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CIS wheat market integration



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Department Agricultural Markets

Research background

Research conducted under the following projects:

AGRICISTRADÉ

EU FP7

(www.agricistrade.eu)

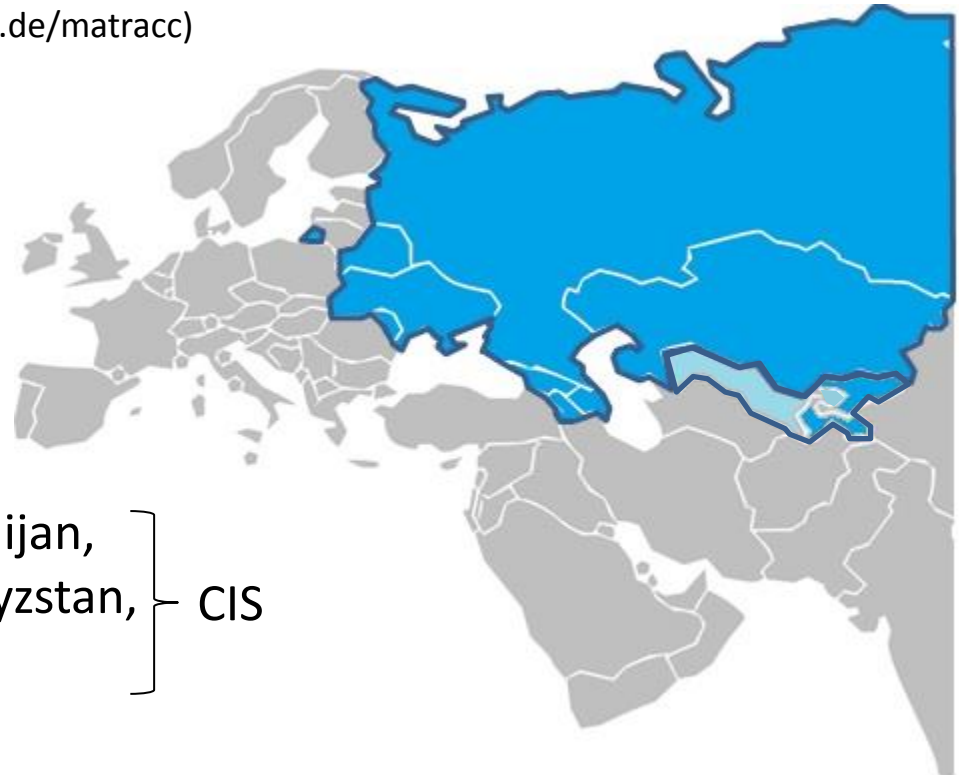
MATRACC

VolkswagenStiftung

(www.projects.iamo.de/matracc)

Countries included in the study:

Moldova, Belarus, Armenia, Azerbaijan,
Russia, Kazakhstan, Tajikistan, Kyrgyzstan,
Uzbekistan, **Georgia, and Ukraine** } CIS



Research background

Trade relations between the EU and selected CIS

(e.g., negotiations about free trade agreements
– Armenia, Georgia, Moldova, and Ukraine);

Regional integration becomes political priority for CIS

(e.g., Eurasian Economic Union);

Extreme agricultural price fluctuations

(e.g., 2007/08, 2010/11, 2012);

Recent geo-political developments

(e.g. Russian agricultural import ban in 2014).

