Measurement of support to agriculture – the methodology used in project

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Motivation

- The measurement of support to agriculture one of the key issues for policy analysts.
  - The WB AgEcon group has been until now dealing mostly with budgetary transfers to agriculture.
  - This is giving a comprehensive, but not the whole picture about the total support to agriculture

- The PSE/CSE OECD methodology is a standard tool for measurement of support to agriculture
  - APM methodology enables to calculate also budgetary part of PSE (Producer Support Estimate)
    - The challenge is to:
      - calculate the market price support
      - ... and to develop adopted methodology.
Measurement of agricultural support

Content

A. Measurement of support to agriculture: PSE/CSE methodology
   – Concept
   – Some results

B. Total support to agriculture (PSE like concept)
   – Concept (and difference to PSE)
   – Deliverables

C. Working plan for APDAB-WB project
A. OECD PSE/CSE METHODOLOGY

PRESENTATION BASED ON VÁCLAV VOJTĚCH (OECD) PRESENTATION (27.3.2017)- PRAGUE UNIVERSITY OF ECONOMICS
Estimation of Support to Agriculture

- A method developed by the OECD secretariat and approved by member countries – Producer Support Estimate (PSE).
  - Various nominal and relative indicators used in the analysis of development of agricultural policies.
    - Relative indicators enable comparability across countries and in time.
    - Detailed information on the results and the methodology used to estimate support is available on the public website www.oecd.org/agriculture/PSE.
  - Focused on OECD countries.
    - EU covered in the report as a single entity (but detailed information on member countries).

- Extension of country coverage
  - 1990s focus extended to countries from CEEC (future EU members) + Russia and Ukraine.
  - 2000s – Going global (Brazil, India, China, South Africa).
  - 2010s – More global players added (Indonesia, Kazakhstan, Colombia,...).
How OECD measures support to agriculture

• **Components of the support**
  – **Direct budgetary payments** (transfers from taxpayers to agricultural producers);
  – **Market price support** (Transfers from consumers to agricultural producers – opportunity cost to consumers).

• **What policies are considered in the calculations?**
  – only those policies that are **specific to agriculture**; general policies not considered;
  – policy objectives are not considered;
  – policy implementation criteria determines the classification of policies in pre-define categories.

Vojtěch (2017)
Measurement of agricultural support

Measuring support to agriculture: Building blocks

Vojtěch (2017)

MPS: Market Price Support
BT: Budgetary Transfers

Taxpayers

Consumers

Agricultural sector

Agricultural producers

BT incl. revenue foregone

MPS

TSE

PSE

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Market Price Support – the concept

From Consumers to Producers

From Taxpayers to Producers

PP: producer price
BP: Border price
MPD: market price differential

Vojtěch (2017)
Key support indicators – nominal values

**Producer Support Estimate (PSE):**
- transfers from consumers and taxpayers to producers;

\[
PSE = \text{Market Price Support} + \text{Budgetary payments} + \text{Budgetary revenue foregone}
\]

**Market Price Support (MPS):**
- transfers from (primary) consumers to agricultural producers:

\[
MPS = \text{Quantity of domestic production} \times \text{Price gap (domestic – world pr.)}
\]

**Consumer Support Estimate (CSE):**
- transfers from (to) consumers:

\[
CSE = (\text{Quantity of domestic consumption} \times \text{price gap}) + \text{consumer subsidies}
\]

**General Services Support Estimate (GSSE):**
- budgetary transfers to general services for the farming sector;

**Total support Estimate (TSE):**
- transfers to agriculture

\[
TSE = \text{PSE} + \text{GSSE} + \text{consumer subsidies (transfers from taxpayers)}
\]
Relative indicators

**Percentage PSE (%PSE):**
- Transfers to individual producers as a share of gross farm receipts;

**Percentage CSE (%CSE):**
- Transfers to (from) consumers as a share of consumption expenditure;

**Nominal Protection Coefficient (NPC):**
- Ratio between producer price and border (world) price;

**Nominal Assistance Coefficient (NAC):**
- Ratio between gross farm receipts incl. support and gross farm receipts valued at border prices (without any support);

**Percentage GSSE (%GSSE):**
- Nominal GSSE as a share of Total Support Estimate;

**Percentage TSE (%TSE):**
- Nominal TSE as a share of GDP.

Vojtěch (2017)
OECF average hides large variations of support among countries

- OECD average hides large variations of support among countries

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European Union: Level and structure of support

Support based on:
- Commodity output
- Input use
- Current A/An/R/I, production required
- Non-current A/An/R/I, production required
- Non-current A/An/R/I, production not required
- Non-commodity criteria
- Miscellaneous

% of gross farm receipts

Vojtěch (2017)
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B. TOTAL SUPPORT TO AGRICULTURE (TTP)
(PSE LIKE CONCEPT, DEVELOPED BY M. REDNAK ET ALL)
Why to use TTP approach?

