



Food and Agriculture
Organization of the
United Nations

Agricultural policy indicators for selected countries of the Former Soviet Union

Quantifying incentives and disincentives to agriculture in six European and Central Asian countries: Preliminary results

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Presentation outline

- **Overview of the FAO pilot study**
- **Methodology**
- **Preliminary results:**
 - agricultural price incentives/disincentives (policy indicator: NRP)
 - budgetary & other transfers to agriculture
- **Discussion**
- **Conclusions and recommendations**

Overview of FAO pilot study on agricultural policy indicators

- **Key aim:** to calculate agricultural policy indicators for 6 Former Soviet Union countries based on FAO MAFAP methodology (2015); to establish systematic monitoring of agricultural policy distortions in the region in order to support evidence-based policy
- **Analyzed countries:** Armenia, Azerbaijan, Belarus, Georgia, Kyrgyz Republic and Moldova
- **Continuation of AGRICISTRADe (Volk et al., 2014 and 2015) efforts/network:** for 5 partner countries; KY new, AZ new partner
- **Pilot study financed by:** Food and Agriculture Organization of the United Nations (FAO)
- **Duration: 11 months** (December 2017 – November 2018)

International team and national experts

International team:

- **Andrea Zimmermann** (responsible officer on behalf of FAO), **Ekaterina Krivonos** (Food and Agriculture Organization of the United Nations - FAO), in collab. with **Signe Nelgen**
- **Maja Kožar, Marjeta Pintar, Sara Bele** (Agricultural Institute of Slovenia – pilot study leader)
- **Emil Erjavec** (University of Ljubljana, Biotechnical Faculty)

National experts:

- **Armenia (AM): Vardan Urutyan** (International Center for Agribusiness Research and Education Foundation)
- **Azerbaijan (AZ): Rashad Huseynov** (Khazar University)
- **Belarus (BY): Vasilina Akhramovich** (FAO national correspondent for Belarus)
- **Georgia (GE): Ketevan Gachechiladze, Natali Kldiashvili** (The Fund "Georgian Center for Agribusiness Development")
- **Kyrgyz Republic (KY): Roman Mogilevskii, Zalina Enikeeva** (University of Central Asia in Kyrgyzstan)
- **Moldova (MD): Eugenia Lucasenco** (National Institute for Economic Research)

Methodology: Introduction

- **Key aim:** Estimate indicators measuring price and market (dis)incentives that affect agricultural sector; for key commodities in analyzed countries
- **Agricultural policy indicators to be calculated:**
 - **Nominal rate of protection (NRP)** – observed, at farm gate only!
 - **Nominal rate of assistance (NRA)** – observed, at farm gate only!
- **NRP: domestic-to-border-price ratio; gap between (possibly) distorted domestic price and undistorted reference price** (without influence of domestic policies or markets):

$$NRP_{ofg} = \frac{P_{fg} - RP_{ofg}}{RP_{ofg}} * 100$$

P_{fg} = observed domestic price at farm gate
 RP_{ofg} = observed reference price at farm gate

- **NRA:** extension of NRP by including commodity specific public expenditures (budgetary and other support - BOT)

$$NRA_o = \frac{(P_{fg} - RP_{ofg}) + BOT}{RP_{ofg}} * 100$$

Methodology: Data required to calculate NRPs and NRAs

By key commodities, national level, by individual years in period 2005-2016:

- **Trade status and trade intensity** (foreign trade data)
- **Benchmark prices:** prices at a border of a country
- **Domestic prices:** at farm gate level (producer prices) and at point of competition (wholesale level)
- **Exchange rates**
- **Market access costs:** from border to point of competition and from farm gate to point of competition
- **Budgetary and other transfers (BOT) to agriculture**
- **Quality and quantity adjustment parameters:** for production and foreign trade
- **Additionally:** Description of key value chains and processing

Methodology: Steps

1. **Selection of key commodities:** commodities that cumulatively account for at least 70% of value of production (à priori analysis of FAO-STAT data)
2. **Determining unit import/export values as observed benchmark prices:** analysis of trade data (trade status, trade intensity) – based on aggregate HS codes
3. **Consideration of observed access costs and adjustment factors by quantity:** for calculating observed reference prices at farm gate
4. **Determining alternative reference prices at farm gate** in case unit export/import value were not used as observed benchmark price (reasons: level of unit values calculated not realistic for the region in the analyzed period etc.)
5. **Alternative reference prices used (20/45 cases):**
 - **Observed domestic price** at f. g., in case average trade intensity in period <2% (NRP=0.0); non-tradable commodities (e.g. potatoes)
 - **OECD reference prices at farm gate** (EU28, RF, TUR, UA)
 - **Moldovan observed reference price at f. g.** (grapes: AM, GE)

- 6 countries
- 14 different commodities
- 6-8 commodities/country
- Altogether: **45 commodity cases!**

	Armenia	Azerbaijan	Belarus	Georgia	Kyrgyzstan	Moldova
Crops:						
	Wheat	Wheat	Wheat		Wheat	Wheat
			Maize	Maize		Maize
					Beans	
	Potatoes	Potatoes	Potatoes	Potatoes	Potatoes	Potatoes
						Sunflower
	Tomatoes	Tomatoes				
		Hazelnuts		Hazelnuts		
	Grapes			Grapes		Grapes
Livestock:						
	Cattle meat	Cattle meat	Cattle meat	Cattle meat	Cattle meat	
	Pigmeat		Pigmeat			Pigmeat
					Sheep meat	
		Chicken meat	Chicken meat			Chicken meat
	Cow's milk	Cow's milk	Cow's milk	Cow's milk	Cow's milk	Cow's milk
	Eggs	Eggs	Eggs	Eggs		
Total:	8	8	8	7	6	8

	Armenia	Azerbaijan	Belarus	Georgia	Kyrgyzstan	Moldova
Crops:						
Wheat	Wheat	Wheat	Wheat		Wheat	Wheat
Maize			Maize; OECD Ukraine	Maize		Maize
Beans					Beans	
Potatoes	Potatoes; domestic price at f. g.=reference price at f. g.*	Potatoes; OECD Russian Federation**	Potatoes; domestic price at f. g.=reference price at f. g.*	Potatoes; OECD Turkey	Potatoes	Potatoes
Sunflower						Sunflower
Tomatoes	Tomatoes; domestic price at f. g.=reference price at f. g.*	Tomatoes				
Hazelnuts		Hazelnuts		Hazelnuts		
Grapes	Grapes; Moldovan reference price at farm gate			Grapes; Moldovan reference price at farm gate		Grapes
Livestock:						
Cattle meat (beef and veal)	Cattle meat	Cattle meat	Cattle meat	Cattle meat	Cattle meat	
Pig meat	Pigmeat		Pigmeat			Pig meat; OECD EU28
Sheep meat					Sheep meat; domestic price at f. g.=reference price at f. g.*	
Chicken meat (Poultry meat)		Chicken meat; OECD Russian Federation	Chicken meat			Chicken meat; OECD Russian Federation
Cow's milk	Cow's milk	Cow's milk; OECD Ukraine	Cow's milk; OECD Ukraine	Cow's milk; OECD Ukraine	Cow's milk; OECD Ukraine	Cow's milk; OECD Ukraine
Eggs	Eggs; domestic price at f. g.=reference price at f. g.*	Eggs; OECD Turkey	Eggs	Eggs; OECD Turkey		
Total no. of key commodities:	8	8	8	7	6	8

* Average trade intensity for 2005-2016 below 2%; observed domestic price at farm gate is used for observed reference price at farm gate (NRP=0.0)

** OECD prices: Reference prices at farm gate (Source: <http://www.oecd.org/agriculture/agricultural-policies/producerandconsumersupportestimatesdatabase.htm>)

*** Moldovan observed reference price at farm gate

Methodology: Steps – cont.

- Budget compilation and classification:** as per OECD PSE/CSE classification scheme (same as in AGRICISTRADe approach; Erjavec et al., 2017)

Basic OECD PSE/CSE classification scheme (OECD, 2010) of budgetary support (explicit and implicit budgetary transfers):

- Budgetary transfers to producers (PSE BOT)
- Budgetary transfers to general services (GSSE BOT) and
- Budgetary transfers to consumers (CSE BOT)
- Total budgetary and other transfers (Total BOT): $a) + b) + c)$

- Allocation of public expenditures to key commodities:** only directly commodity attributable public expenditure considered in this pilot study
- Calculation of policy indicators as per MAFAP: NRPs, NRAs**

Preliminary results

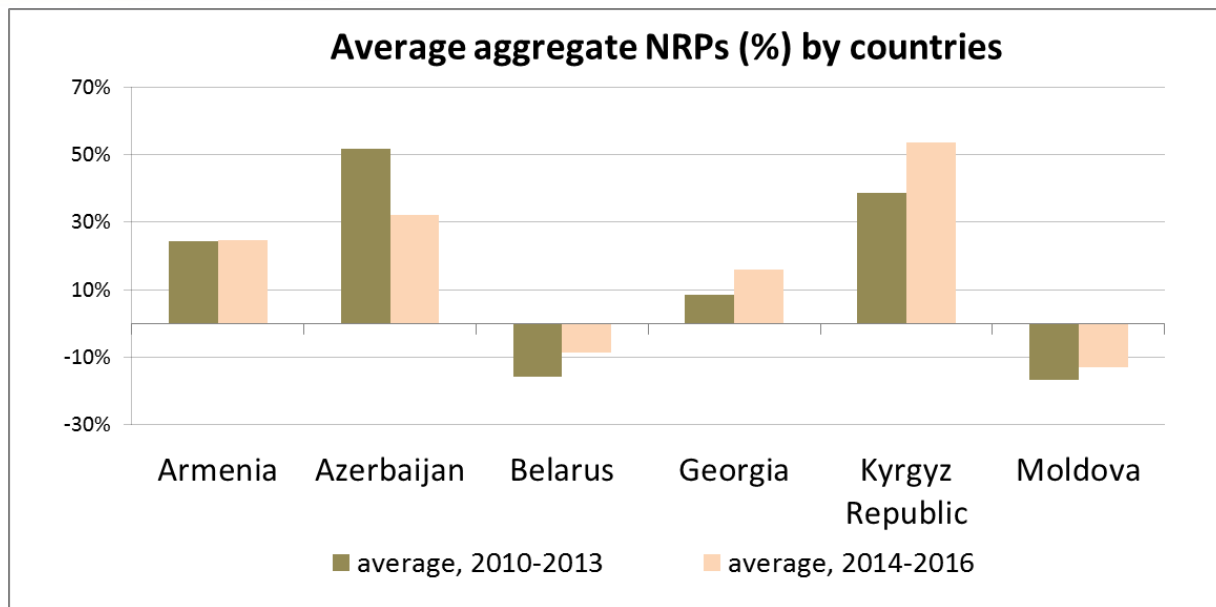
- **This is a pilot study and preliminary results: caution needed when interpreting the exact values!**
- Nevertheless, main characteristics of markets and policies, as well as trends can be evaluated!