Research aim

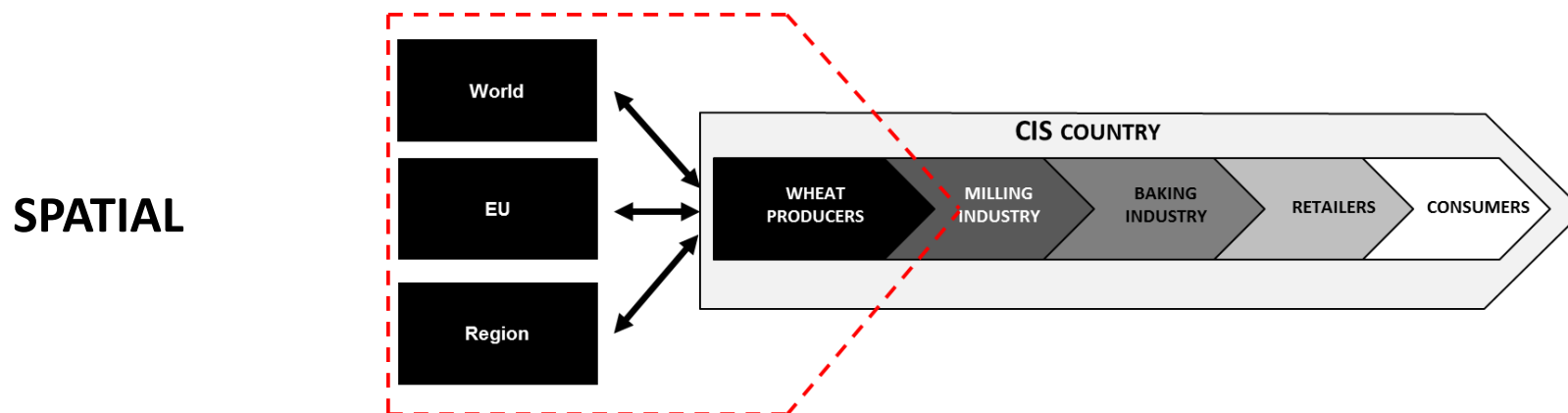
1

To investigate to which extend are the CIS wheat markets integrated on regional and international level;

2

To identify factors affecting CIS wheat market integration.

Price transmission approach



Spatial price transmission

Long run (pass-through of price changes from one market to another – market integration)

No

No market integration

Complete

Indicator of perfect market integration

Short run (speed of adjustment)

Low value

Long period of adjustment (inefficient markets)

High value

Short period of adjustments (efficient markets)

Price transmission models

Vector error-correction model:

$$\Delta p_t = \alpha \beta' p_{t-1} + \sum_{i=1}^{k-1} \Gamma_i \Delta p_{t-i} + \varepsilon_t$$

Autoregressive distributed lag model:

$$\gamma_t = \beta_0 + \beta_1 \gamma_{t-1} + \dots + \beta_k \gamma_{t-p} + \alpha_0 x_t + \alpha_1 x_{t-1} + \dots + \alpha_q x_{t-q} + \varepsilon_t$$

Threshold autoregressive model :

$$\Delta \varepsilon_t = I_t \gamma_1 \varepsilon_{t-1} + (1 - I_t) \gamma_2 \varepsilon_{t-1} + \varphi_t \quad I_t = \begin{cases} 1 & \text{if } \varepsilon_{t-1} \geq \tau \\ 0 & \text{if } \varepsilon_{t-1} \leq \tau \end{cases}$$

