Producer Subsidy Equivalent and Drivers of agricultural subsidies in Bangladesh

Presented by:
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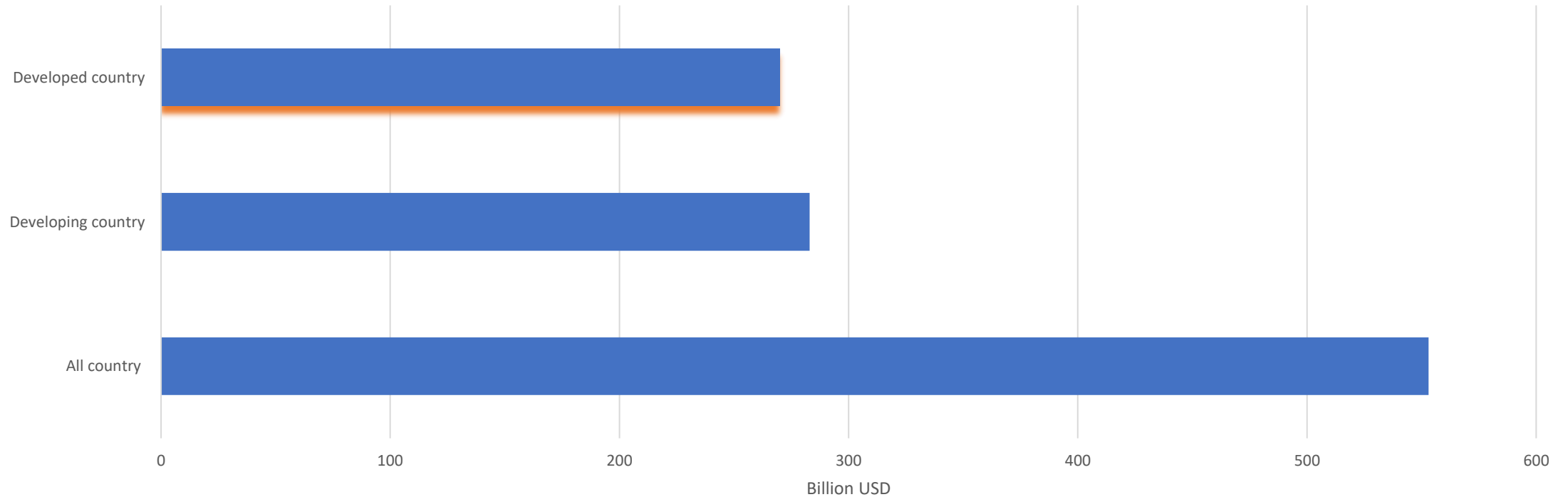PhD Candidate, University of South Australia.

Background:

- In many developing countries, the agricultural sector is among the largest contributors to GDP (Awokuse & Xie, 2015)

- It is also one of the largest contributors to rural population incomes and sustenance and the source of national food self-supply and security for urban populations.

- Governments in such contexts, face a dilemma. Implicitly taxing farmers with policies that hold price paid for food below global market prices are a politically and economically popular strategy favoring consumers of food but at a cost in farm household income.

- Politicians often consider low food prices is important for food security and political security.

Background:

- There has been lots of research on impact of subsidy on farms' performance and efficiency, less research exists on how policy settings and market conditions influence net subsidy.

- Study of farm-subsidy on farm performance have mixed outcome.

- Regardless of effectiveness, subsidy levels in developing countries have risen over time historically.

Background:

Annual Agricultural Support provided by 54 countries in 2017 to 2019 reported in OECD database

Background:

- However, few studies on central level or total agricultural subsidy. These studies shows, per unit agricultural support increased with the increase of countries GDP, decreased rate of agricultural share(R. A. Lopez, He, and De Falcis (2017)). Few studies found, right wing government or election year, natural disaster has a positive impact on total agricultural support (Klomp and De Haan (2013).

- One limitation of this studies is most of them focused on industrial countries or upper middle-income countries.

- There are few studies that investigate the drivers of agricultural subsidy in developing or low-income countries.

- This study contributes to the literature as one of few studies for a developing countries.

- This study also forecast future prediction/movement of total agricultural support which will help to formulate policy in this regard in a better way.

Hypothesis:

- **Hypothesis 1**:

Agricultural support policy will ensure farmers' welfare

- **Hypothesis 2**:

Agricultural support policy will be an organized policy.

Methodology:

- ## PSE

Following (USDA, 1994), PSE can be defined as-

$$\bullet \quad PSE = \frac{(P - P_w)Q + I}{PQ} \text{......................(1)}$$

Where Q is the quantity produced, P is the domestic price, Pw is the border price in domestic currency, and I is expenditures on input subsidies. PSE can then be decomposed into output policy transfers $(P - P_w)$/PQ and input policy transfers I/PQ.

