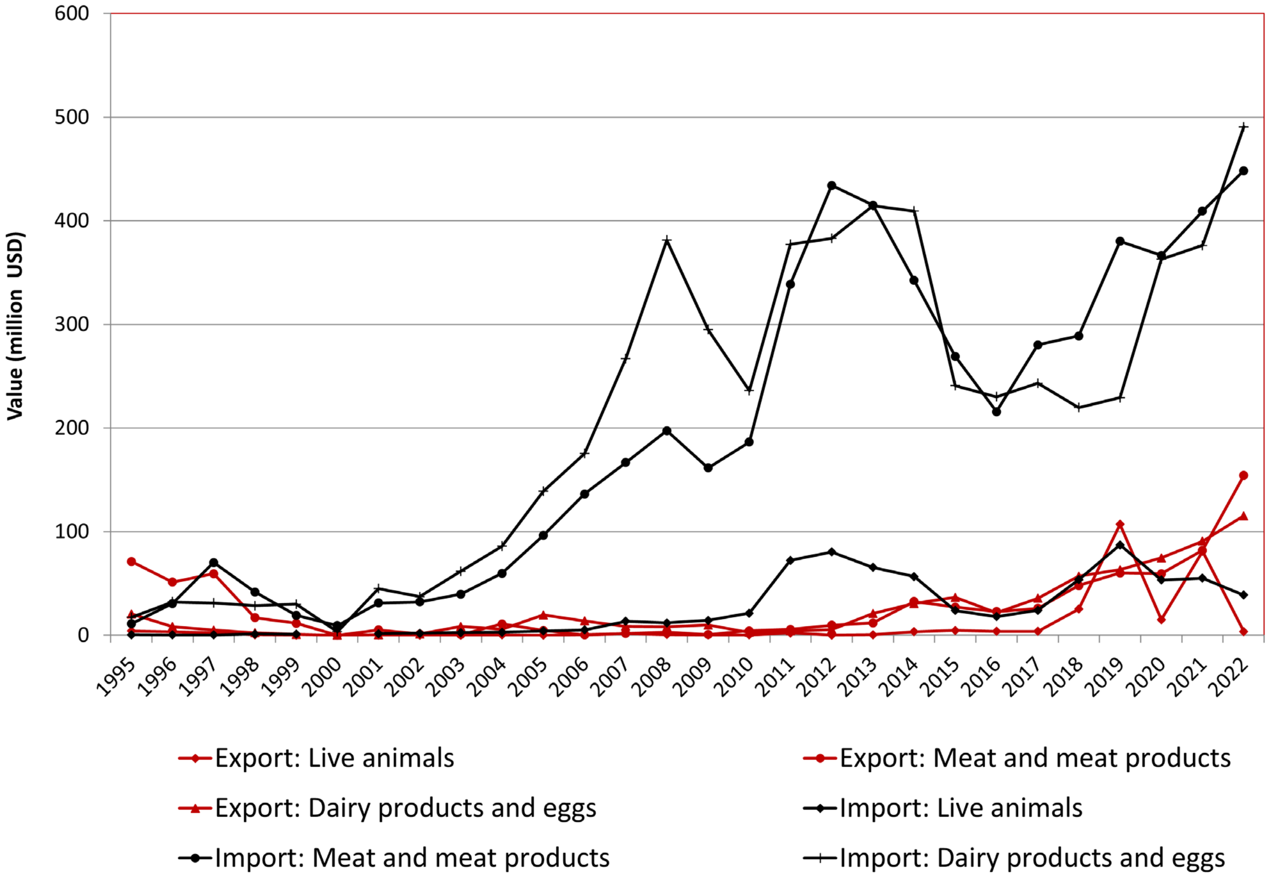


Sources: National Statistics

SDG nexus network
JUSTUS-LIEBIG-UNIVERSITAT GIESSEN
DAAD Deutscher Akademischer Austauschdienst German Academic Exchange Service
The SDG nexus Network is supported by the DAAD with funds of the German Federal Ministry for Economic Cooperation (BMZ)

There is potential for growth to cover domestic demand

Trends in import and export of livestock and livestock products. Kazakhstan (value, million USD).



Source: UN Comtrade International Trade Statistics Database

The SDG nexus Network is supported by the DAAD with funds of the German Federal Ministry for Economic Cooperation (BMZ)

