Change of crop pattern in the search of comparative advantage: Case of rural small holder bean producers in Talas Province of Kyrgyzstan

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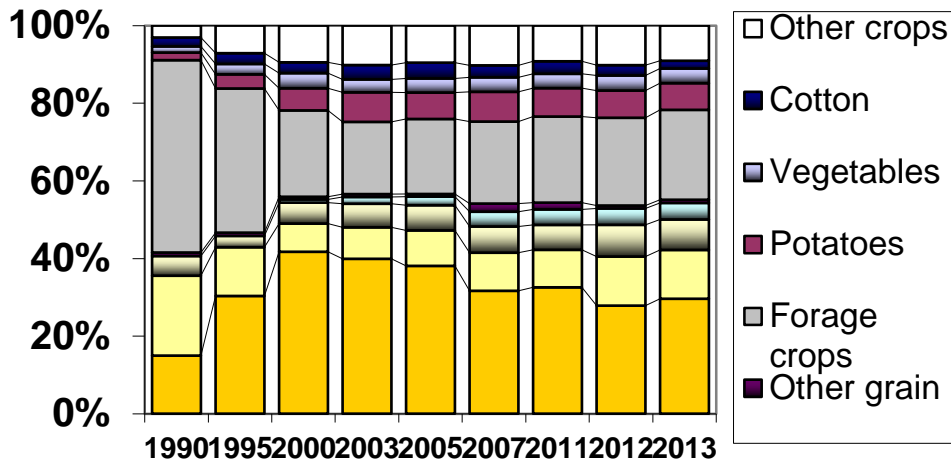
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Shift of Rural Production in Kyrgyzstan: Post-Reform Change

Crop area dynamics in Kyrgyzstan in 1990-2013, %

Legend: Other crops, Cotton, Vegetables, Potatoes, Forage crops, Other grain

Years: 1990 1995 2000 2003 2005 2007 2011 2012 2013

- Since 1990 with independence in agriculture happened shift to a food secured crops – mainly wheat, potatoes and vegetables, forage crops declined

- Crop structure changed since 2000 after land reform

  - 90% of agricultural land – privatized

  - 95% of output in agriculture – small scale farmers (83% of land owners has < 1 ha)
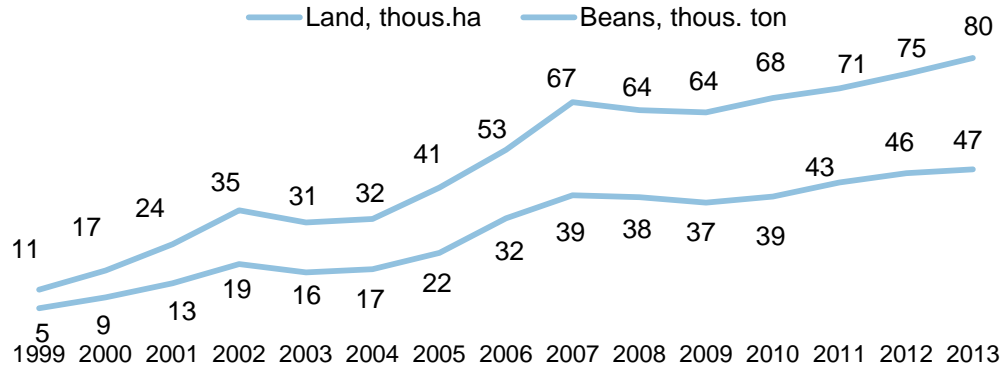
- After land reform in 1998-1999 wheat slowly decreased in production and commercial crops arisen in the country,

- Case of haricot beans is an example of new changes in small scale production in Kyrgyzstan

Talas Province: Short Description

Source: University of Central Asia

Source: modified from map of Talas Oblast, Census 2009, National Statistical Committee