Preliminary results shown today:

- **NRPs:**
 - **cross-country:** aggregate NRPs for all countries (average 2010-2013 vs. 2014-2016)
 - **country level:** aggregate NRPs by years (aggregated for all analyzed key commodities in a country – representativeness!) and NRPs and NRAs by key commodities analyzed
- **Budgetary and other transfers**

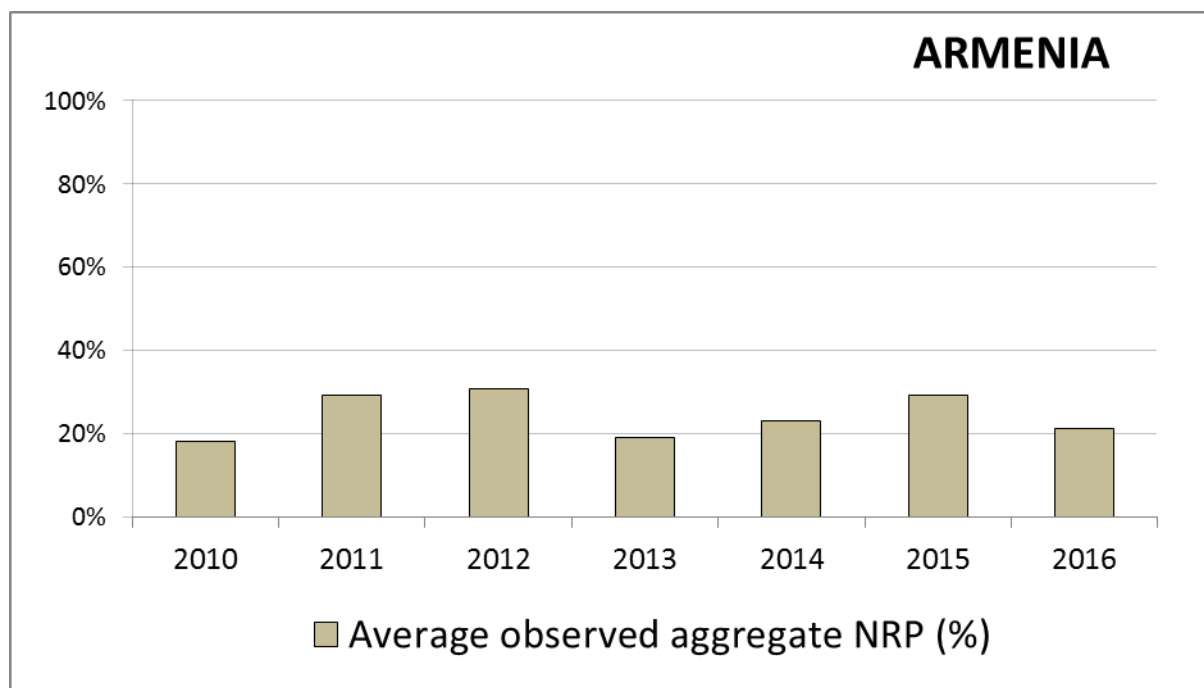
Preliminary results: Aggregate NRPs by countries

$$NRP_g = \frac{\sum_{i=1}^n NRP_i * PROD_i * RP_{fgi}}{\sum_{i=1}^n PROD_i * RP_{fgi}}$$



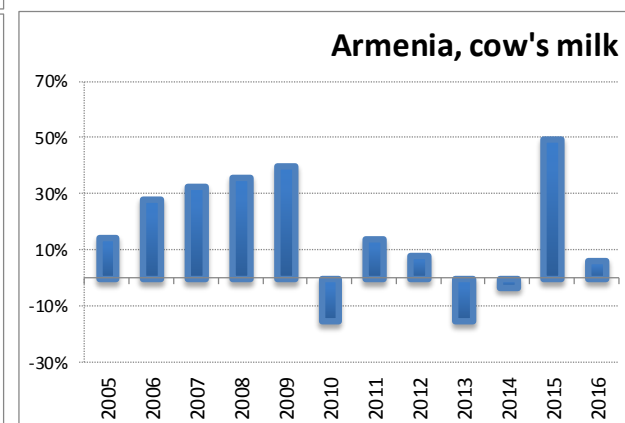
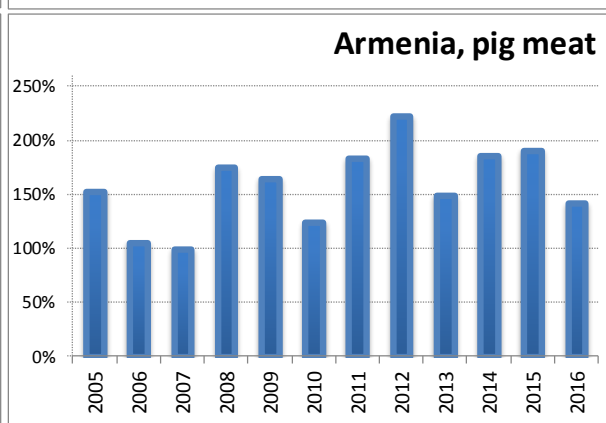
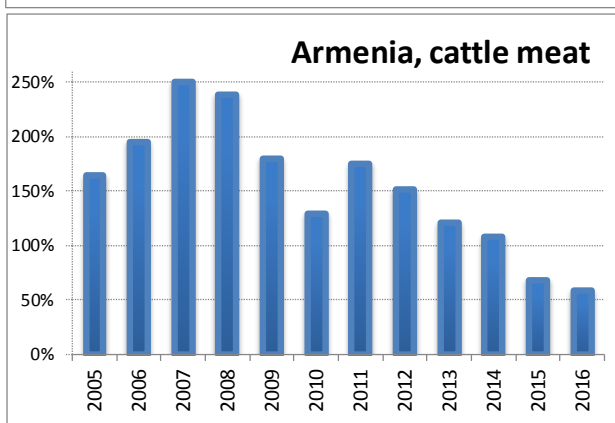
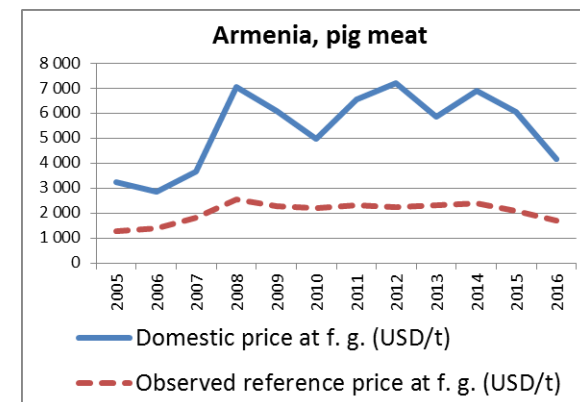
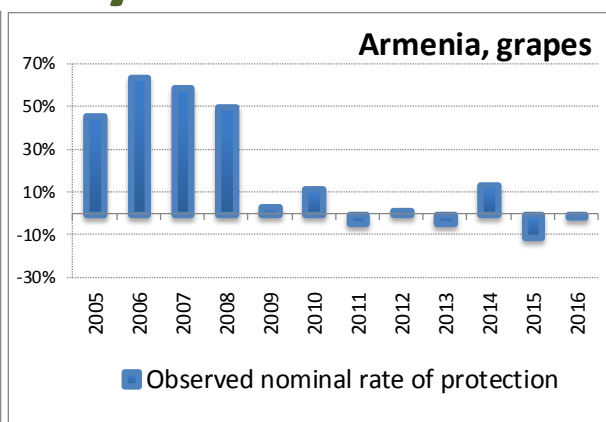
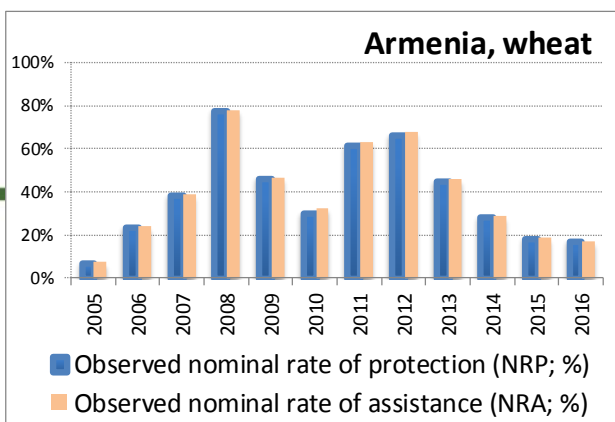
- **Agricultural price incentives** (positive aggregate NRPs): AZ & KY
- **Modest price incentives** (moderately positive NRPs): AM & GE
- **Price disincentives** (negative aggregate NRPs): BY & MD
- **Representativeness of analyzed key commodities:** 45-68 % of VOP (average range for 2005-2016; AM: 2008-2016)