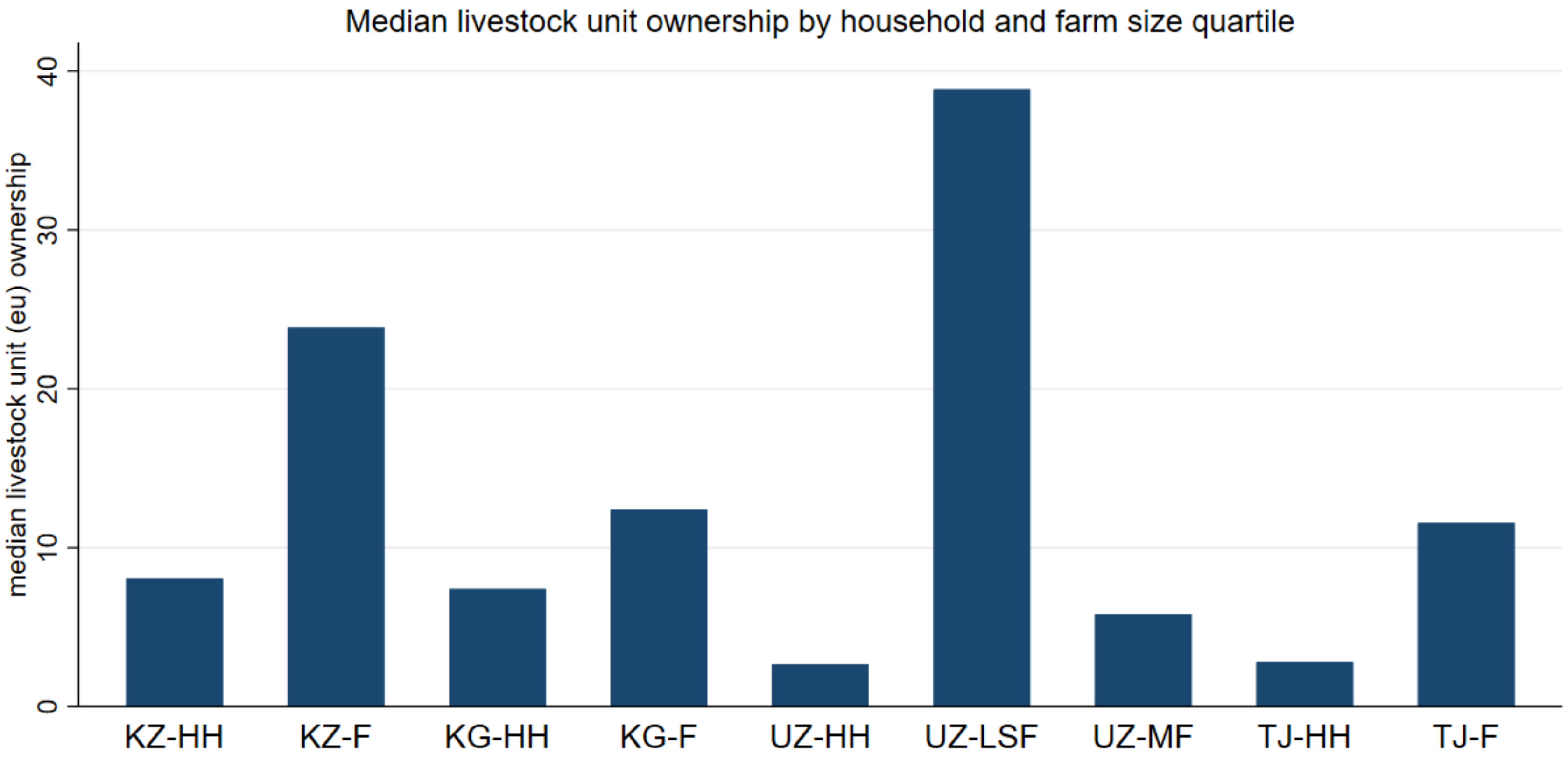
Use of survey data to explore value chain integration

Survey locations

Survey Sample

	KZ	KG	UZ	TJ
City	Almaty	Bishkek	Shahri-Sabz	Khujand
Household	50	119	152	152
Farm	200	131		150
Livestock farm			76	
Mixed Farm			73	