- Located in north-west of Kyrgyzstan

- Landlocked border with Kazakhstan

- 92% residents are Kyrgyz

- 220 thousand inhabitants

- 85% rural residents

- Rural sector dominating - 54.7% of regional GDP
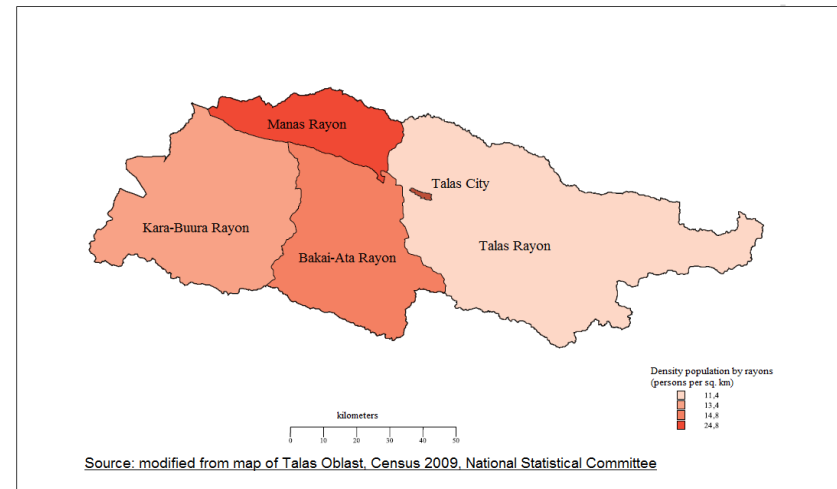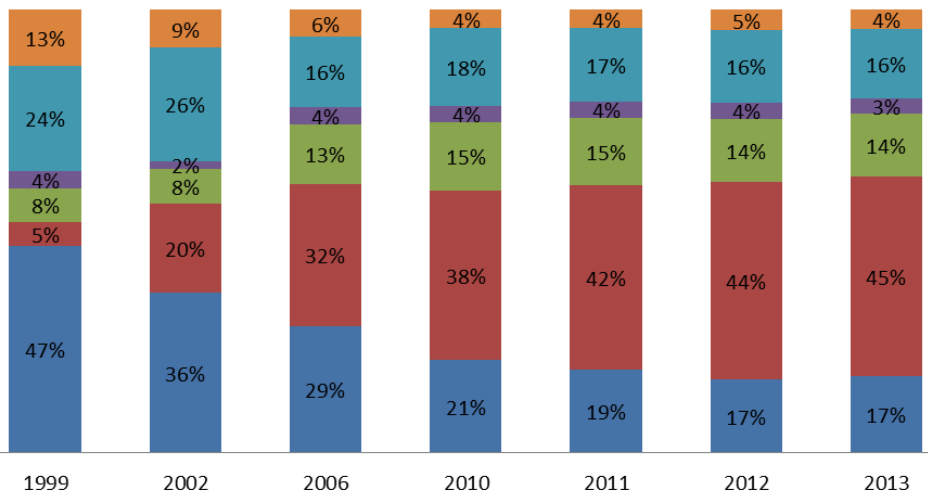
Bean Shift of Talas Farmers

Haricot Bean Land and Production Dynamics in Talas Oblast, 1999-2013

Land, thous.ha — Beans, thous. ton

Beans: 11, 17, 24, 35, 31, 32, 41, 53, 67, 64, 64, 68, 71, 75, 80

Land: 5, 9, 13, 19, 16, 17, 22, 32, 39, 38, 37, 39, 43, 46, 47

1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013

Land Use Dynamics by Crop in Talas Oblast, 1999-2013, %

Grain • Beans • Potatoes • Vegetables • Forage crops • Other crops

Year	Grain	Beans	Potatoes	Vegetables	Forage crops	Other crops
1999	47%	5%	8%	4%	24%	13%
2002	36%	20%	8%	2%	26%	9%
2006	29%	32%	13%	4%	16%	6%
2010	21%	38%	15%	4%	18%	4%
2011	19%	42%	15%	4%	17%	4%
2012	17%	44%	14%	4%	16%	5%
2013	17%	45%	14%	3%	16%	4%

- Bean production strongly increased during 2000-2010,

- Now Talas Province produce 94% of all beans in Kyrgyzstan and exports almost all,