Armenia: Aggregate NRPs; 2010-2016



- **Positive aggregate NRPs:** modest price incentives for agricultural producers
- But problem of low representativeness of commodities, data (producer prices)

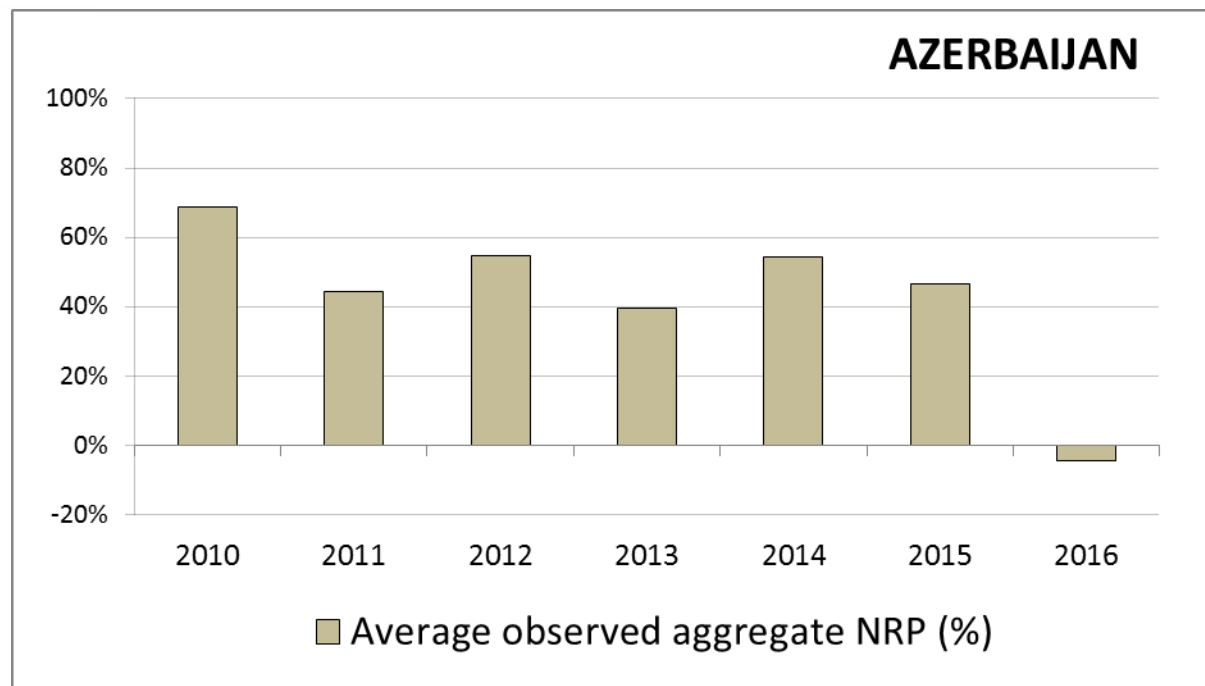
Armenia: NRPs by commodities



FOR DISCUSSION:

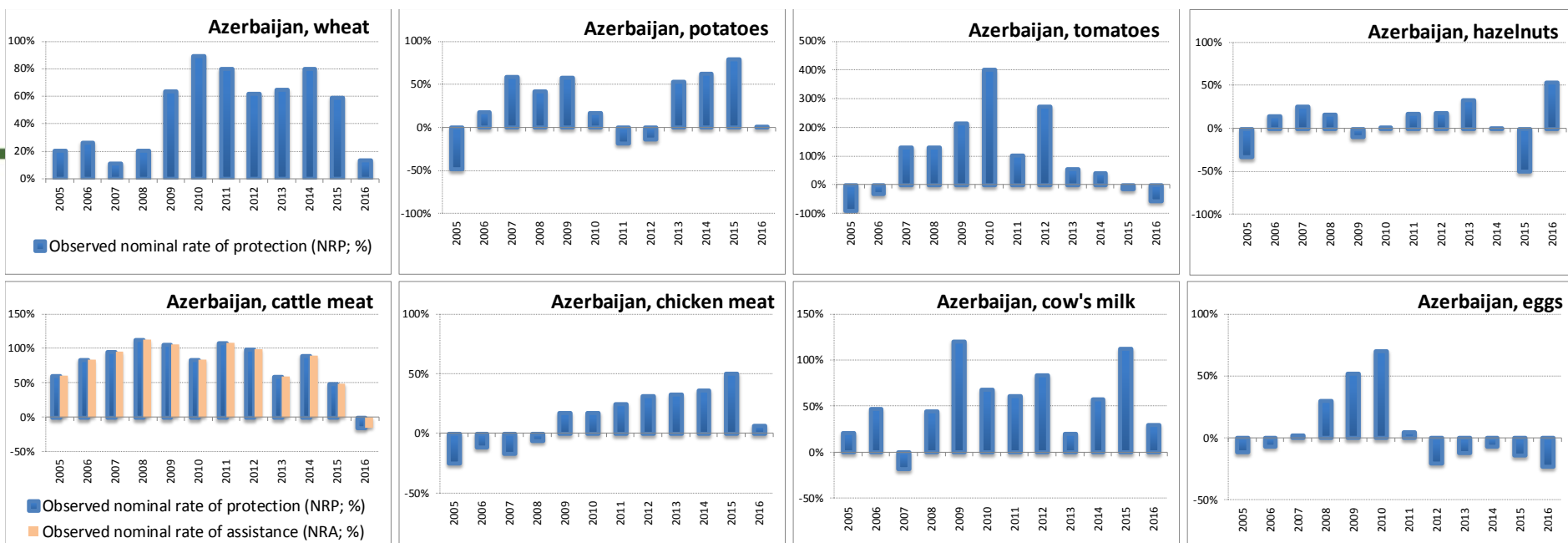
- 1) Does fairly liberal market situation (no incentives/disincentives) contribute to the increase in productivity and competitiveness of agriculture, taking into account prevailing subsistence farming and fragmented land structure?
- 2) Pig meat: fairly high level of domestic prices?

Azerbaijan: Aggregate NRPs; 2010-2016



- Except last year **very strong price incentives** for agric. producers in AZ
- **Possible reasons:** subsistence farming, influence of purchasing power, relatively closed market
- Data problem

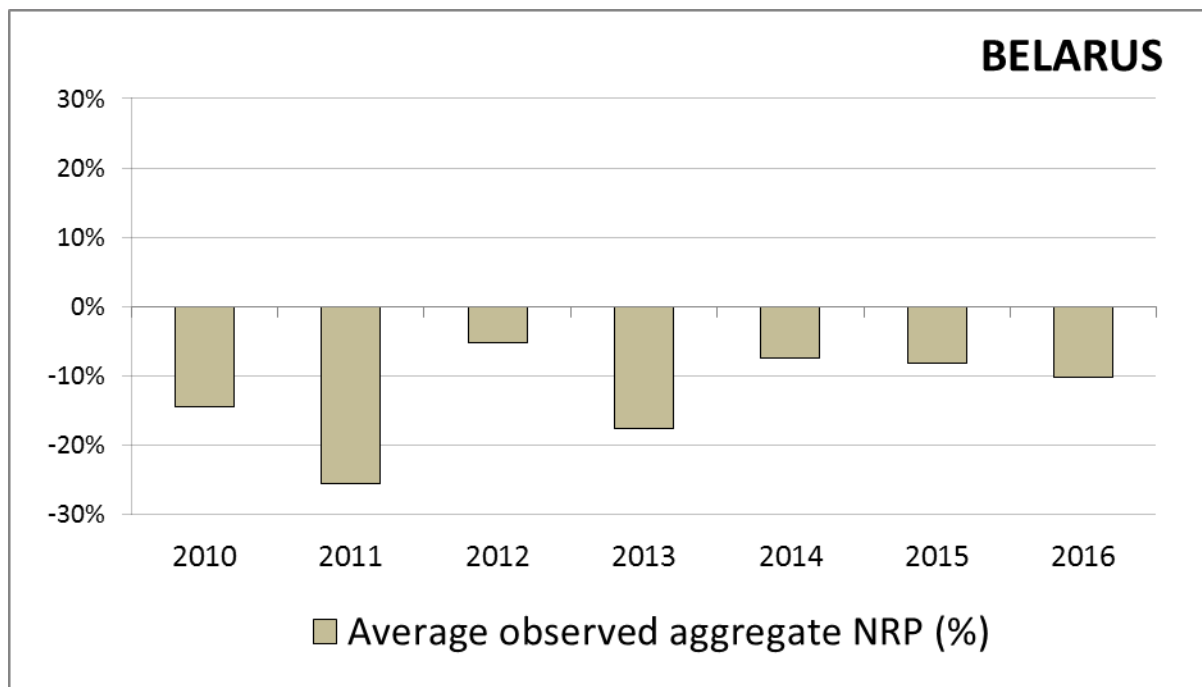
Azerbaijan: NRPs by commodities



FOR DISCUSSION:

- 1) Tomatoes: market after 2014?
- 2) Chicken meat: current situation in the market?
- 3) Hazelnuts: market after 2013?