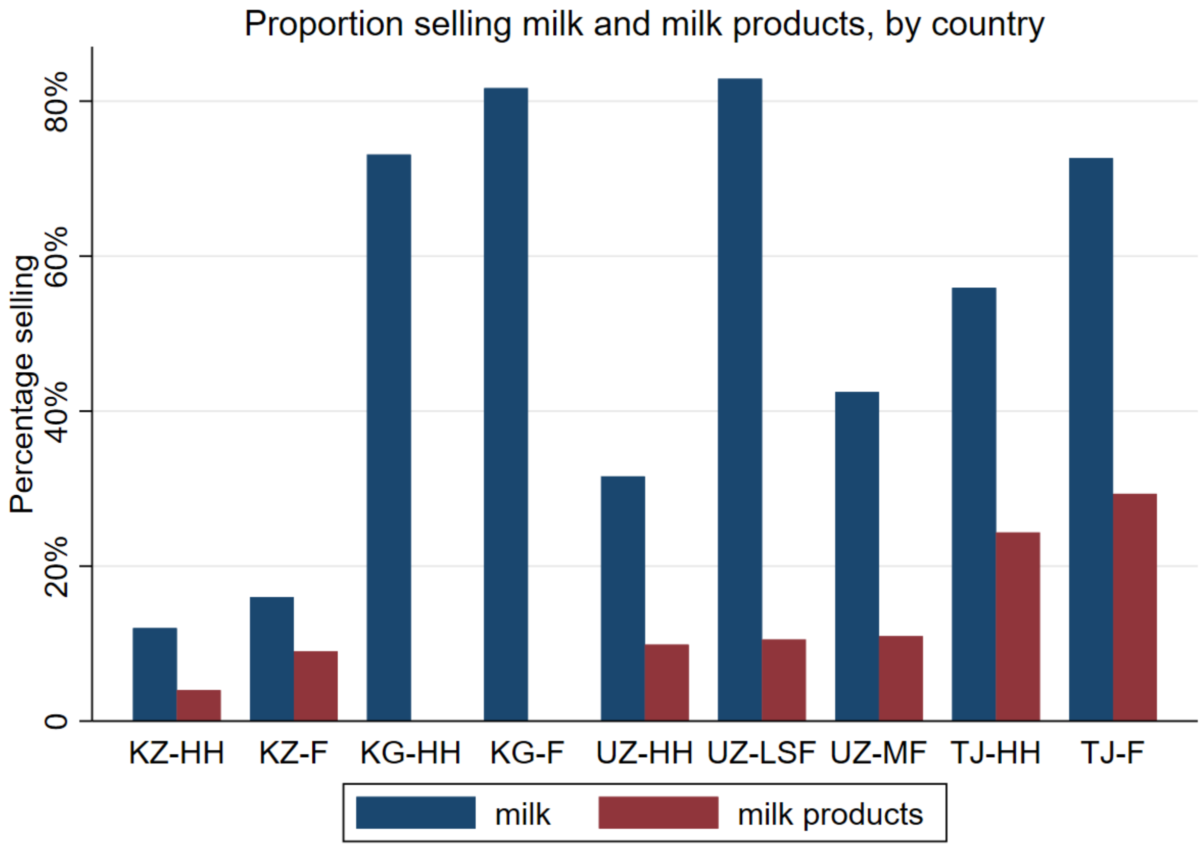
Livestock holdings

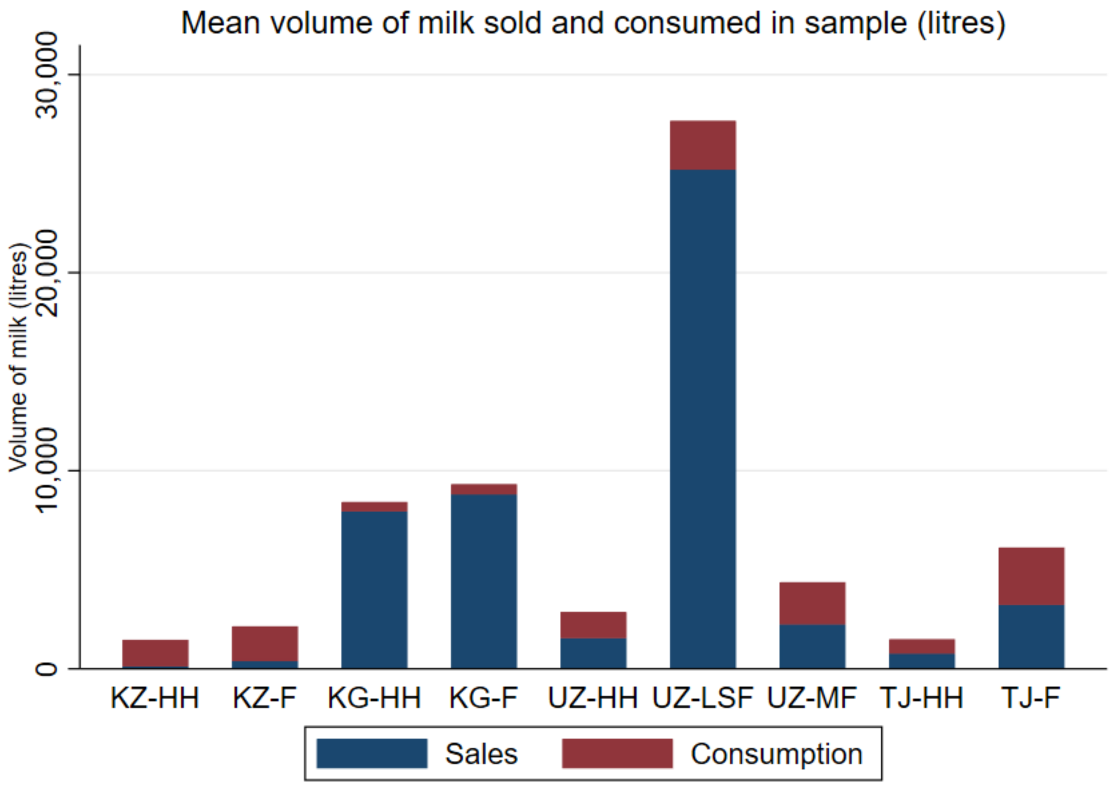


- Holdings quite large compared to definitions of ‘smallholder’ in literature
- Medians hide large variation in holdings size, particularly amongst farms

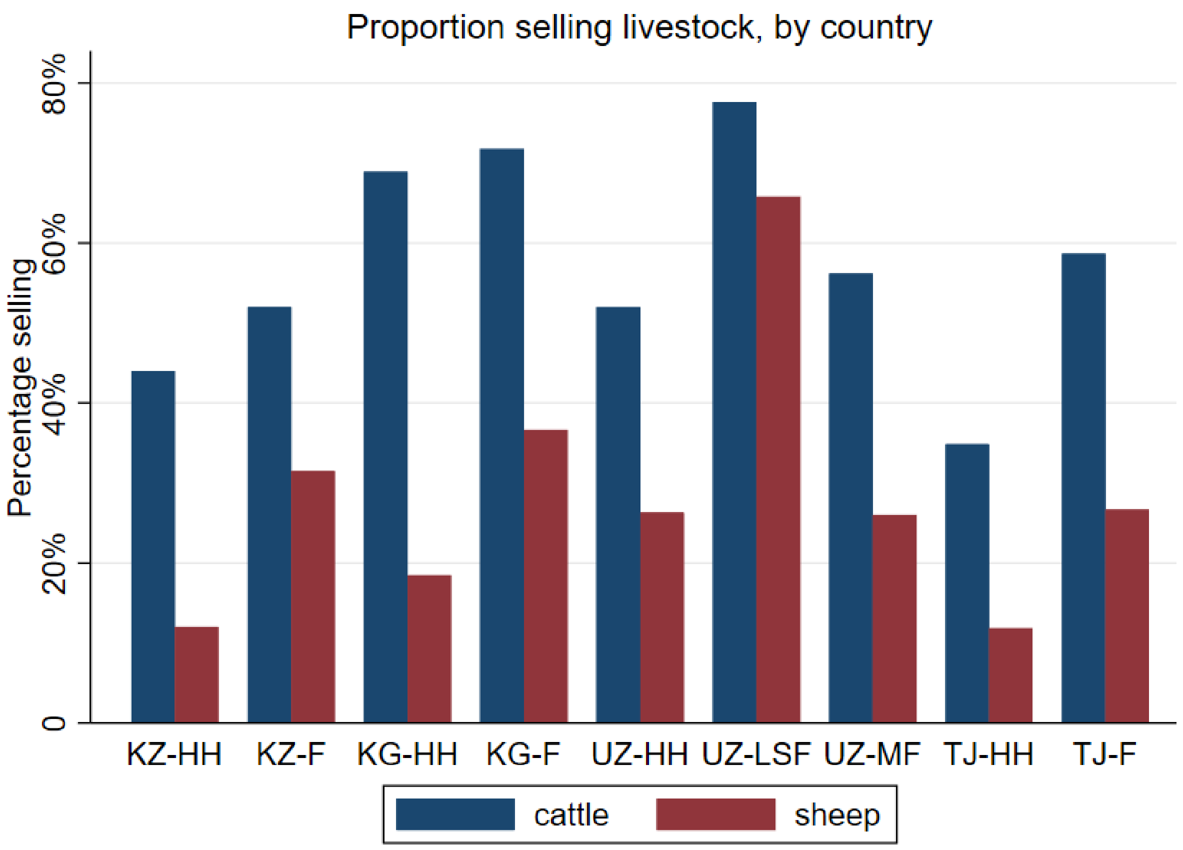
SDG nexus network
JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN
DAAD Deutscher Akademischer Austauschdienst German Academic Exchange Service
The SDG nexus Network is supported by the DAAD with funds of the German Federal Ministry for Economic Cooperation (BMZ)