Methodology-DID

- **Political-Economy model**

Following the fact and explanatory variable and previous work (R. Lopez & Hathie, 2000; R. A. Lopez et al., 2017), we specify the following equation for explaining the determinants of PSE in Bangladesh:

$$PSE_{it} = \alpha_0 + \sum_j \alpha_j Y_{jt} + \sum_k \beta_{kit} Z_{kit} + U_{it} \dots\dots\dots\dots(2)$$

Where, PSE_{it} is the producer subsidy equivalent of the product i at the year t, Y_{jt} is the national level variables such as, per capita real GDP of the year i, agriculture share of the year i, natural disaster in 2007, political regime, food security importance in election manifesto. Z_{kit} is vector of commodity specific variables such as self-sufficiency, production of the previous year, U_{it} is the error term.

Methodology:

- In our second regression we used total amount of agricultural support as dependent variable. The equation is as follows-
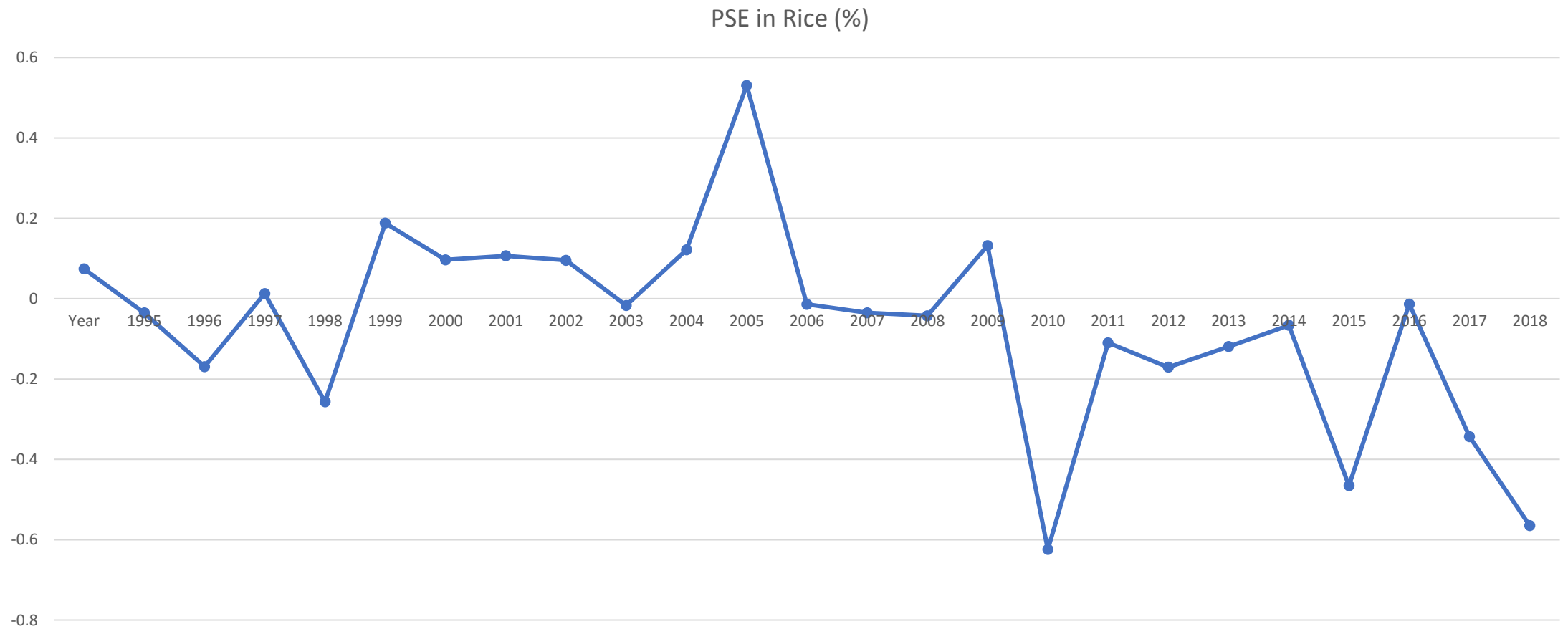
$$Y_{it} = \alpha_0 + \sum_j \alpha_j \, Y_{jt} + \sum_k \beta_{kit} \, Z_{kit} + U_{it} \ldots\ldots\ldots\ldots(3)$$

- Where, Y_{it} is the total agricultural support for the commodity i in year t. independent variables are similar with equation 6. Here we added international urea price as an added explanatory variables as majority of our total agricultural support are used to provide fertilizer subsidy which we discussed in chapter two. International urea price is highly volatile, and it might have an impact of total agricultural support.