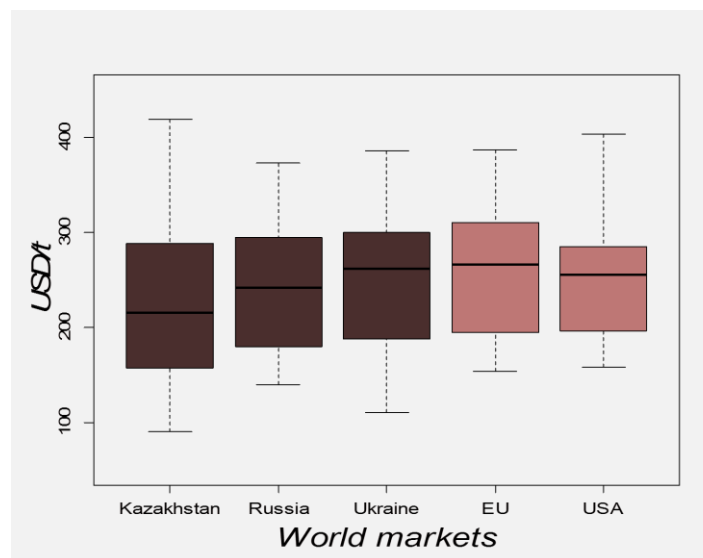
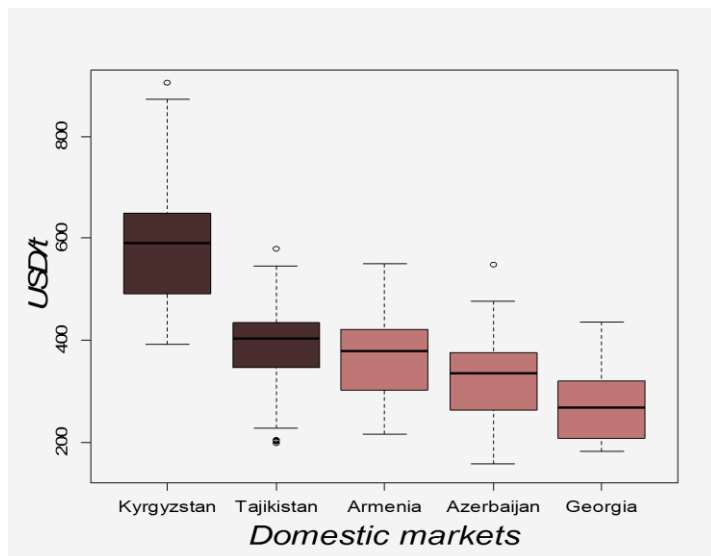
Non-linear regime-dependent model:

$$\gamma_t = \alpha + \gamma_\alpha D_t + \beta x_t + \gamma_\beta D_t x_t + u_t \quad D_t = \begin{cases} 1 & \text{if there is a policy intervention} \\ 0 & \text{if there is no policy intervention} \end{cases}$$

Data

Data sources:

- Statistical offices (CIS);
- State and consulting agencies (EU and international markets);
- AGRICISTRADe country reports (CIS: www.agricistrade.eu);
- Scientific papers and country reports (e.g. FAO, WB, OECD, etc.);
- Expert interviews (CIS).



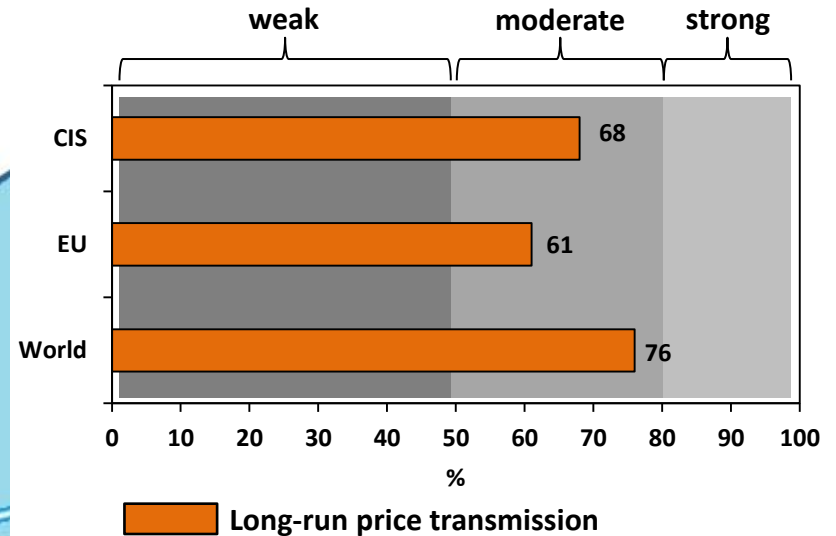
Price transmission results

Regional market integration (among CIS countries)