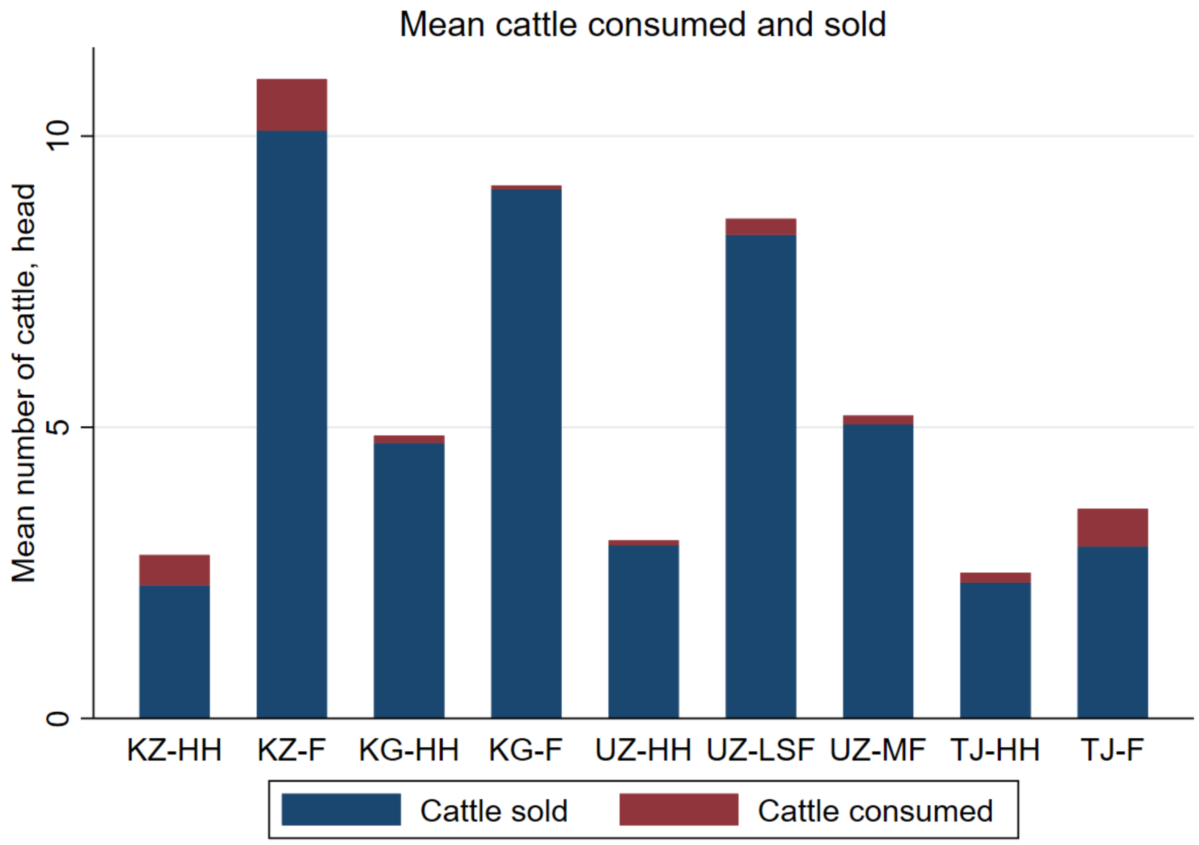
Large numbers of smallholders sell milk



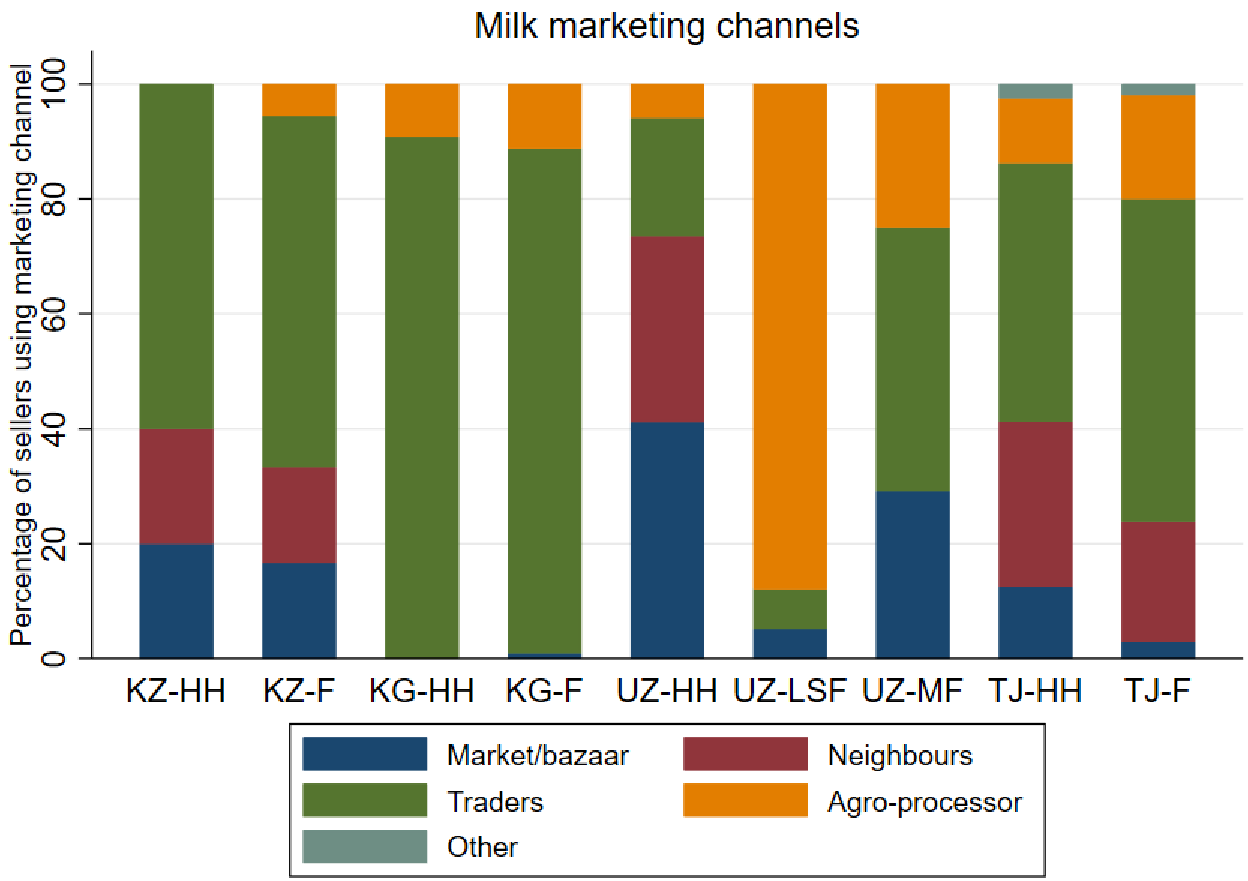


Livestock sales are highly prevalent in all groups



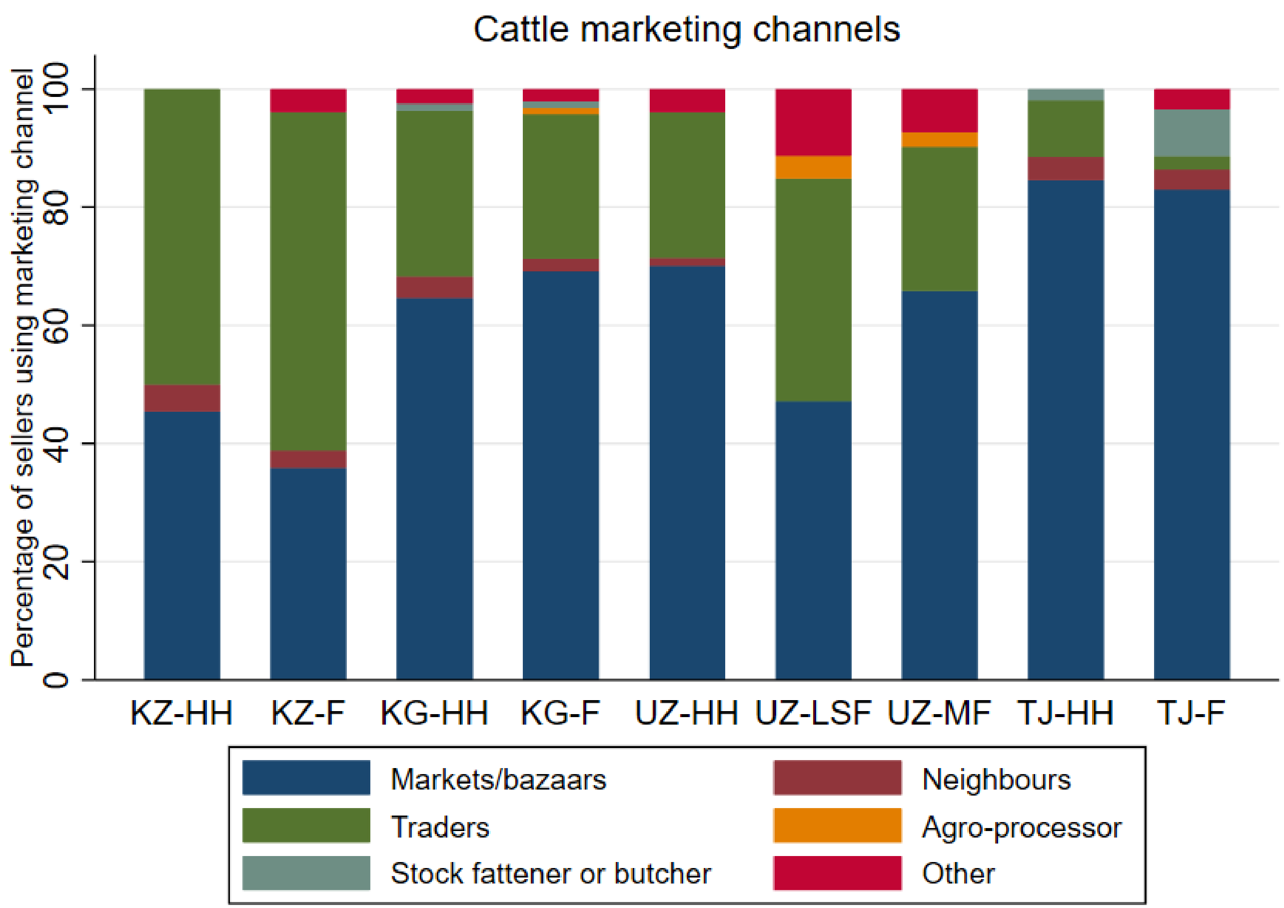