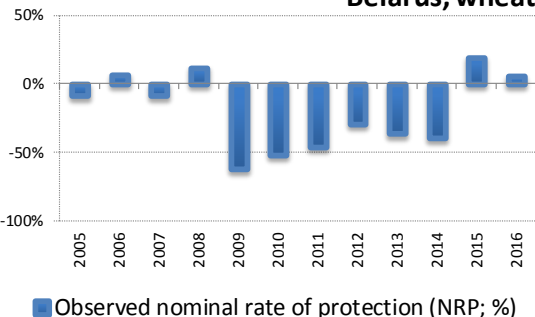
Belarus: Aggregate NRPs; 2010-2016



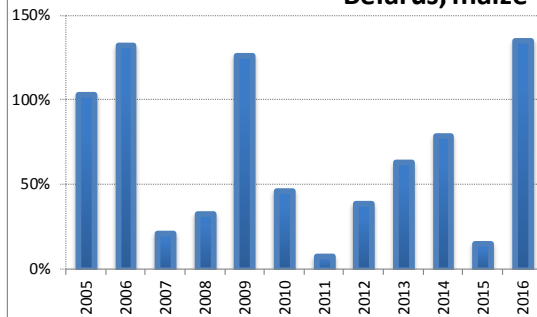
- **Price disincentives:** Aggregate NRPs typically negative
- **Possible reasons:** terms of trade, competitiveness in reality, domestic policies (monetary, agricultural, trade etc.)

Belarus: NRPs by commodities

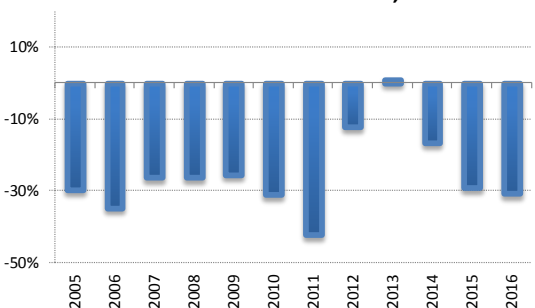
Belarus, wheat



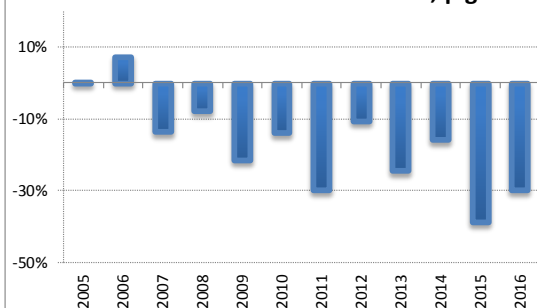
Belarus, maize



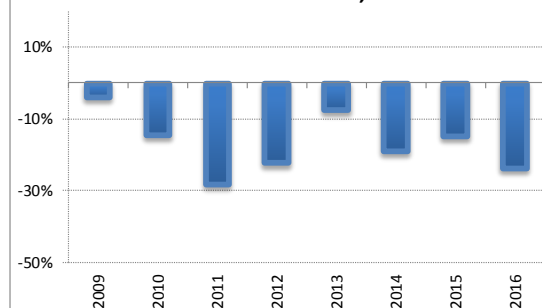
Belarus, cattle meat



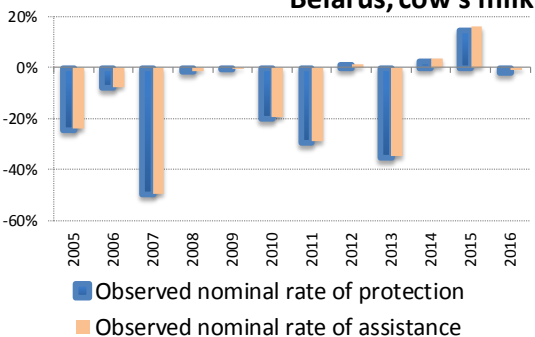
Belarus, pig meat



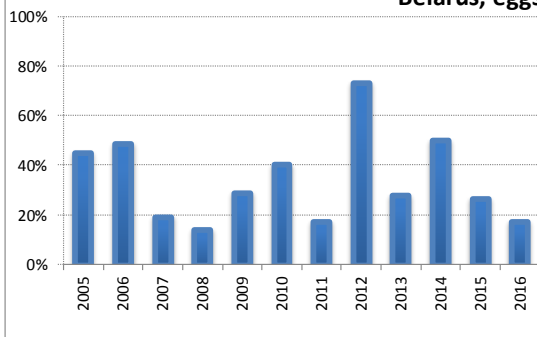
Belarus, chicken meat



Belarus, cow's milk



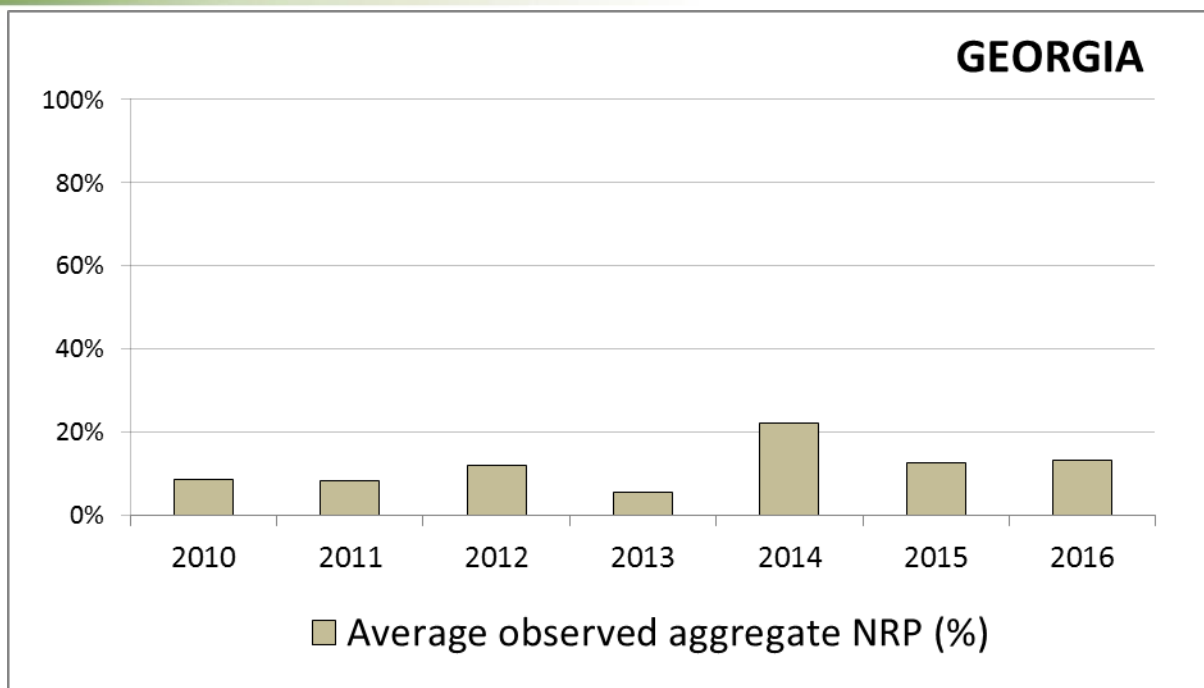
Belarus, eggs



FOR DISCUSSION:

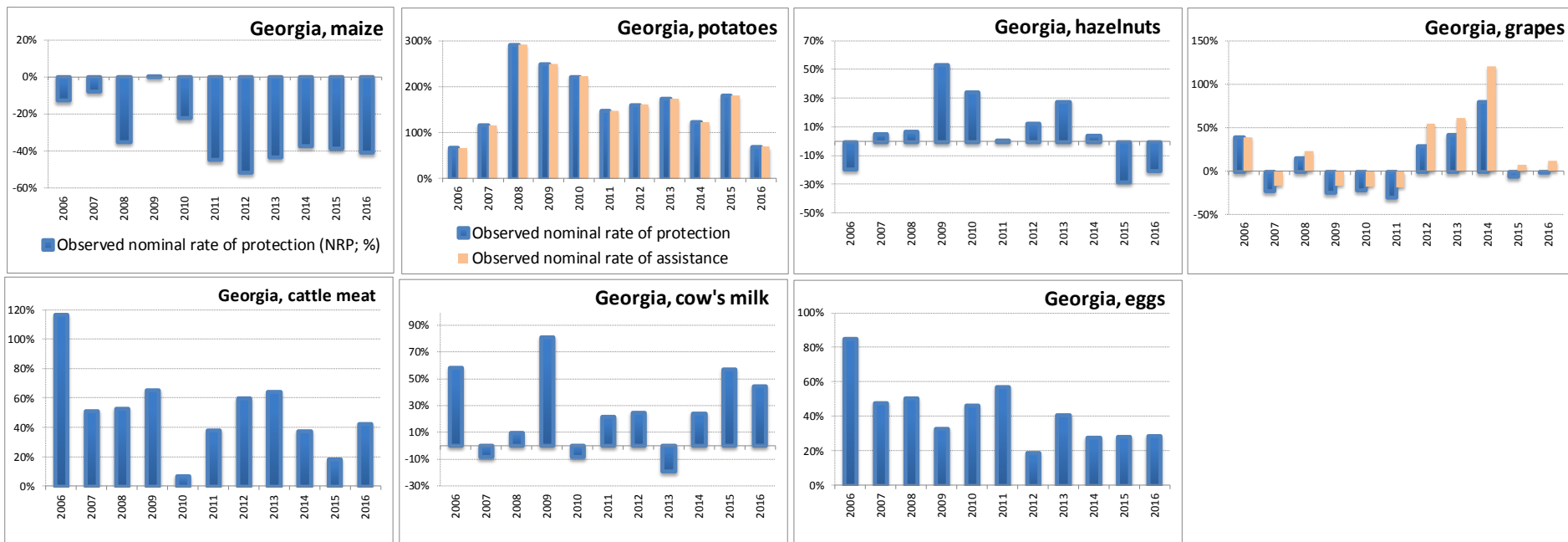
- 1) Price disincentives for most analyzed commodities: possible reasons: e.g. policies – monetary, agricultural?
- 2) Differences in the incentives / disincentives by different commodities (e.g. potatoes & eggs vs. milk & wheat): possible reasons: different levels of productivity or export orientation of specific commodity groups?