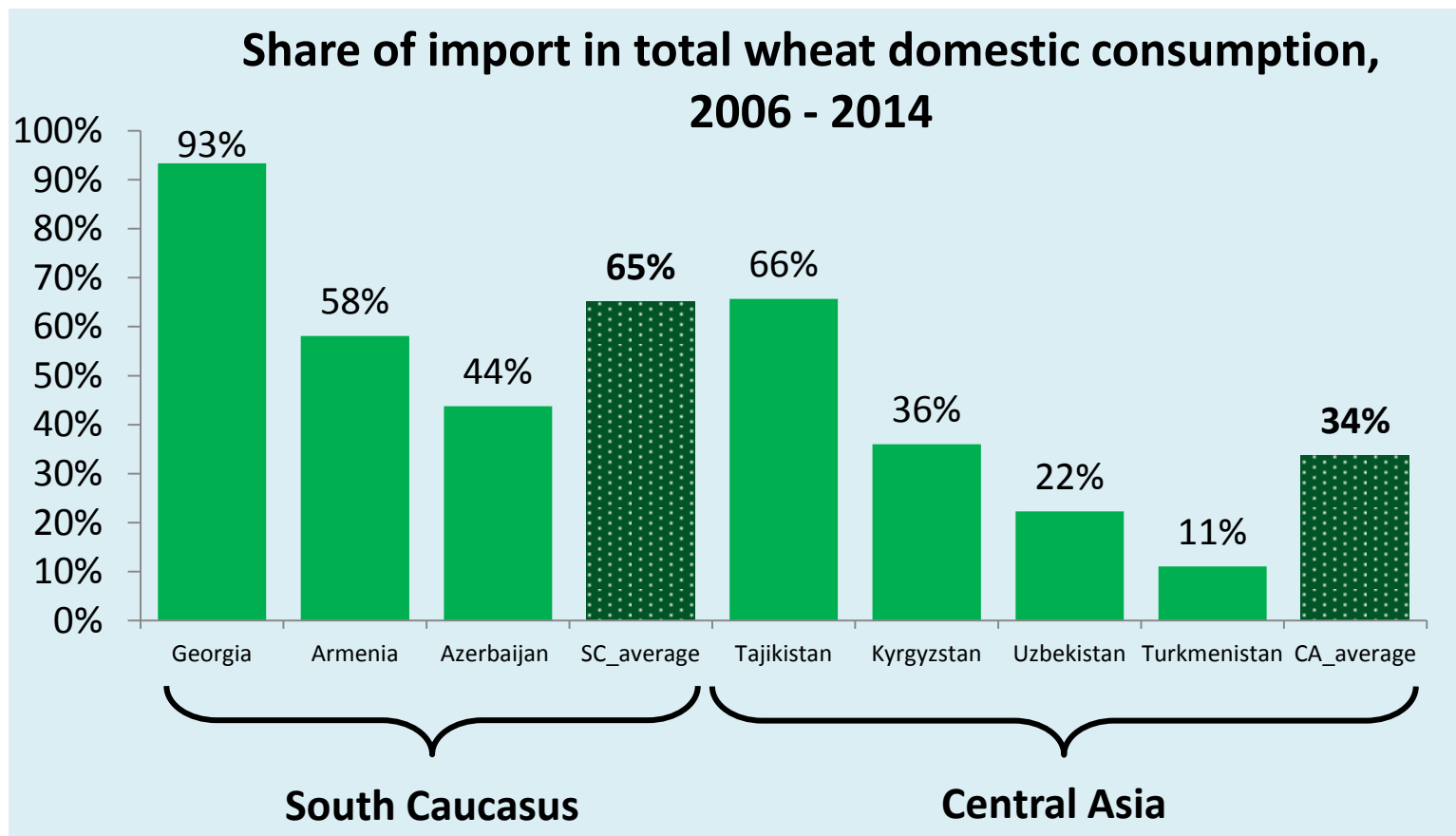


■ strong
 ■ moderate
 ■ weak

Market integration