• **Data quality**
  – weaker availability and quality in WB than in OECD countries

• **Intellectual property**
  – PSE/CSE method is a trade mark of OECD, practically not used by other researchers
  – the Slovenian AgEcon research group developed own approach accepted in the EU horizon project and published in research paper

• **Objectives**
  – to test the method in combination with APM methodology in one of the WB countries
  – BH selected (Faculty for agriculture, Sarajevo agreed)
NOTES TO METHODOLOGY

%NPR = Nominal Protection Rate

Quantitative assessment of price protection

\[ \%NPR_i = \frac{PP_i}{RP_i} \times 100 - 100 \]

\[ \%NPR_c = \frac{\sum PP_i \times QP_i}{\sum RP_i \times QP_i} \times 100 - 100 \]

where

- \( i \) = individual commodity
- \( c \) = country aggregate
- \( PP \) = Producer price
- \( RP \) = Reference price
- \( QP \) = Quantity of Production.
NOTES TO METHODOLOGY

**TTP**  \textit{Total transfers to producers in \% of the total value of agricultural production (\%TTP)}

\[ \%TTP_c = \%MPD_c + \%PSE\ BOT_c \]

Where

\[ \%MPD_c = \frac{\sum MPD_i}{\sum VP_i} \]
\[ MPD_i = PP_i - RP_i \]
\[ \%PSE\ BOT_c = \frac{\sum PSE\ BOT_j}{VP_c} \]

\( c = \) country aggregate
\( i = \) individual commodity for commodities for which \%NPRs has been calculated
\( MPD = \) market price differential; \( PP = \) producer price, \( RP = \) reference price
\( j = \) individual PSE or GSSE category; \( PSE\ BOT = \) budgetary and other transfers to producers
\( VP = \) value of Production (agricultural output)
**Measurement of agricultural support**

**Comparison of PSE and TTP methodology**

<table>
<thead>
<tr>
<th>Percentage Producer Support Estimate (%PSE)</th>
<th>Total transfers to producers in % of the total value of agricultural production (%TTP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[%PSE_c = \frac{PSE_c}{GFR_c} \times 100]</td>
<td>%TTP_c = %MPD_c + %PSE BOT_c</td>
</tr>
<tr>
<td>Where</td>
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<tr>
<td>[PSE_c = MPS_c + BOT_c]</td>
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<td>[MPS_c = \sum (MPD_i \times QP_i − LV_i − EFC_i)]</td>
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</tr>
<tr>
<td>GFR_c = gross farm receipts of country c</td>
<td>c = country aggregate</td>
</tr>
<tr>
<td>VP_c = total value of production of country c</td>
<td>i = individual commodity for commodities for which %NPRs has been calculated</td>
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<td>BOT_c = budgetary and other transfers to producers</td>
<td>%NPRs has been calculated</td>
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<td>MPD = market price differential of commodity i</td>
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<tr>
<td>QP_i = quantity produced of commodity i</td>
<td>PP = producer price</td>
</tr>
<tr>
<td>LV_i = price Levies for commodity i</td>
<td>RP = reference price</td>
</tr>
<tr>
<td>EFC_i = excess feed cost for commodity i (livestock commodities only)</td>
<td>j = individual PSE or GSSE category</td>
</tr>
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<td>PSE BOT = budgetary and other transfers to producers</td>
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Measurement of agricultural support

PRICE SUPPORT – %NPR

**CASE:** selected CIS countries (2011-12)
BUDGETARY TRANSFERS
to producers (PSE BOT) by categories
Measurement of agricultural support

% TTP (Selected CIS countries, 2011, 2012)

Data issues!
Agricultural Policy Developments and EU Approximation Process in the Western Balkans Countries (APDAP-WB)

C. WORKING PLAN
Tasks for BH partner
(support by Slovenian team)

• **Data preparation and calculation of indicators:**
  – calculation of value of production
  – preparation of domestic and reference prices
  – calculation of indicators

• **Upgrading of APM approach**
  – including the additional indicators
  – presentation of results

• **Short comments in the country report for BH**