Georgia: Aggregate NRPs; 2010-2016



- **Very modest price incentives**, less than AM
- Implies more liberal markets with (analyzed) agricultural commodities, no special incentives for producers
- Commodity representativeness problematic, even more than in AM (fragmented production – many commodities)

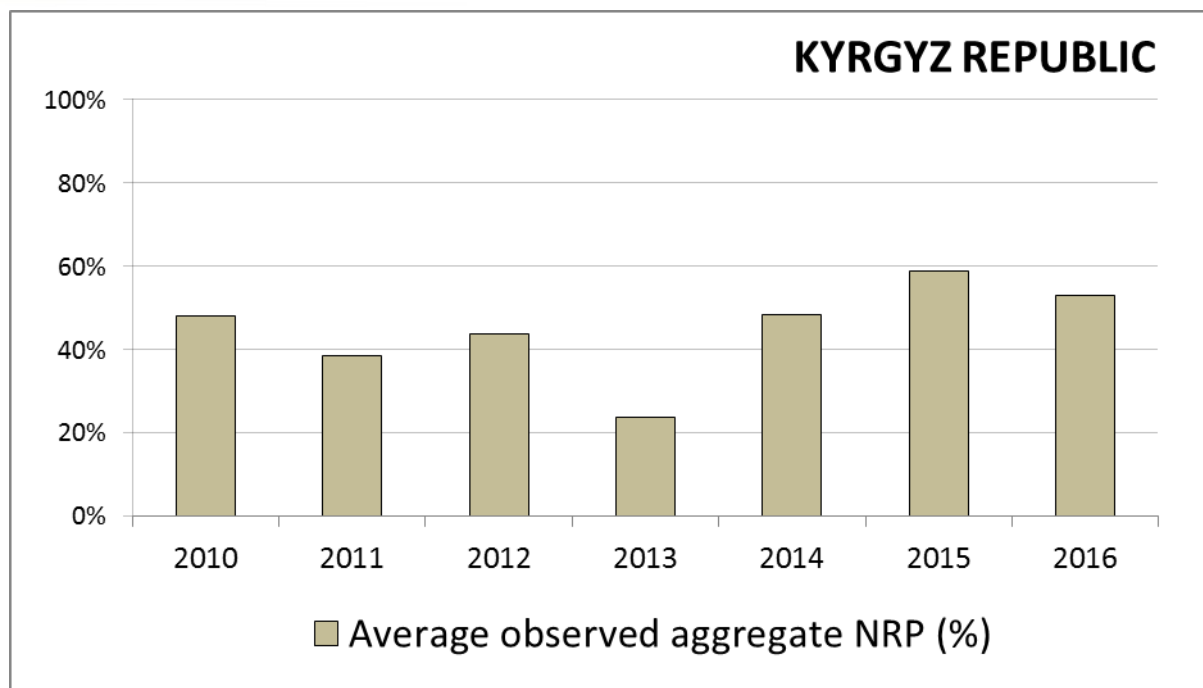
Georgia: NRPs by commodities



FOR DISCUSSION:

- 1) Does fairly liberal market situation (no incentives/disincentives) contribute to the increase in productivity and competitiveness of agriculture, taking into account prevailing subsistence farming and fragmented land structure?
- 2) Hazelnuts: situation in this market after 2013?

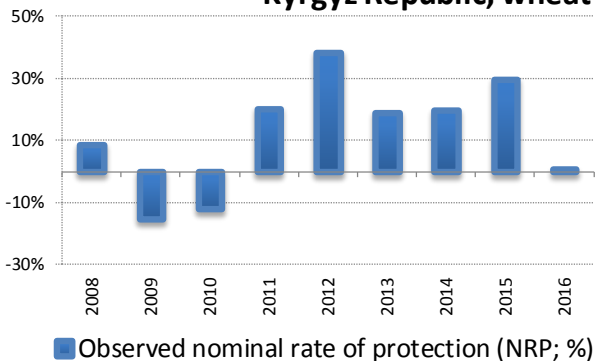
Kyrgyz Republic: Aggregate NRPs; 2010-2016



- **Price incentives fairly high: NRPs markedly positive**
- **Possible reasons (assumptions only!):** closed economy, subsistence farming, sales on local markets prevailing, influences of policies probably not very pronounced etc.
- **Additional research needed**

Kyrgyz Republic: NRPs by commodities

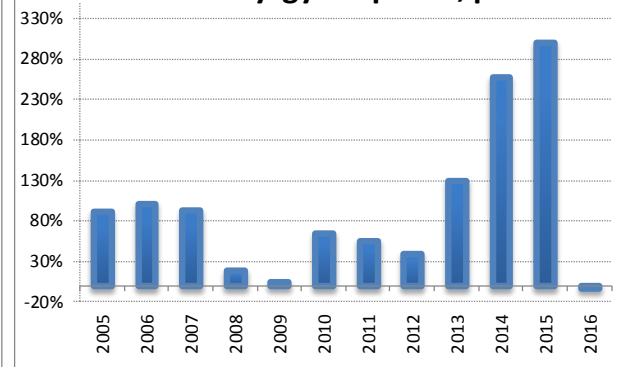
Kyrgyz Republic, wheat



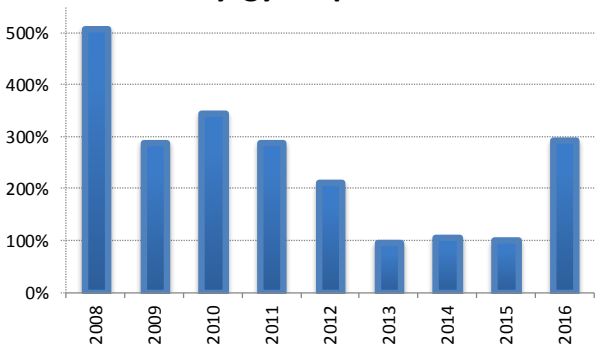
Kyrgyz Republic, beans



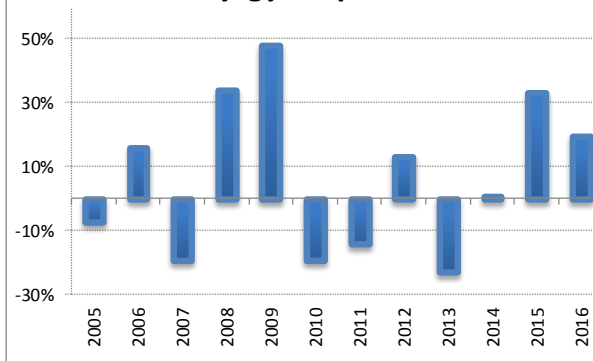
Kyrgyz Republic, potatoes



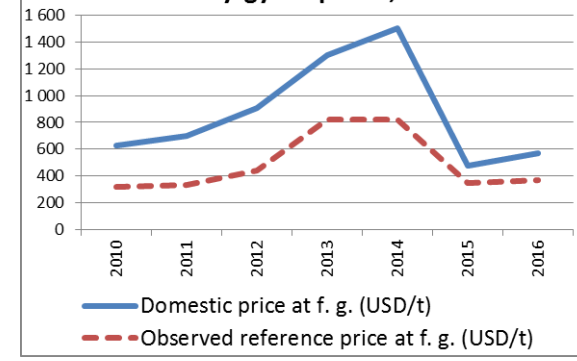
Kyrgyz Republic, cattle meat



Kyrgyz Republic, cow's milk



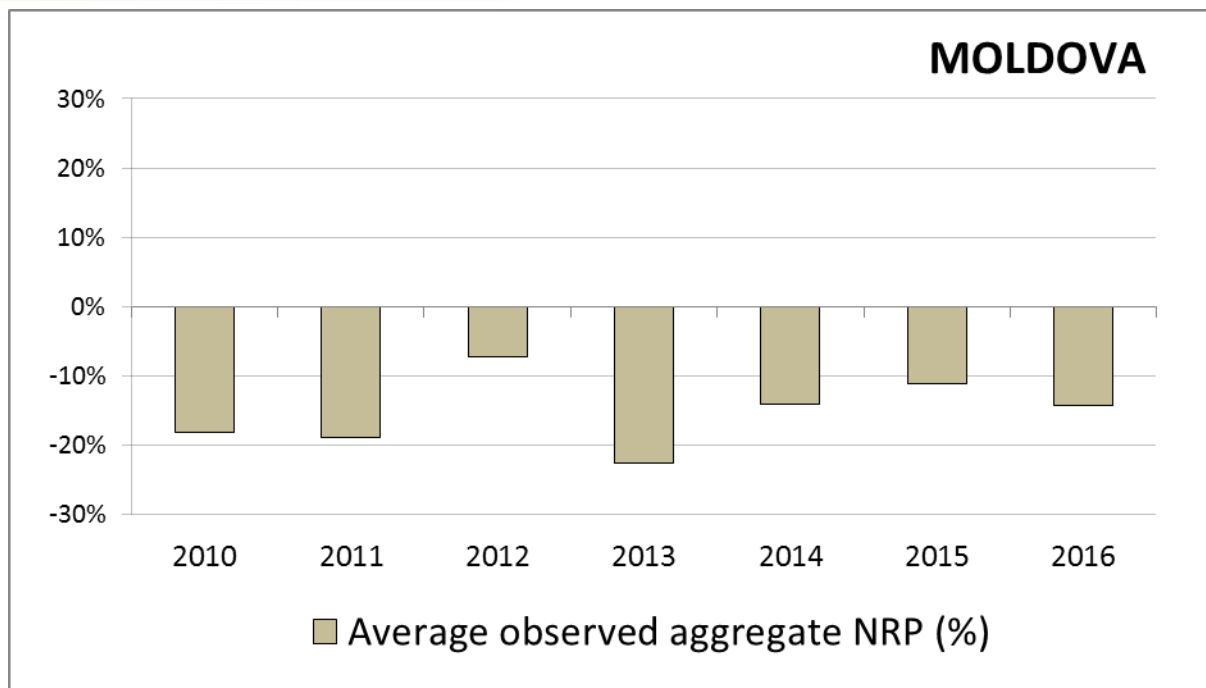
Kyrgyz Republic, beans



FOR DISCUSSION:

- 1) Which commodities will be in policy focus in the near future?
- 2) Beans: do presented results show the real picture? Development of domestic prices in 2013 and 2014?