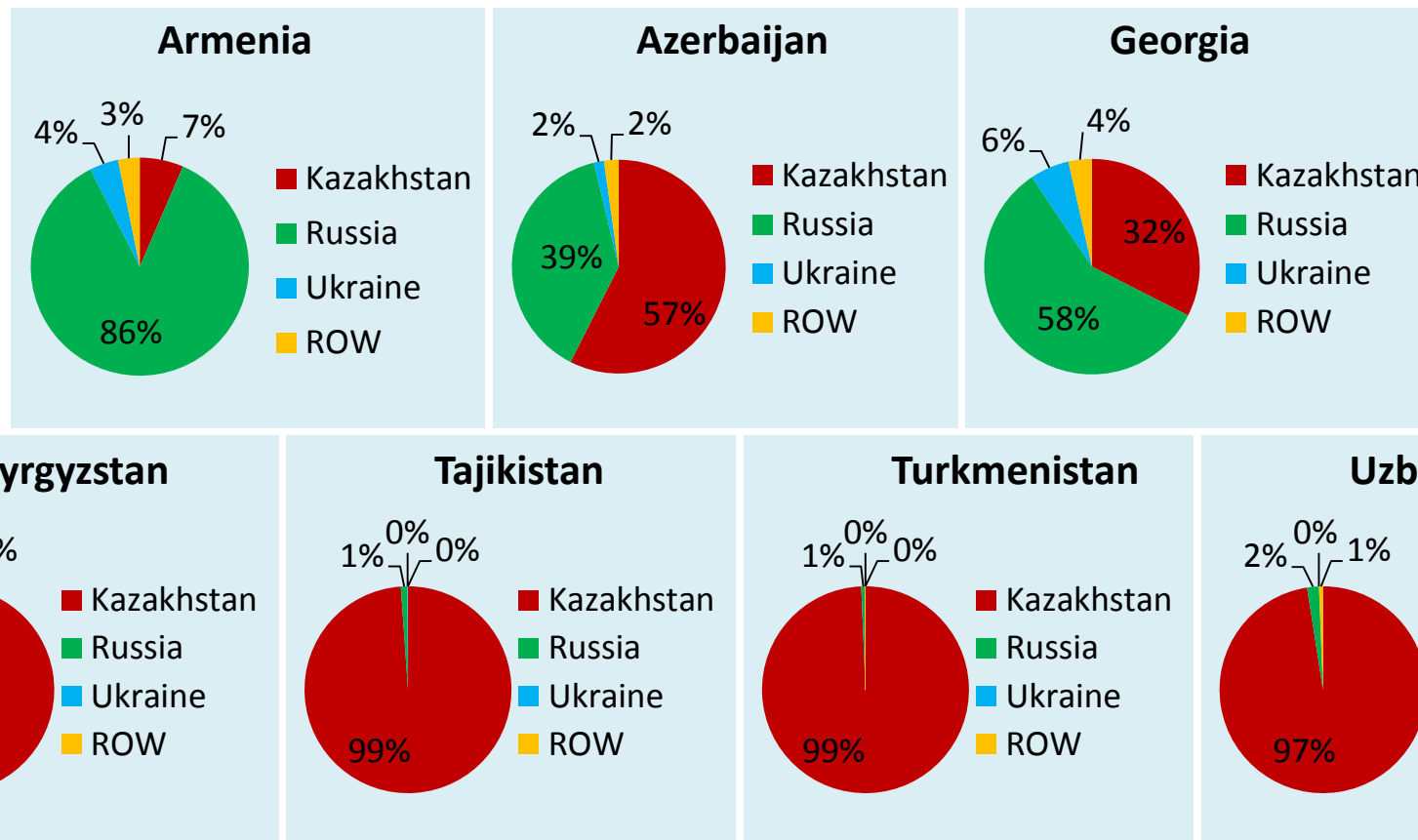


Price transmission results



Source: USDA (2015), own illustration.

