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Agricultural incentives in the Kyrgyz Republic under the influence of changing macroeconomic conditions

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Outline

I. Agricultural development and macroeconomic changes in the KR

II. The true protection concept, estimation and data

III. Empirical results

IV. Conclusions and policy implications

I. Agricultural development and macroeconomic changes in the KR

Agriculture in Kyrgyzstan

- Land reform, privatization
- Liberal policies
- Indirect support to agriculture
- Sluggish sector growth

Share of agriculture in GDP, %

Source: National Statistical Committee of the Kyrgyz Republic, 2012
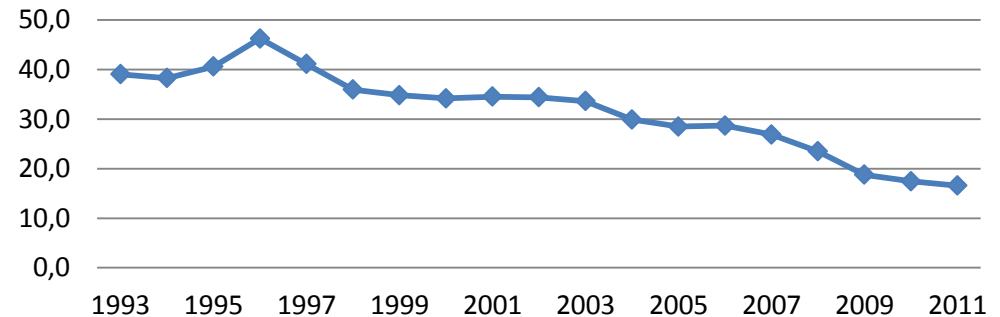
Annual average % growth of output

	1990 - 2000	2000 - 2012
GDP	-4.1	4.2
Agriculture	1.5	0.2
Industry	-10.3	1.2
Manufacturing	-7.5	-0.6
Services	-5.2	9.9

Source: WDI, 2014

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I. Agricultural development and macroeconomic changes in the KR

- KR highly dependent of international economic development

  - gold prices on the export side

  - oil prices on the import side

- Remittances from workers abroad
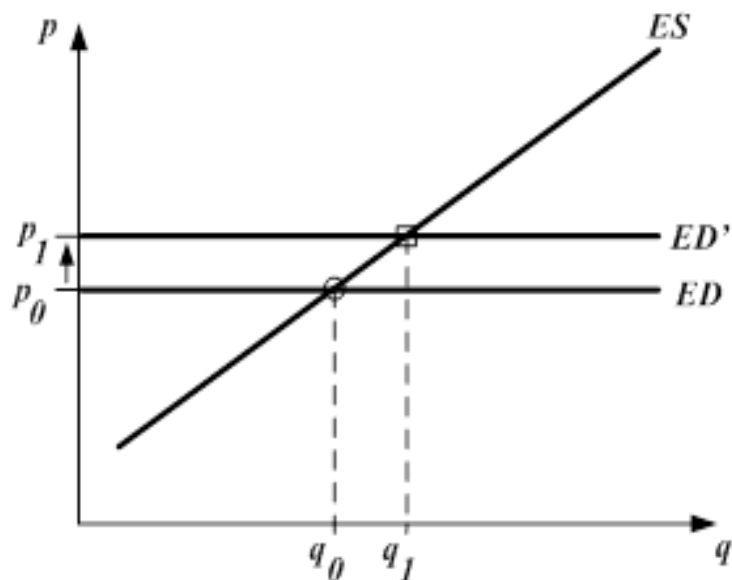
Annual Inflow of Migrant Remittances to the KR
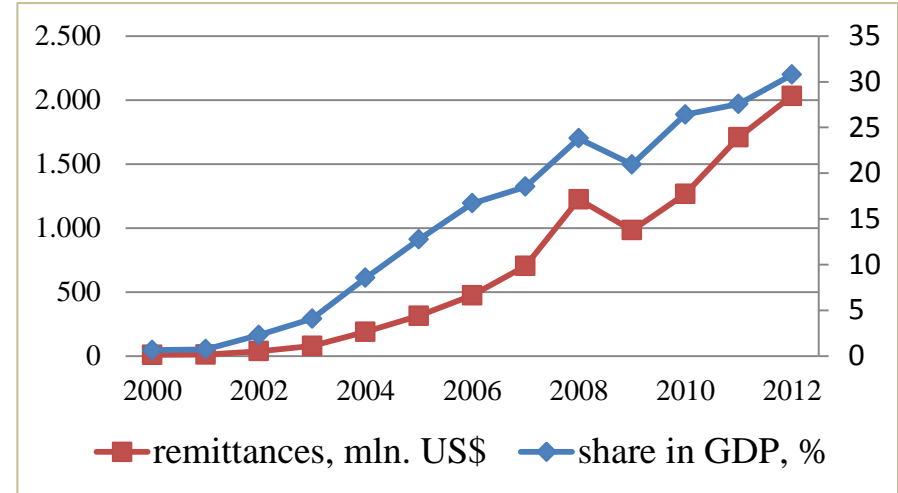
Source: World Bank 2014, Annual Remittances Data