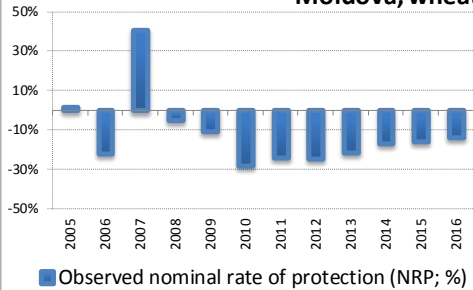
Moldova: Aggregate NRPs; 2010-2016



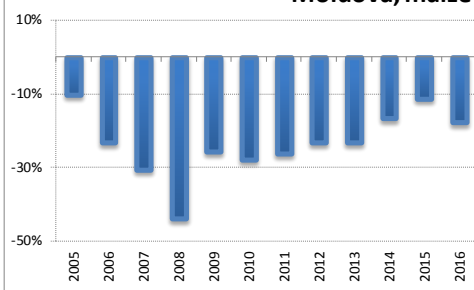
- **Price disincentives:** negative NRPs, most pronounced among the analyzed countries (most years)
- **Possible reasons:** asymmetrical distribution of market power, export orientation to very competitive markets, low cost agriculture etc.
- **Additional research needed**

Moldova: NRPs by commodities

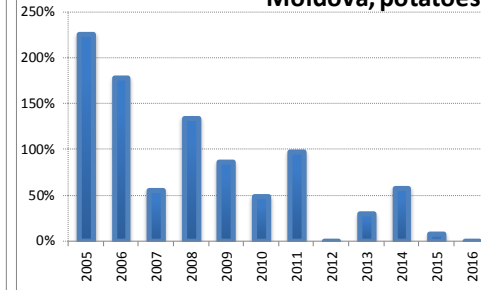
Moldova, wheat



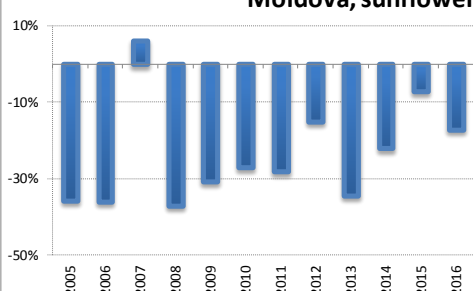
Moldova, maize



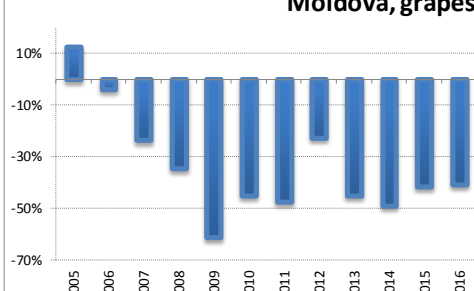
Moldova, potatoes



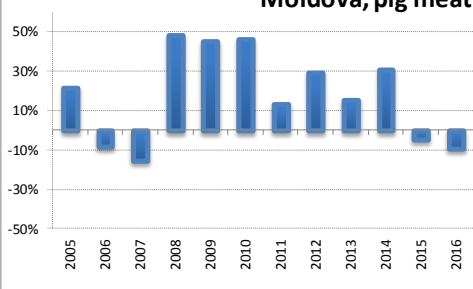
Moldova, sunflower



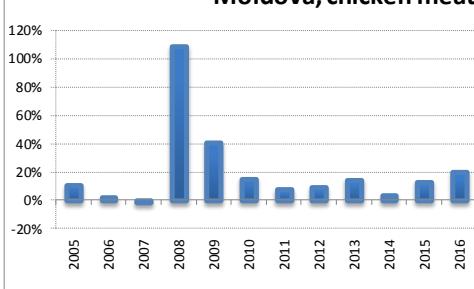
Moldova, grapes



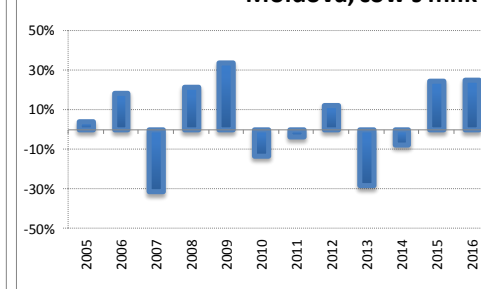
Moldova, pig meat



Moldova, chicken meat



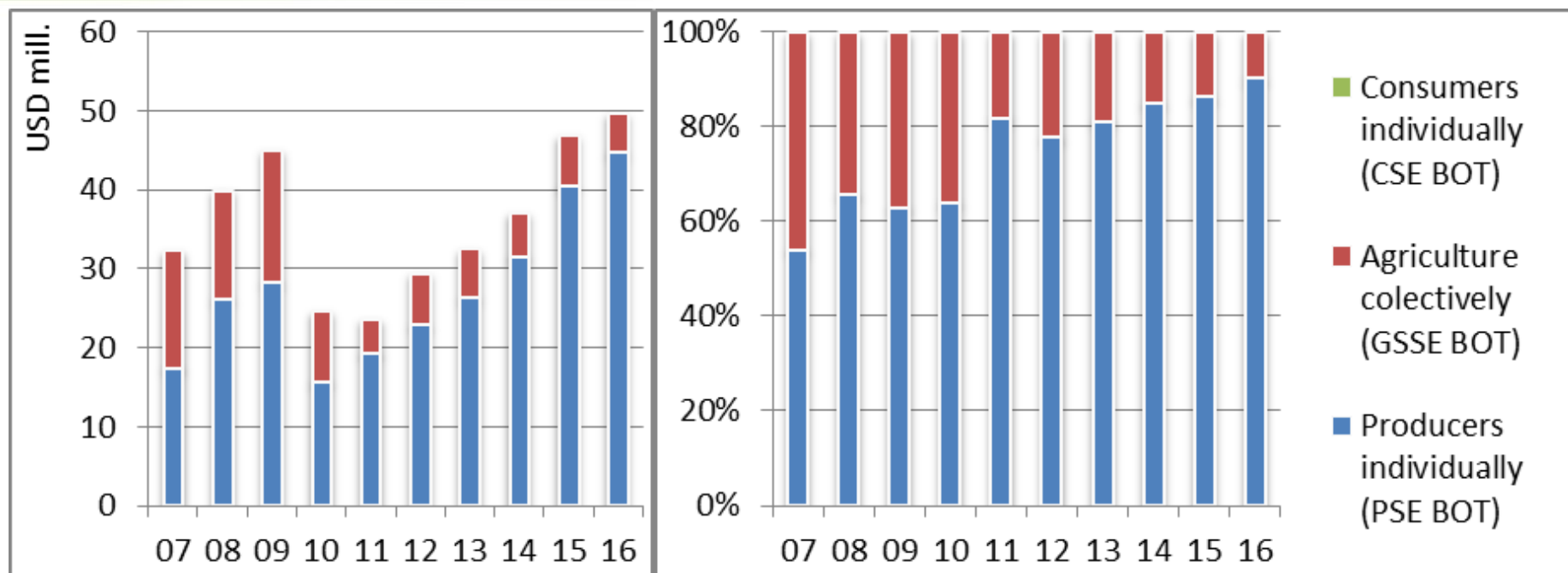
Moldova, cow's milk



FOR DISCUSSION:

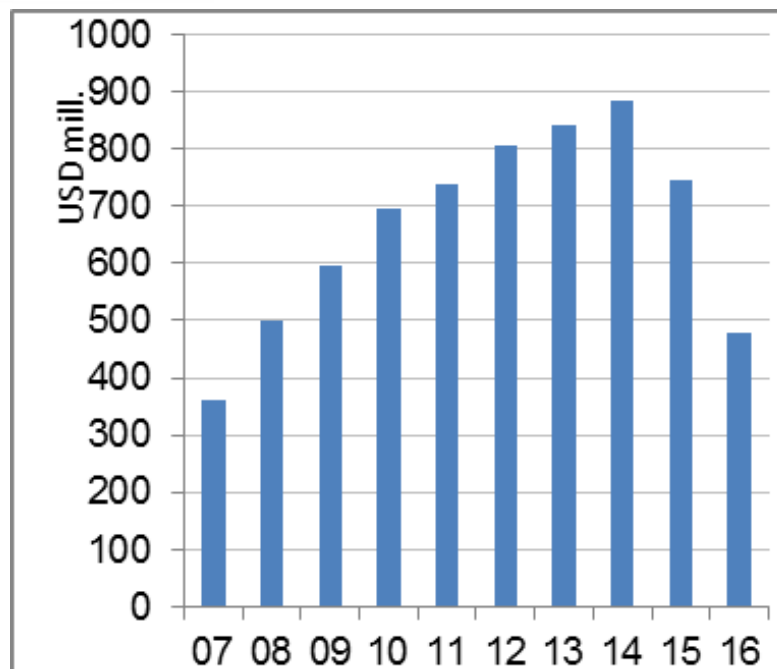
- 1) Do price disincentives hinder development of agriculture; any government measures in this respect?
- 2) Wheat, maize, sunflower, grapes: Please comment the situation in these markets; the domestic prices are lower than reference prices, can you describe possible reasons?