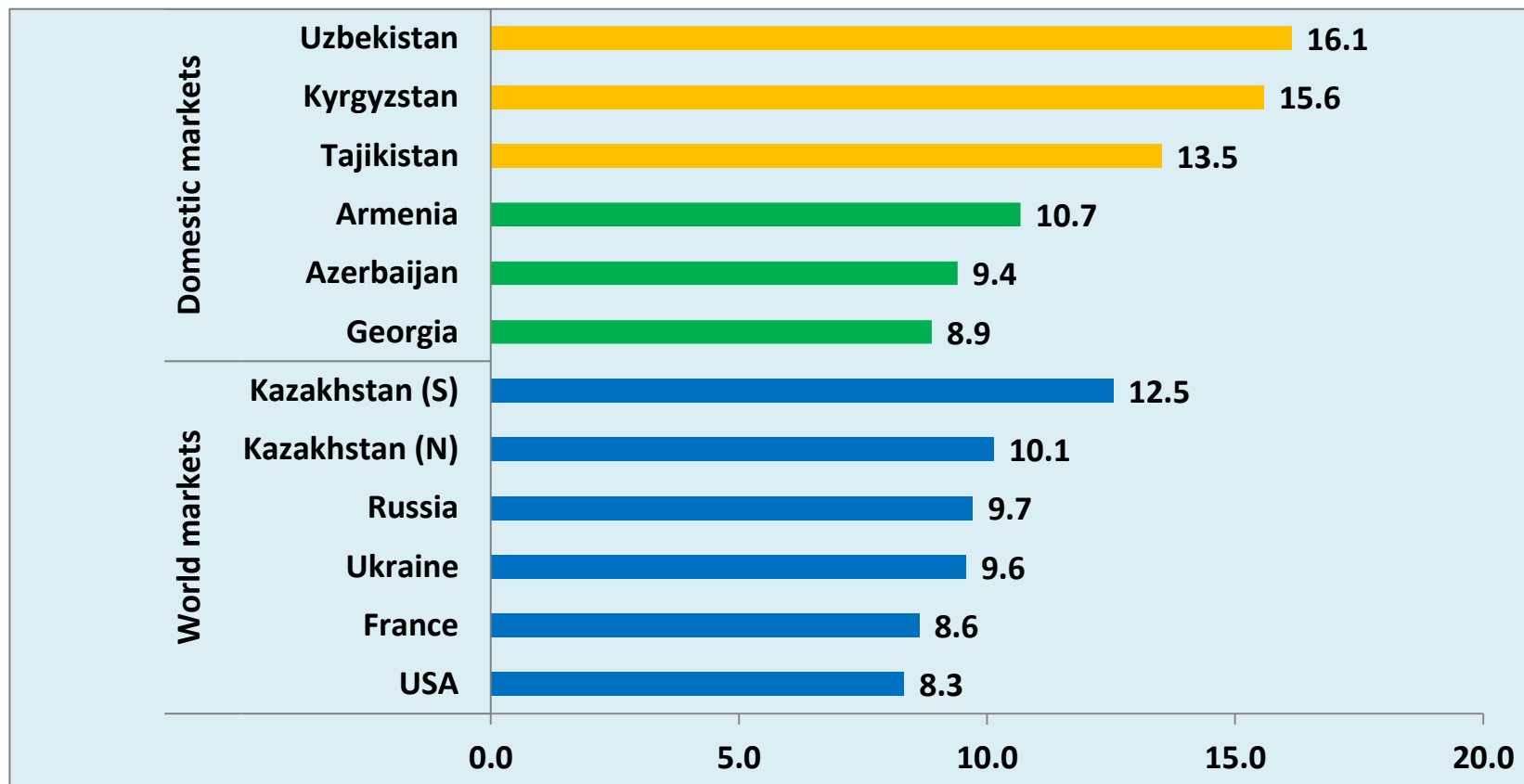
Price transmission results



Source: UN COMTRADE (2015), own illustration.