Milk marketing channels



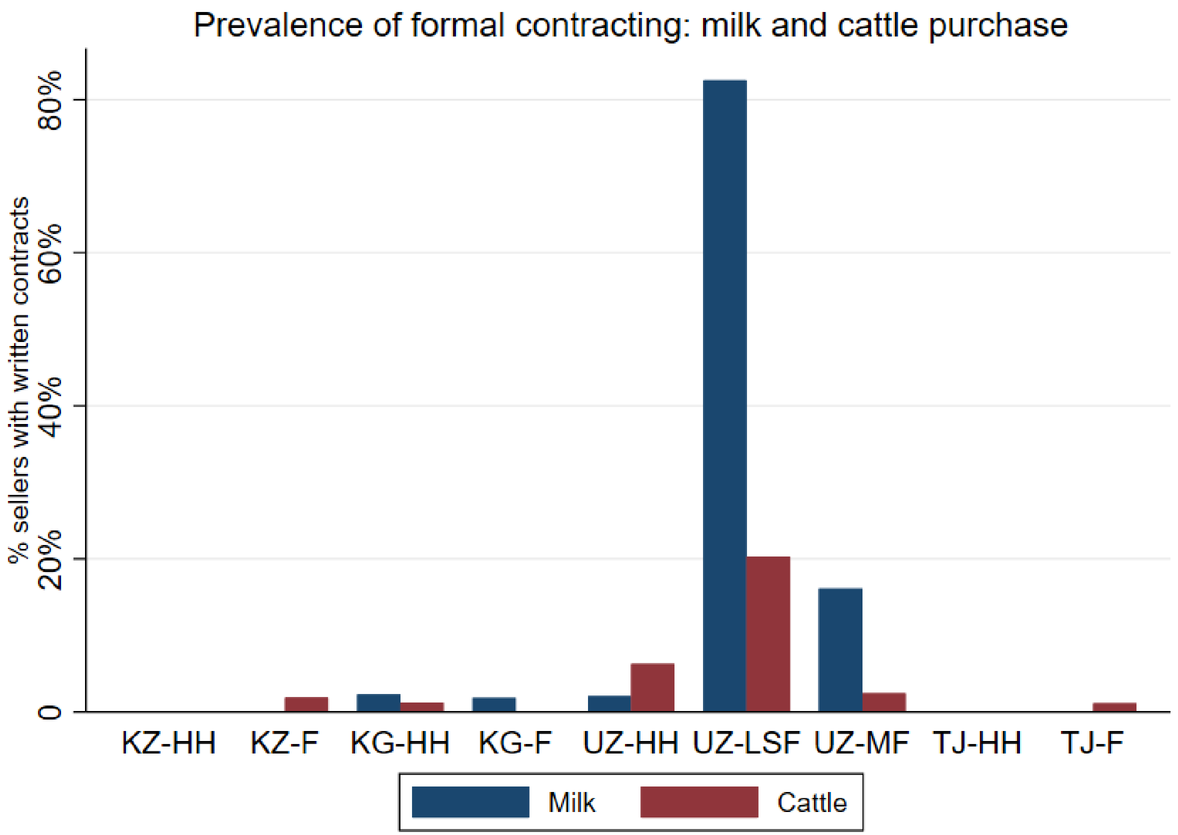
	Milk price depends on quality (%)	Supplies milk to village pool (%)
KZ-HH	50	17
KZ-F	34	6
KG-HH	1	0
KG-F	3	1
UZ-HH	77	0
UZ-LSF	26	11
UZ-MF	66	19
TJ-HH	54	8
TJ-F	53	3