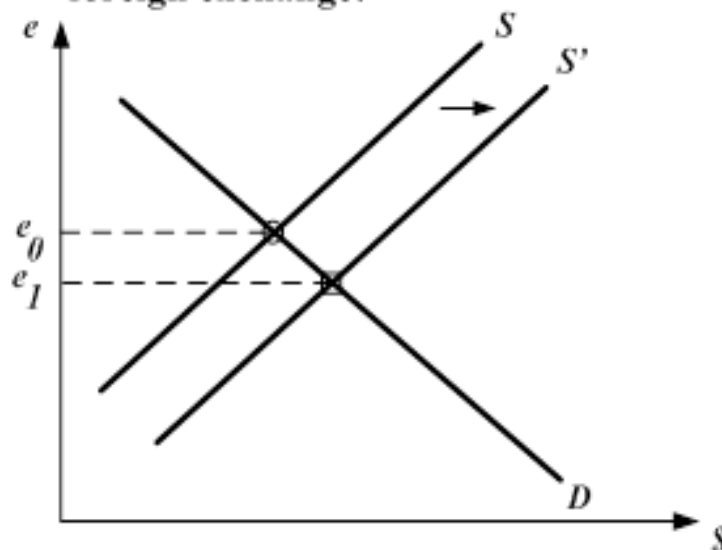**Objective of this study** is to analyze agricultural incentives in the KR

- The effect of domestic policies

- The impact of macroeconomic developments

I. Agricultural development and macroeconomic changes in the KR

a) Boom in the gold sector:
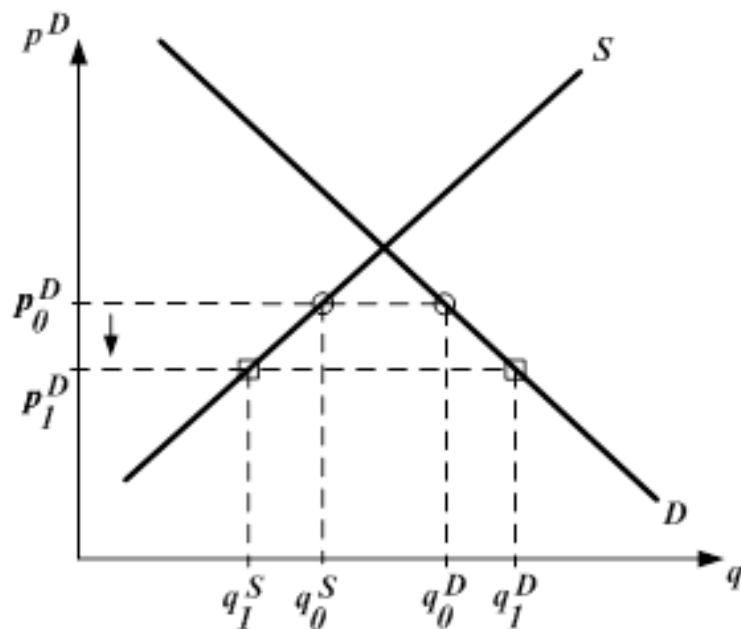
b) Impacts an the market for foreign exchange:

- KR is a price-taker in the international market

- Boom in the gold sector can lead to the appreciation of the domestic currency

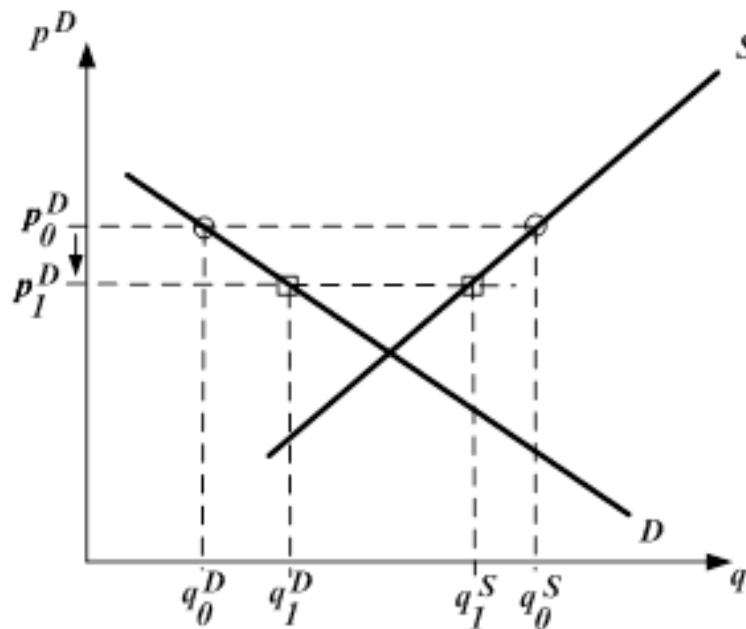- This leads to lower prices of other tradable sectors

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c) Implications for the Market for Agricultural Tradables:

ca) Imports: cb) Exports:

Implication for agricultural tradables?

- Prices for agricultural tradables are multiplied by lower exchange rate →
- Prices in domestic currency decrease → domestic production falls
- Imports increase and exports decrease

II. The true protection concept, estimation and data

- It captures effects of trade policy and macroeconomic shocks on price ratios

- Dornbusch (1974) and Sjaastad (1980)

  Assumption of the model:

  - A small country with an open economy

  - Produces and consumes three goods: exportable (X), importable (M), and nontradable (H)

  - Factor endowments are given and income is constant

  - Trade is initially balanced

  - Market clearing occurs in the home goods sector

  - Trade policies represented by uniform tariffs or subsidies

II. The true protection concept, estimation and data

(1) $\omega = \dfrac{\Delta(P_H/P_X)}{P_H/P_X} \Big/ \dfrac{\Delta(P_M/P_X)}{P_M/P_X}$

(2) $\ln(P_H/P_X) = \alpha_1 + \omega \ln(P_M/P_X) + \alpha_2 Z + \mu_1$

(3) $\ln(P_H/P_{XA}) = \alpha_1 + \omega_1 \ln(P_M/P_{XA}) + \omega_2 \ln(P_{XNA}/P_{XA}) + \alpha_2 Z + \mu_2$

where

- P_M (P_X) is the price index in the import (export) sector
- P_H is the price index of the home-good sector
- ω is the Sjaastad's incidence parameter
- Z is a vector of exogenous shifters
- μ_1 and μ_2 are random error terms

See Greenaway and Milner (1987)

II. The true protection concept, estimation and data

Data

- Prices of importables, exportables and home goods

- Computed from price indices (CPI and PPI)

- on a quarterly basis from the IV quarter of 2002 to the I quarter of 2013

- Data sources:

  – National Statistical Committee

  – National Bank of the Kyrgyz Republic

- Balance of trade and GDP used as exogenous shifters, Z

III. Econometric results

Regression Estimates of True Protection Models, 2002-2013[a]

Independent variables:	Dependent variable: ln(Ph/Px)	Dependent variable: ln(Ph/Pxa)
ln(Pm/Px)	0.522* (0.066)	----
ln(Pm/Pxa)	----	0.41* (0.085)
ln(Pxna/Pxa)	----	0.36* (0.076)
$\ln(BT/GDP)_{t-1}$	-0.001 (0.012)	-0.002 (0.012)
Constant	-0.321* (0.054)	-0.212* (0.048)
F-test	32.23*	25.31*
Durbin-Watson Statistic	1.88	1.61
Adjusted R²	0.62	0.65
Number of observations	40	40

[a] The Cochrane-Orcutt procedure is applied in both models. *significant at 1% level. Standard errors are in parentheses. Source: Authors' estimations.

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IV. Conclusions and policy implications

- Macroeconomic changes affect agricultural prices, hence farmers' incentives

- True protection analysis looks at intersectoral linkages

- Results reveal strong linkages:

  – An import price boom would impose an implicit tax on the export sector

  – Such a boom can come from any exogenous shock or policy measures

  – Agriculture is implicitly taxed as well

- Relevant for designing future policies:

  – Any protection measure can lead to a discrimination of other sectors in the economy

  – Important to develop consistent domestic policies

Thank you for your attention!

Questions and feedback are welcome!