- 45% of all land in the region occupied by haricot beans,

- Bean production concentrated in the center of Talas valley – Bakai-Ata and Kara-Buura districts
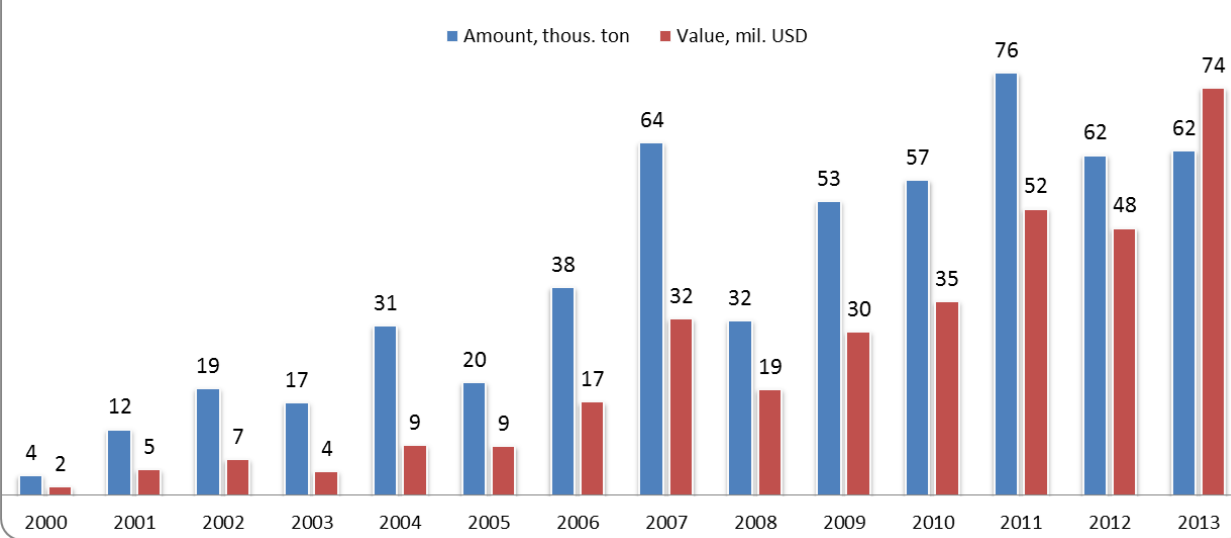
Bean Shift of Talas Farmers (cont.)

Haricot Beans Export Dynamics in Kyrgyzstan, 2000-2013

■ Amount, thous. ton ■ Value, mil. USD

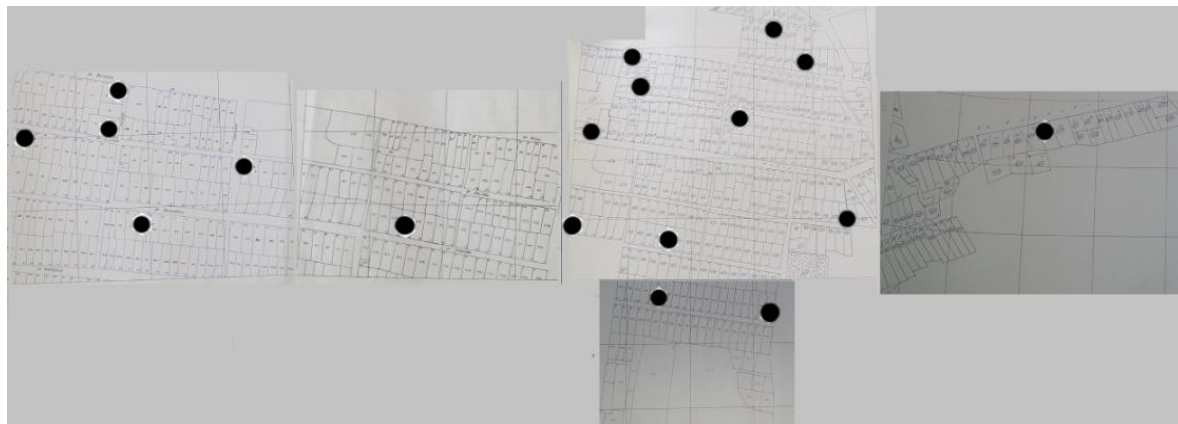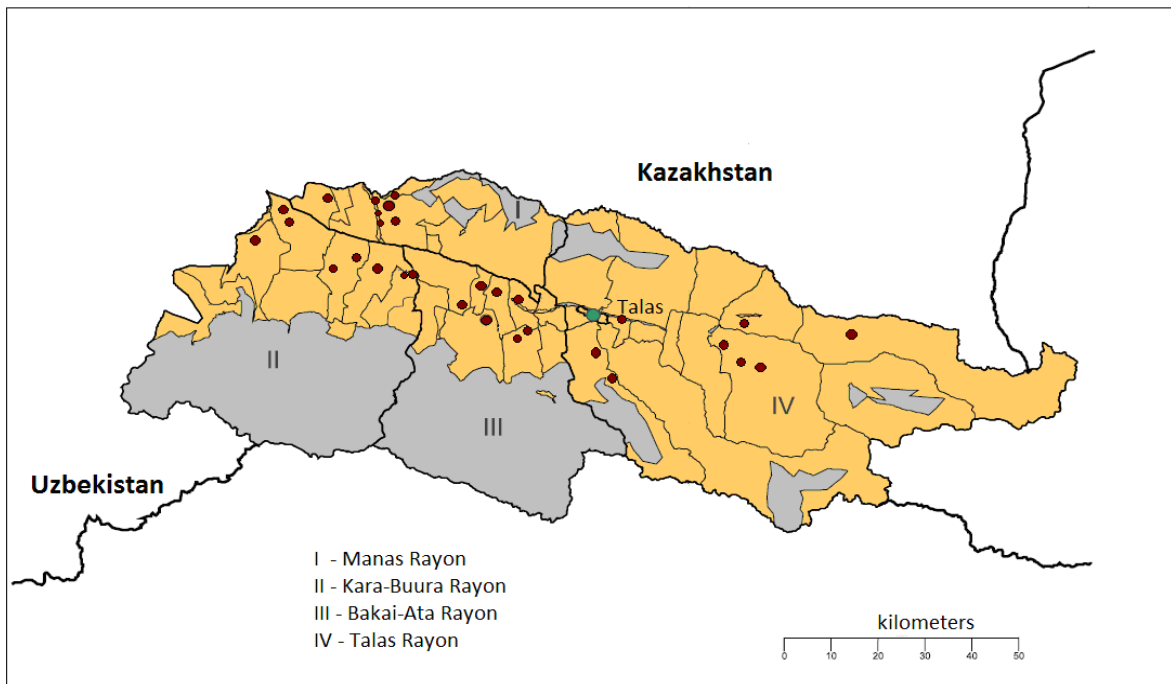| Year	Amount, thous. ton	Value, mil. USD
2000	4	2
2001	12	5
2002	19	7
2003	17	4
2004	31	9
2005	20	9
2006	38	17
2007	64	32
2008	32	19
2009	53	30
2010	57	35
2011	76	52
2012	62	48
2013	62	74