Price transmission results

Domestic and World markets, 2006-2014



Source: own calculations

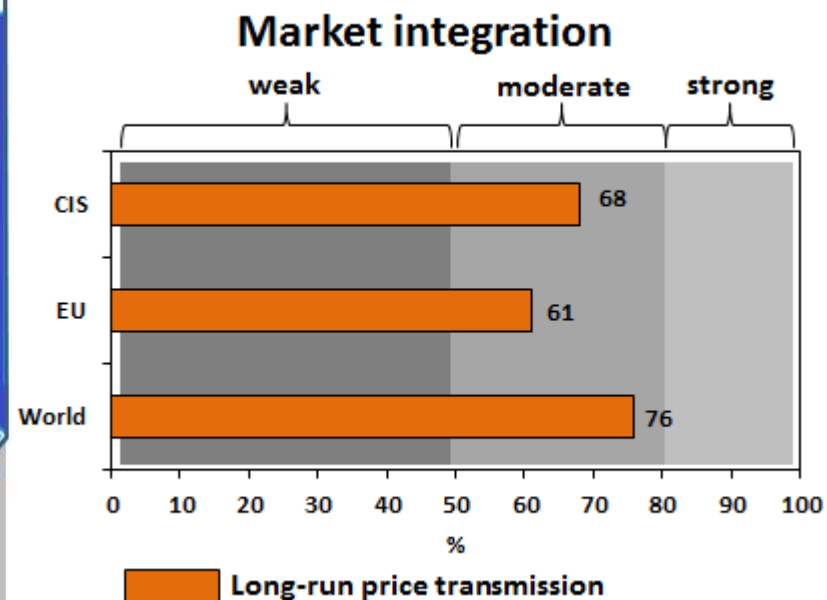
NOTE: Volatility is measured as the standard deviation of returns (the log ratio of prices in month t to prices in month t-1)

Example: Wheat supply chain

CIS-EU market integration



■ strong ■ moderate ■ weak

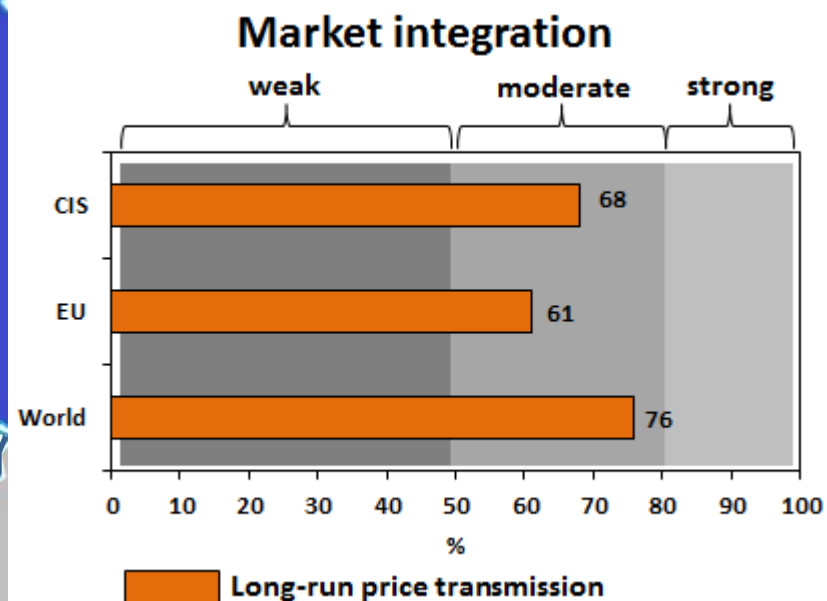


Example: Wheat supply chain

CIS-World market integration



strong
 moderate
 weak



Factors affecting market integration / Conclusions

- **Market support measures**

High level of state support – low integration with international markets (e.g. Belarussian wheat market);

- **Trade-oriented policy measures**

Trade restrictions – low/no market integration (e.g. wheat export restrictions of Russia, Ukraine and Kazakhstan);

- **Physical trade flows**

Higher trade volumes – stronger integration (e.g. Armenia, Azerbaijan and Georgia – regional integration);