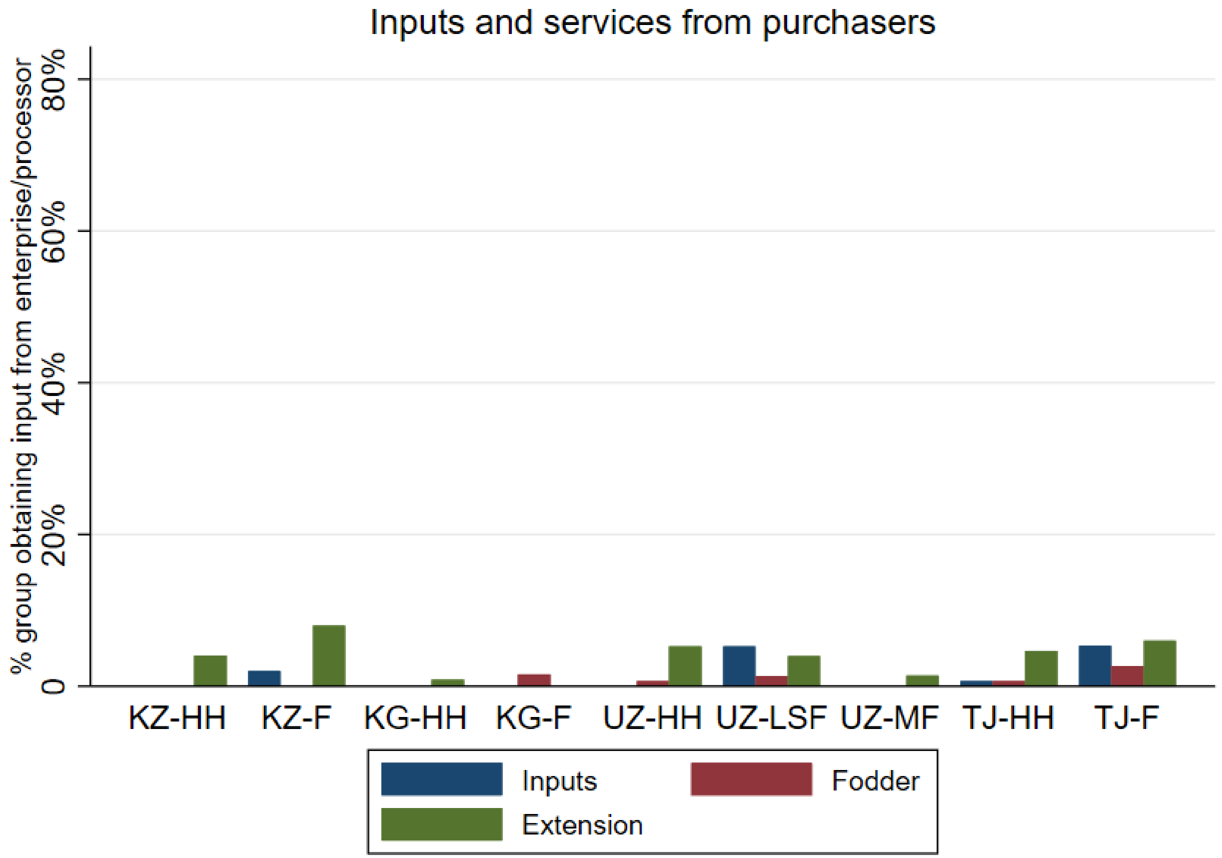
Livestock marketing



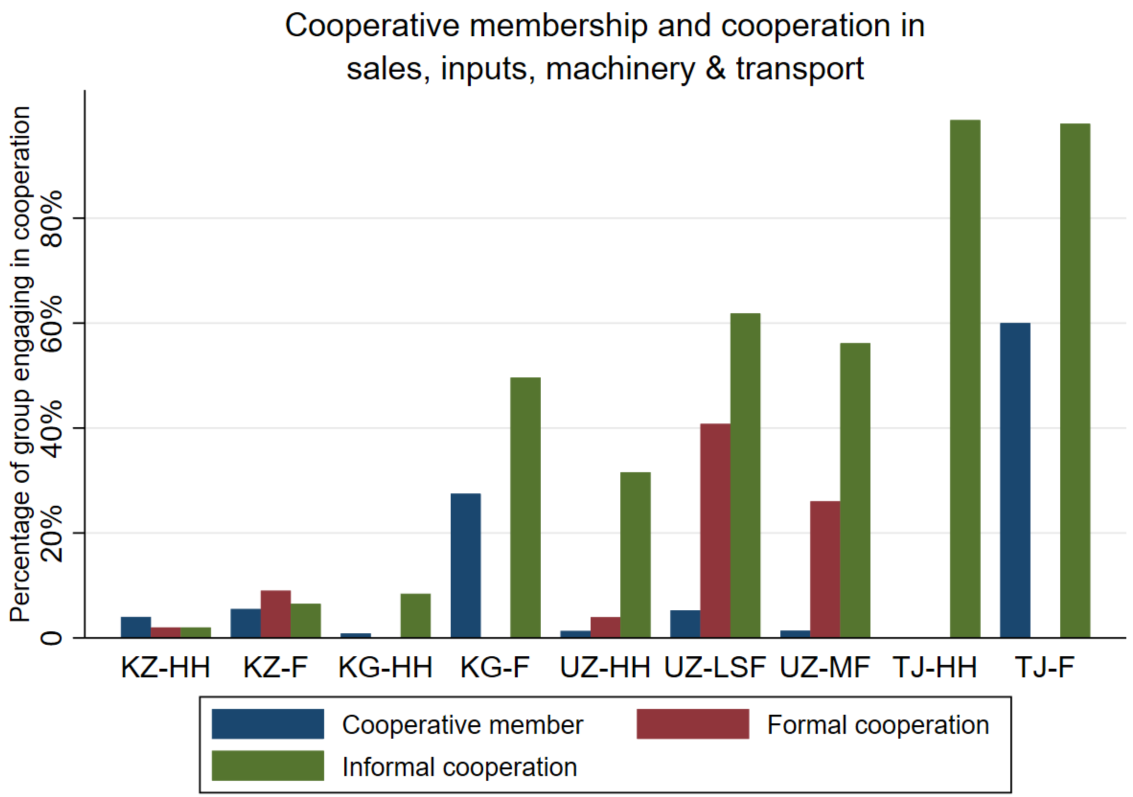
- Almost all stock sold through traders/wholesalers or markets.
- Both represent a wide variety of value chains including to abattoirs fatteners, breeders etc.
- The producer-feedlot model is unusual in our sample