- Export volumes stabilized in weight volume and grow in value terms,
- Main markets - Turkey and Russia,

Haricot Bean Export Dynamics in Kyrgyzstan, 2000-2013, by Trading Country Share, USD

2000
- Others 5%
- Russia 7%
- Turkey 50%
- Azerbaijan 38%

2005
- Others 2%
- Russia 13%
- Turkey 58%
- Bulgaria 27%

2013
- Others 12%
- Bulgaria 11%
- Serbia 5%
- Russian Federation 5%
- Turkey 67%
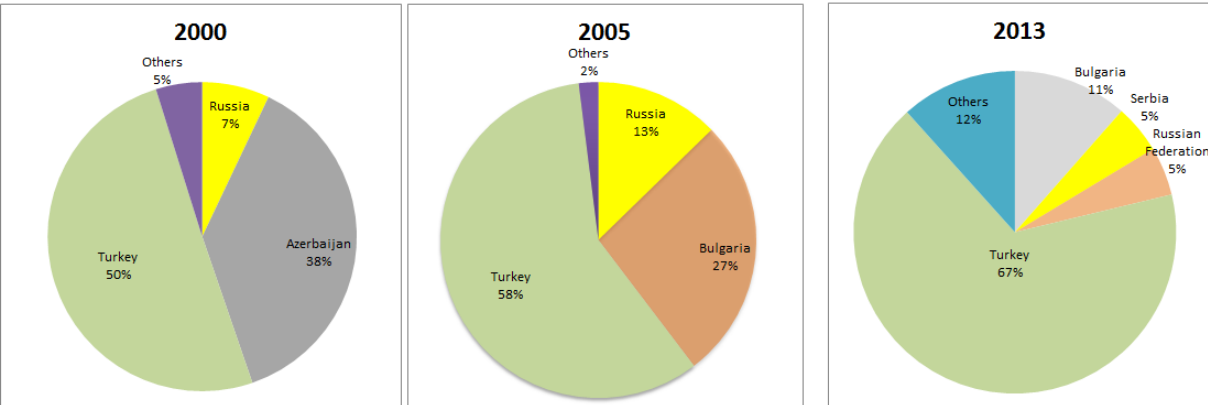
Empirical Evidence of Bean Production: Results of Survey

- During summer 2011comprehensive field survey of the rural households was implemented in Talas Oblast,

- 297 rural households from 30 villages were covered by survey,

- Main task –measure agricultural production and poverty level of the area

Kazakhstan

Talas

Uzbekistan

I - Manas Rayon
II - Kara-Buura Rayon
III - Bakai-Ata Rayon
IV - Talas Rayon

kilometers
0   10   20   30   40   50

Target Region at a Glance

Households Parameters:
Average size of HH – 5.4 pers.
Residents in working age – 55.4%,
Nationality -92% of Kyrgyz,
Average age -27.3 years,
88% of HH has a land plot,
Average land plot - 2 ha per HH
Crop production – 56%, livestock production 43%, renting land – 0.4%
Agricultural income – 71%
Non-agricultural income- 29%

Main cultures:

Haricot beans (56%), hay(24%), wheat (9%), potatoes (7%)

Main livestock:

cattle (59% of HH), sheep (48%), horses (17%)

Positive factors:

• Low population density

• Good irrigation system

Bean Effect Model

$$\ln Y_i = \beta_0 + \beta_1 \ln \text{Land Used}_i + \beta_2 \text{Beans}_i + \varepsilon_i$$

Y_i is the agricultural output

$Land_i$ is the total land used for crop production

$Beans_i$ is the variable, which shows value of 1 if household produce haricot beans or 0 if not.