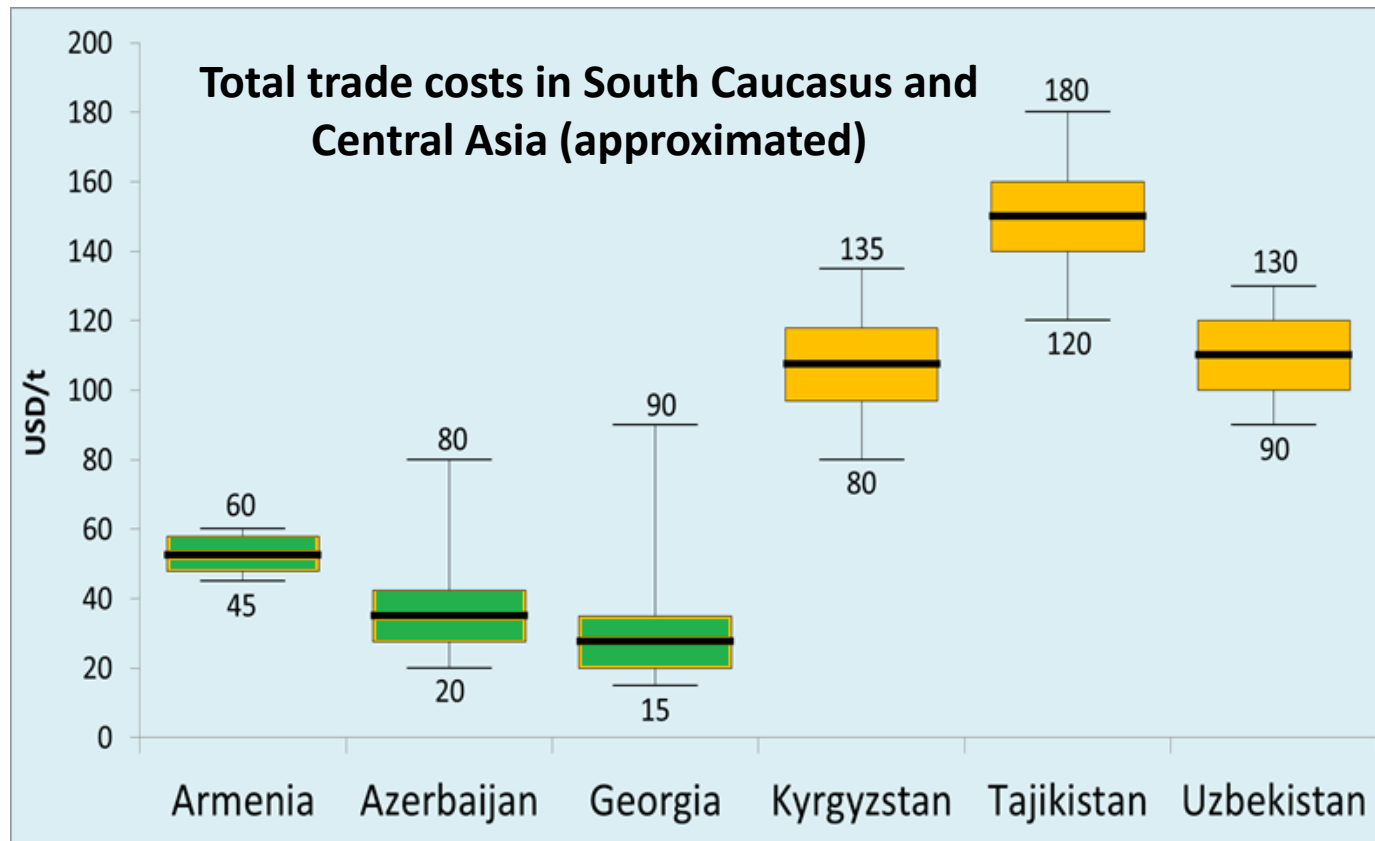
- **Regional economic and political integration**

Less trade barriers – higher market integration (e.g. EU trade agreements and the Eurasian Customs Union).

Factors affecting market integration / Conclusions

- Infrastructure**

Underdeveloped infrastructure – lower market integration
(e.g. high trade costs);



Thank you for your attention !



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