Data

- Multiple sources

- 1991 to 2019

- FAO (Food and Agriculture Organization of the UN) for production statistics

- Ministry of Agriculture, Bangladesh and WTO for subsidy statistics

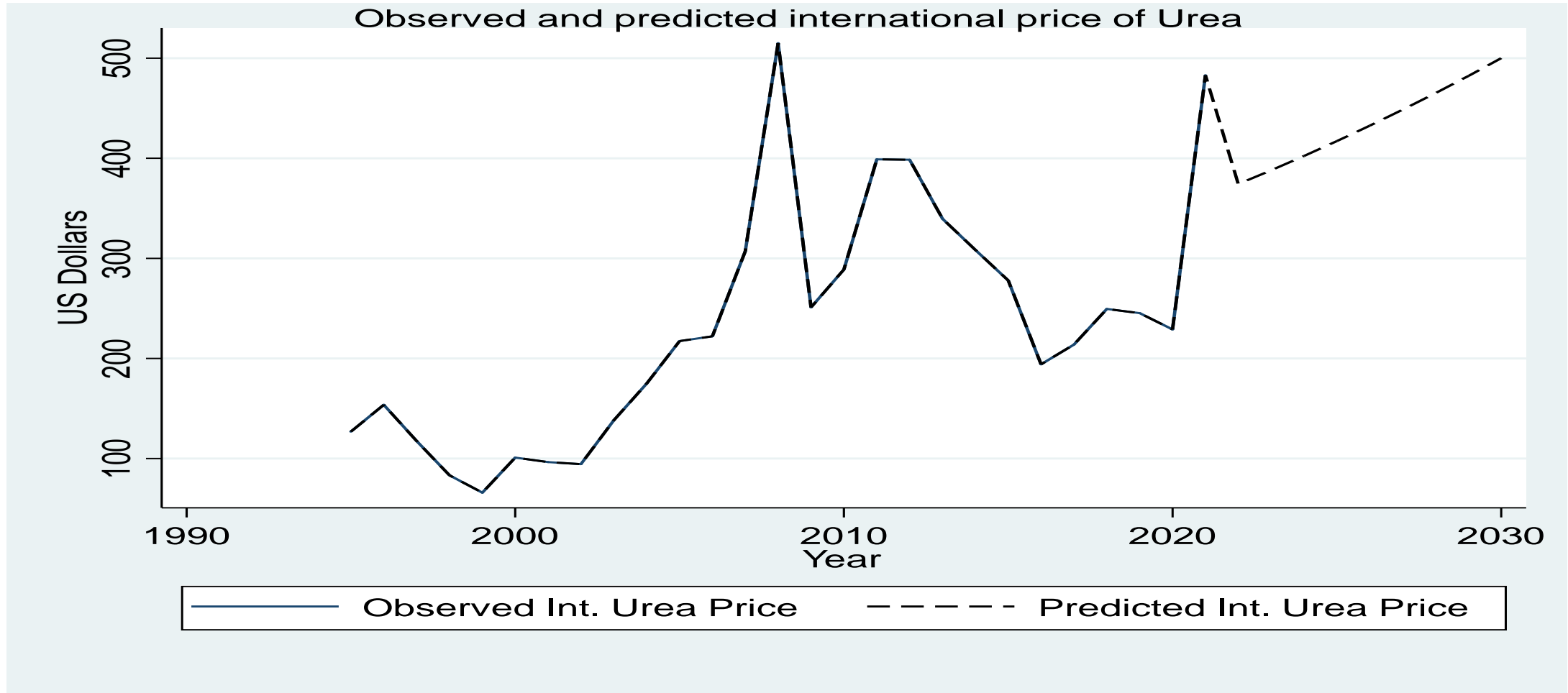- World Bank database

- Other sources

Results:

PSE in Rice (%)

Results: Determinants of Rice PSE

VARIABLES	PSE
Per capita real GDP	-6.90e-05** (-0.0000279)
Agricultural Share	-0.396* (-0.203)
Natural disaster 2007	-0.444* (-0.238)
Political regime	0.563 (-0.34)
Rice self sufficiency	0.544 (-1.222)
Previous year's rice production	0.0952 (-0.0631)
Last year PSE	-0.601** (-0.24)
Trend	-0.0337 (-0.142)
Food security priority	-0.837* (-0.45)
Exchange rate	-0.036 (-0.0233)
Constant	9.645* (-4.788)
Observations	24
R-squared	0.685

Results:

The impact of extension service on net farm return

VARIABLES	Policy transfers million bdt
Per capita real GDP	0.217 (-0.558)
Agricultural Share	-588.9 (-1,793)
Natural disaster 2007	-4,496 (-7,017)
Political regime	472 (-3,601)
Rice self sufficiency	-9,144 (-29,057)
Previous year's rice production	405.3 (-1,214)
Trend	-1,150 (-2,480)
International urea price	0.617** (-0.226)
Food security priority	9,277 (-7,168)
Constant	12,543 (-56,480)
Observations	25
R-squared	0.79
Notes Titles: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

Agricultural Subsidy forecast from 2022 to 2030:

Discussion and conclusion

- Providing agricultural subsidy is a common phenomenon in almost all developed country and other developing countries of the world

- We found that agricultural support ie. PSE has significant relationship with the per capita real GDP, agricultural share of GDP, natural disaster year of 2007 and the political importance of food self-sufficiency.

- the policy favors the consumers rather than producer.

- Agricultural support is less than10% of the value of product, developed country provides on an average 65% value of their agri-products.

- We found a modest growth of total agricultural support might be seen which is not more than 20% of the present amount in real values.

- We conclude that, the present agricultural support policy need to be more producer friendly so that farmers' welfare is ensured.

Thank you

Q&A