Model Results

Dep. Var. No. obs.	Coef.	Aggregate Crop Production 290
Const.	β_0	3.25*** (0.07)
Land Used	β_1	0.60*** (0.05)
Beans	β_2	0.74*** (0.11)
R^2		0.54
F-Statistic		172.03***

Notes: Each cell contains the regression coefficient with the standard error in parentheses. ***=significant at the 1 % level.

Model Results (cont.)

Dep. Var. No. obs.	Coef.	Aggregate Crop Production 290
Const.	β_0	3.18** (0.10)
Land Used	β_1	0.76** (0.15)
Beans	β_2	0.77*** (0.21)
R^2		0.52
F-Statistic		64.4***
Instrument list:		LAND DISTANCE MEDIUM ZONE

Notes: Each cell contains the regression coefficient with the standard error in parentheses. **=significant at the 1 % level, ***=significant at the 5 % level.

Selection of bean as a main crop led to increase of productivity of the farmer in Talas farmer:

- Agricultural productivity determined by external factors – distance to the land plot and physical location of land/farmer in the region

Potential policy implications:

- Public policy of the farm productivity need to be focused on the development of regional and sub-regional programs based on an analysis of available natural resources for farmers

Agenda for researchers:

Continue work to analyze rural productivity determinants

References

1. Giovarelli, R. et al.:(2005) Land tenure and property rights assessment for Kyrgyzstan: p.75

2. Jones, K. D.: (2004) Land privatization. Land Privatization and Conflict in Central Asia: Is Kyrgyzstan a Model?. Chapter 12. : p.266-267

3. Light, M. (2007), 'Agriculture in Kyrgyzstan: growth engine or safety net', Joint Kyrgyz Government / World Bank / IMF Workshop "Coping with short term risks and vulnerabilities and accelerating long term growth", Bishkek, 25 June, 2008.

4. Lehrman, Z. and D. Sedik (2009, September). Agrarian Reform in Kyrgyzstan: Achievements and the Unfinished Agenda. Technical Report 2009-1, FAO Regional Office for Europe and Central Asia.

5. NSC (2004). Agriculture of the Kyrgyz Republic 1999-2003 (on Russian). Technical report, National Statistical Committee, Bishkek, Kyrgyz Republic.

6. NSC (2009). Agriculture of the Kyrgyz Republic 2004-2008 (on Russian). Technical report, National Statistical Committee, Bishkek, Kyrgyz Republic.

7. NSC (2010). National Census of the Kyrgyz Republic 2009. Volume 3. Talas Oblast. Technical report, National Statistical Committee, Kyrgyz Repub- lic, Bishkek, Kyrgyzstan.

8. NSC (2011a). Agriculture of the Kyrgyz Republic 2006-2010 (on Russian). Technical report, National Statistical Committee, Bishkek, Kyrgyz Republic.

9. NSC (2011b). National Accounts of the Kyrgyz Republic 2006-2010 (on Russian). Technical report, National Statistical Committee, http://www.stat.kg/, Bishkek, Kyrgyz Republic.

10. NSC (2012). Crop Production Land Distribution in 2012 (on Russian). Technical report, National Statistical Committee, Bishkek, Kyrgyz Republic.

11. NSC (2013). Agriculture of the Kyrgyz Republic 2008-2012 (on Russian). Technical report, National Statistical Committee, Bishkek, Kyrgyz Republic.

12. Tilekeyev, K. (2014, Aug). Rural Poverty Determinants in the Remote Rural Areas of Kyrgyzstan (A Production Efficiency Impact on the Poverty Level of a Rural Household).Peter Lang, Germany.

13. Tilekeyev, Kanat (2013): Productivity Implications of Participation in Export Activities: The case of farmers in Talas Oblast of Kyrgyzstan, Institute of Public Policy and Administration, Working Paper No. 17, University of Central Asia, Bishkek.

14. UN (2014). United Nations Commodity Trade and Statistics Database. Technical report, United Nations, http://comtrade.un.org/db.

Thanks for attention!