Armenia: Budgetary and other transfers to agriculture; 2007-2016



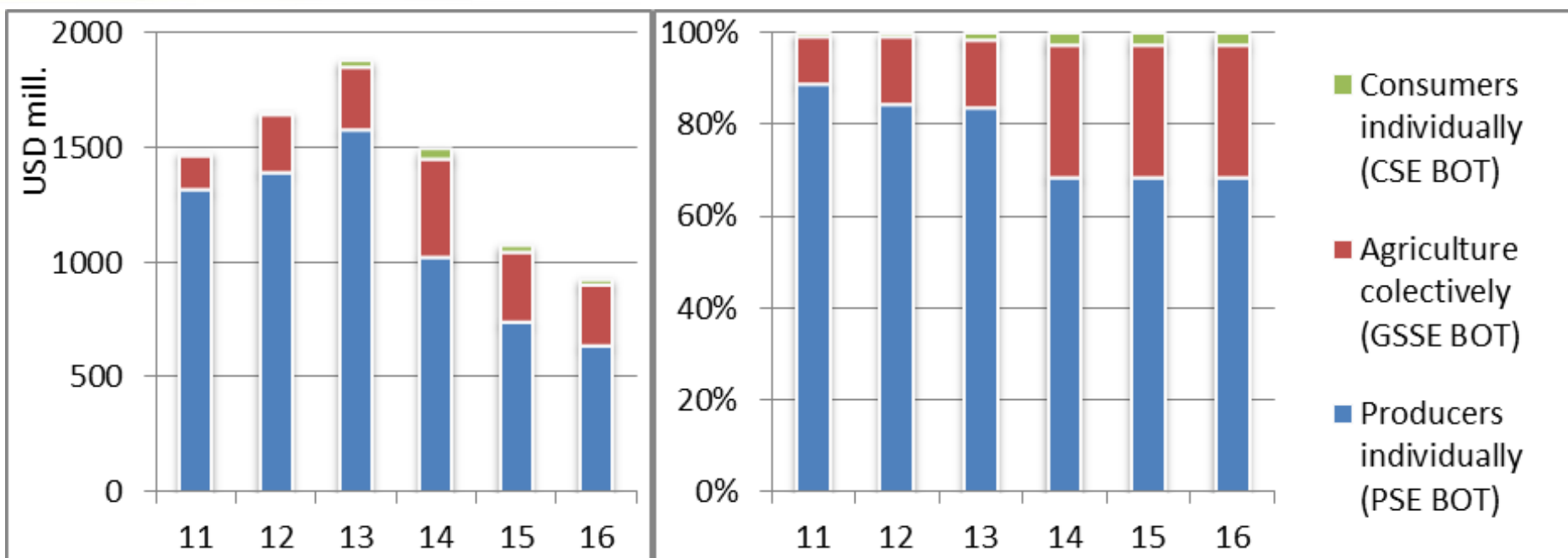
- **Low support;** about 2% of the total value of agricultural production (2.6% in 2015-16)
- Consumer budgetary support is not implemented
- In 2015-16 around 75% for partial subsidization of inputs and services (irrigation costs, fertilizers, fuel...)

Azerbaijan: Budgetary and other transfers to agriculture; 2007-2016



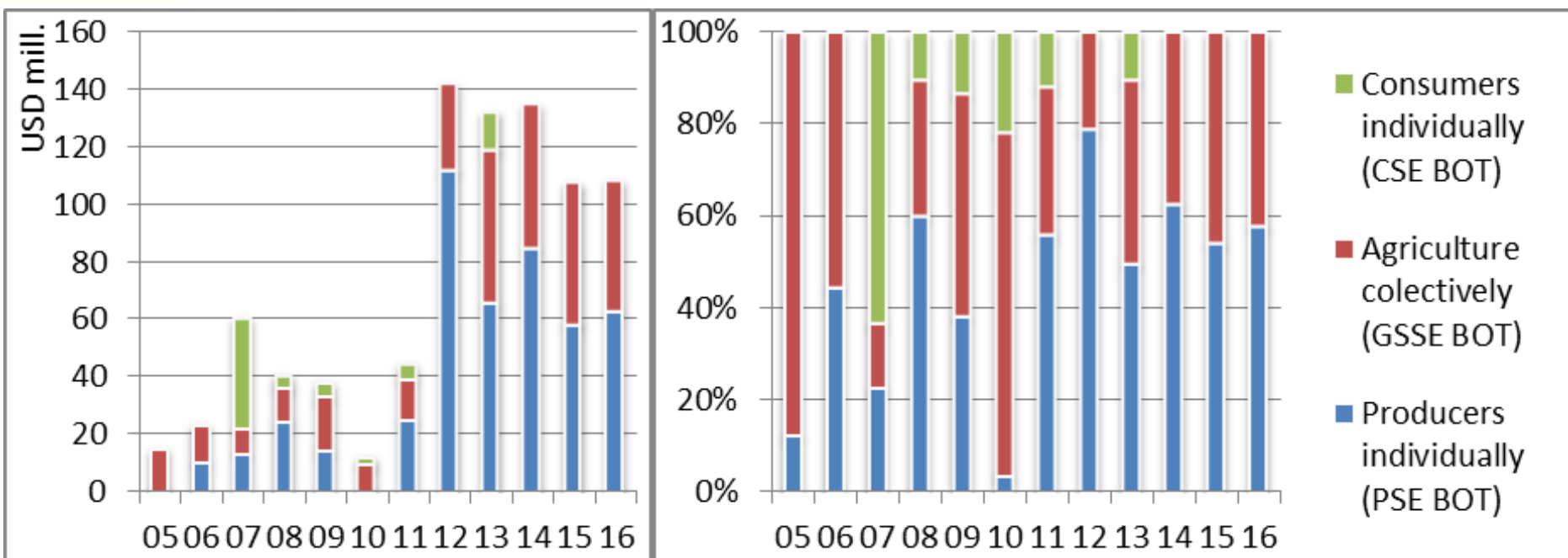
- **Relatively strong support**; about 14% of the total value of agricultural production (16% in 2015-16)
- Data available only for some direct producer support measures
- In 2015-16 around 75% are tax concessions and VAT exemption

Belarus: Budgetary and other transfers to agriculture; 2011-2016



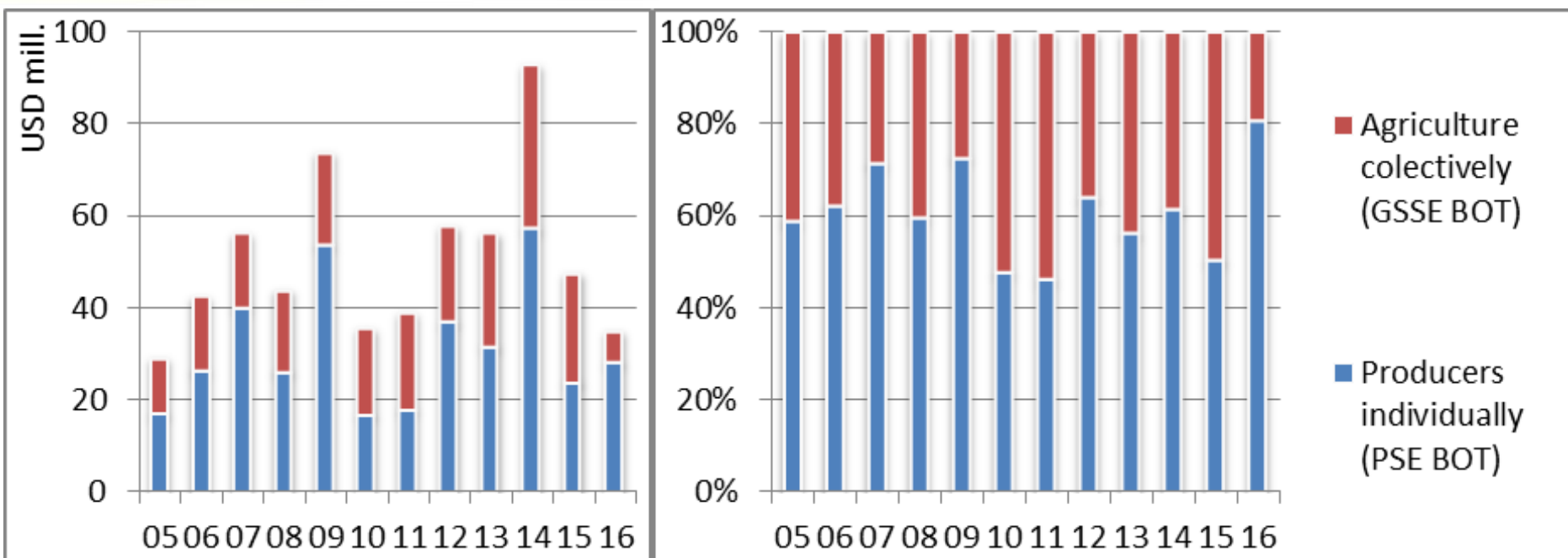
- **Decreasing strong support;** about 14% of the total value of agricultural production (12.5% in 2015-16)
- In 2015-16 around 69% for budgetary support to producers with the biggest share for repayments of debts and loans for purchased inputs and direct subsidies to farms