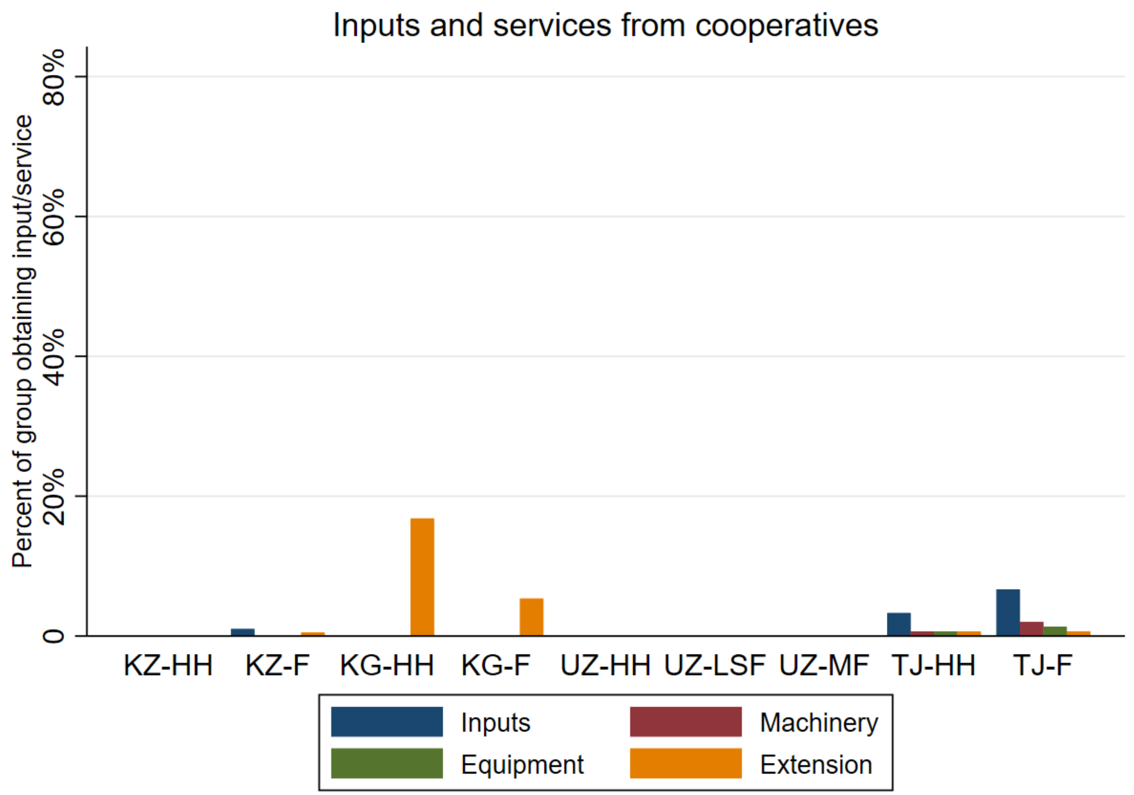
Contract farming





Cooperatives and cooperation





Summary

- Sector still largely characterised by smallholders at all sites.
- Large numbers of small producers engage with markets.
- Distance from markets has a strong effect on integration (Kazakh sample).
- Integration less likely to happen where large commercial farms are available (Uzbek sample)
- Most producers sell through ‘informal’ channels.
- Formal vertical coordination is unusual and cooperatives often absent or not functioning.
- However, some informal mechanisms can link producers to higher value chains.

The SDG nexus Network is supported by the DAAD with funds of the German Federal Ministry for Economic Cooperation (BMZ)

Research agenda: What policies for inclusive growth?

- Why are cooperatives and formal contract farming so unusual or ineffective in Central Asia?
- How successful are different mechanisms of milk aggregation in facilitating vertical coordination in dairy value chains?
- Is beef value chain development likely to lead to vertical coordination or vertical integration? What are the social and economic costs and benefits?

References

Bijman, J., R. Muradian and J. Schuurman (editors) 2016. *Cooperatives, Economic Democratization and Rural Development*, Edward Elgar Publishing.

Catelo, M. A. O. and A. C. Costales. 2008. *Contract farming and other market institutions as mechanisms for integrating smallholder livestock producers in the growth and development of the livestock sector in developing countries*. Pro-Poor Livestock Policy Initiative & FAO.

Costales, A. C., U. Pica-Ciamarra and J. Otte. 2010. Social consequences for mixed crop-livestock production systems in developing countries. *in* H. Steinfeld, H. A. Mooney, F. Schneider and L. Neville, editors. *Livestock in a Changing Landscape: Drivers, Consequences and Responses*. Island Press, Washington/Covelo/London.

Delgado, C., M. Rosegrant, H. Steinfeld, S. Ehui and C. Courbois. 1999. *Livestock to 2020: The next food revolution. Food, Agriculture, and the Environment Discussion Paper 28*. IFPRI/FAO/ ILRI (International Food Policy Research Institute/ FAO/International Livestock Research Institute), Washington, D.C.

Dries, L. and N. Noev. 2005. A Comparative Study of Vertical Coordination in the Dairy Chains in Bulgaria, Poland, and Slovakia. *in* J. F. M. Swinnen, editor, *The Dynamics of Vertical Coordination in Agrifood Chains in Eastern Europeand Central Asia*. World Bank.

Dries, L., E. Germenji, N. Noev and J. F. M. Swinnen. 2009. Farmers, vertical coordination, and the restructuring of dairy supply chains in Central and Eastern Europe. *World Development* 37: 1742-1758.

Herrero, M., S. Wirsenius, B. H. C. Rigolot, P. Thornton, P. Havl´ık, I. d. Boer and P. J. Gerber. 2015. Livestock and the environment: What have we learned in the past decade? *Annual Review of Environment and Resources* 40: 177-202.

Lerman, Z. and D. Sedik. 2017. Cooperatives in Kyrgyzstan: Findings from a survey of cooperatives and users. Pages 233-249 *in* G. W. J. Hendrikse, G. Cliquet, T. Ehrmann and J. Windsperger, editors. *Management and Governance of Networks*. Springer.

Narrod, C., M. Tiongco and C. Delgado. 2010. Socioeconomic implications of the livestock industrialisation process - how will smallholders fare? *in* H. Steinfeld, H. A. Mooney, F. Schneider and L. Neville, editors. *Livestock in a Changing Landscape: Drivers, Consequences and Responses*. Island Press, Washington/Covelo/London.

Otsuka, K., Y. Nakano and K. Takahashi. 2016. Contract Farming in Developed and Developing Countries *Annual Review of Resource Economics* 8: 353-376.

Swinnen, J. F. M. and M. Maertens. 2007. Globalization, privatization, and vertical coordination in food value chains in developing and transition countries. *Agricultural Economics* 37 (1): 89-102.

SDG nexus network
JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN
DAAD Deutscher Akademischer Austauschdienst German Academic Exchange Service
The SDG nexus Network is supported by the DAAD with funds of the German Federal Ministry for Economic Cooperation and Development (BMZ)
Supported by the DAAD with funds from the Federal Ministry for Economic Cooperation and Development (BMZ)

Discussion

SDG nexus network

Thank you!

Supported by the DAAD with funds from the Federal Ministry for Economic Cooperation and Development (BMZ)