Georgia: Budgetary and other transfers to agriculture; 2005-2016



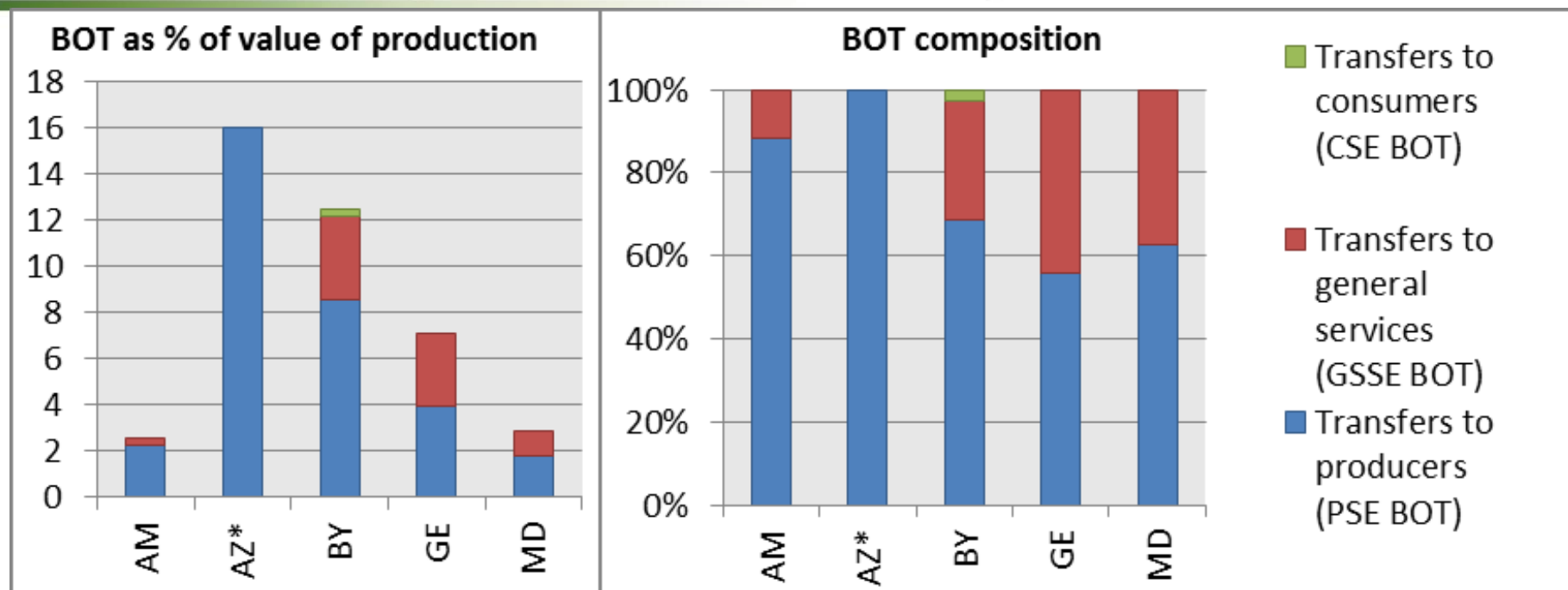
- **Support to agriculture varies significantly;** about 5% of the total value of agricultural production (7% in 2015-16)
- In 2015-16 cca. 56% for budgetary support to prod. and 44% for general services
- In 2015-16 around 9% payments based on output; 21% for subsidies for inputs and 26% for transfers reducing on farm investment costs

Moldova: Budgetary and other transfers to agriculture; 2005-2016

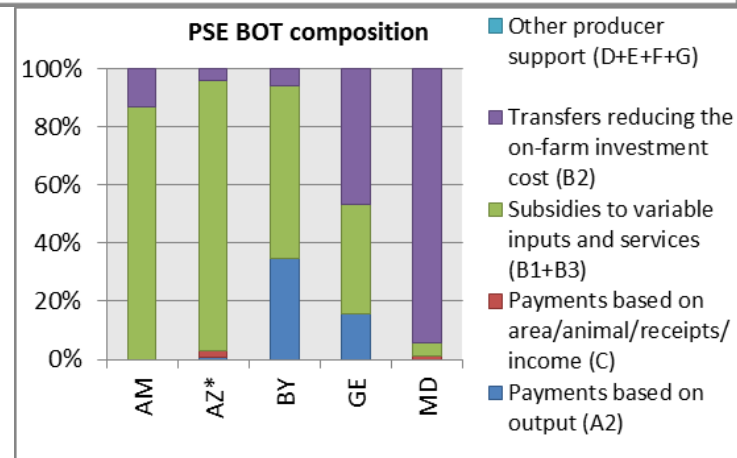


- **Relatively low support;** varies considerably between years; about 4% of the total value of agricultural production (3% in 2015-16)
- In 2015-16 around 65% for budgetary support to producers with majority for transfers reducing on farm investment costs; consumer budgetary support is not implemented

Total: Budgetary and other transfers to agriculture; average 2015-2016



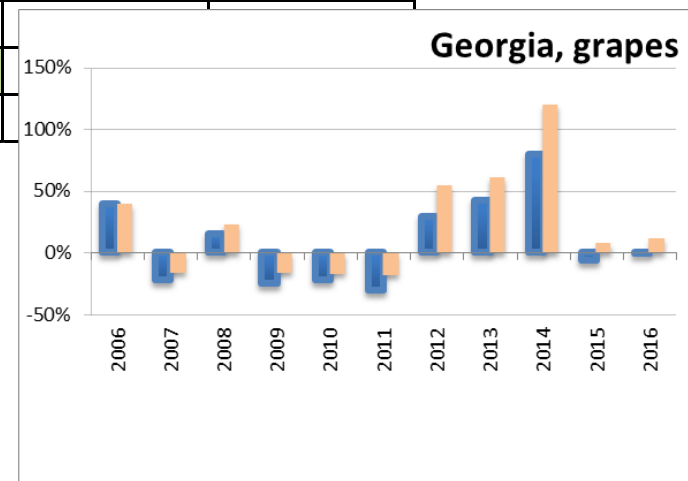
- Relatively strong support (AZ, BY), low support (AM, MD) and GE in between
- Composition of budgetary and other transfers to agriculture varies (100% for PSE in AZ and 56% in GE)



Budgetary and other transfers to agriculture, allocated by specific commodities & NRAs

Crops:	AM	AZ	BY	GE	MD
Wheat	2010-2013				
Maize					
Sunflower					
Tomatoes					
Potatoes			2012,2013	2009	
Grapes				2007-2016	
Hazelnuts					
Beans					
Livestock:					
Cattle meat (beef and veal)		2016			
Pig meat					
Sheep meat					
Chicken meat (Poultry meat)					
Cow's milk			2011-2016		
Eggs					

- **Only few measures commodity-specific;** small differences NRPs vs. NRAs (where applicable)
- **Grapes in Georgia;** only case where NRAs can be calculated for the whole period



Discussion

- **All countries:** Please give general comment about how realistic you find our estimations of price incentives/disincentives to agriculture for your country?
- **Armenia:**
 - 1) Does fairly liberal market situation (no incentives/disincentives) contribute to the increase in productivity and competitiveness of agriculture, taking into account prevailing subsistence farming and fragmented land structure?
 - 2) Pig meat: fairly high level of domestic prices?
- **Azerbaijan:**
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Discussion – cont.

- **Georgia:**
 - 1) Does fairly liberal market situation (no incentives/disincentives) contribute to the increase in productivity and competitiveness of agriculture, taking into account prevailing subsistence farming and fragmented land structure?
 - 2) Hazelnuts: situation in this market after 2013?
- **Kyrgyz Republic:**
 - 1) Which commodities will be in policy focus in the near future?
 - 2) Beans: do presented results show the real picture? Development of domestic prices in 2013 and 2014?
- **Moldova:**
 - 1) Do price disincentives hinder development of agriculture; any government measures in this respect?
 - 2) Wheat, maize, sunflower, grapes: Please comment the situation in these markets; the domestic prices are lower than reference prices, can you describe possible reasons?

Conclusions and recommendations

Preliminary results:

- **Three groups of countries by aggregate NRPs:** strong agricultural price incentives (AZ, KY), modest price incentives (AM, GE) and price disincentives (BY, MD)
Budgetary and other transfers to agriculture: relatively strong support (AZ, BY), low support (AM, MD) and GE in between
- Preliminary results confirm general aggregate trends in agricultural price incentives/disincentives estimated in AGRICISTRATE project (Erjavec et al., 2017)
- **Key factors influencing the estimations appear to be (further analysis recommended!):** besides policy related distortions also **market inefficiencies and imperfections** (limited market integration, asymmetrical distribution of market power, etc.); **quality and completeness of data**
- **Exact values of policy indicators need to be treated with some caution!**

Conclusions and recommendations - cont.

Recommendations for possible future similar efforts:

- Improve representativeness of analyzed commodities
- Additional training of partners (capacity building material, specific for the region)
- Additional validations of results

Overall conclusion:

- **MAFAP approach successfully applied in the analyzed countries**
- **Huge effort done by country experts and research team (45 commodity cases)!**
- **Highly recommended** to further invest in the expert network and building of national capacity for policy monitoring to enhance evidence-based policymaking in the region

Thank you for your attention!

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